LONG-RANGE PATROL OPERATIONS:

RECONNAISSANCE, COMBAT, AND SPECIAL OPERATIONS

James W. (Jim) England
Master Sergeant
U.S. Army (Ret)

LONG-RANGE PATROL OPERATIONS:

RECONNAISSANCE, COMBAT, AND SPECIAL OPERATIONS

Long-Range Patrol Operations:
Reconnaissance, Combat, and Special Operations
by James W. (Jim) England, Master Sergeant, U.S. Army (Ret.)

ISBN 0-87364-403-4
Printed in the United States of America

Published by Paladin Press, a division of
Paladin Enterprises, Inc., P.O. Box 1307,
Boulder, Colorado 80306, USA.
(303) 443-7250

Direct inquiries and/or orders to the above address.

LONG-RANGE PATROL OPERATIONS:

RECONNAISSANCE, COMBAT, AND SPECIAL OPERATIONS

James W. (Jim) England
Master Sergeant
U.S. Army (Ret)

PALADIN PRESS
BOULDER, COLORADO

IN MEMORY OF

Dean Allen Borneman, Specialist 4,
United States Army Company K RANGERS (LRP),
75th Infantry Regiment (Airborne), killed in action,
Republic of Vietnam, January 28, 1970

A super-LRP and outstanding young American
who did his duty

Contents

Definition

Long Range Patrol (LRP), or Long Range Reconnaissance Patrol (LRRP), pronounced "LURP": The LRP is a military unit specially organized, equipped, and trained to function as an information-gathering unit responsive to the intelligence requirements of the battlefield commander. It has the ability to perform limited direct combat operations against enemy forces and/or targets. The LRP consists of highly trained and motivated members qualified to perform reconnaissance, surveillance, and target acquisition, and engagement operations within the controlling or supported unit's area of interest or influence. The LRP element is employed as either a "deep penetration" force, or for extended duration missions, or both. The LRP relies on small size, stealth, and superior training either to avoid contact with the enemy or to defeat a superior enemy force through short-duration violent action.

Preface

Why a book on long-range patrol (LRP) operations? I suppose my primary reasoning for writing such a book came from the lack of published information on the subject and a long-standing desire to be a writer. That, and the fact that most of the books dealing with patrolling are generally just a rehash of old material, or are geared to squad- or platoon-sized conventional patrol operations. I felt what was needed was a book dealing with the more unique aspects of the deep penetration nature of LRP operations, especially in today's combat environment.

For the reader who was hoping for a detailed account of LRP operations during the Vietnam War, I hope you will not be too disappointed that I have refrained from providing one. Certainly, lessons learned from that longest of America's wars have been incorporated, but so have lessons from British SAS operations in Malaysia and the Falklands. And yes, lessons learned from Special Forces SOG operations, Marine Force Recon, and Navy SEALs have also made it between the pages.

For those eager to hear the Vietnam LRP story, that is my current endeavor. It is hoped this book will either whet your appetite for the next one, or at least keep you from getting bored until then.

My objective in this book has been to provide an up-to-date, usable, and informative book on how to conduct LRP operations--not just leading the team on the ground, but also selecting, training, and employing them. I believe the information provided will be of use (and interest) not only to those interested in military science as an area of study, but also to the soldiers and noncommissioned officers who may be called upon to conduct LRP operations, commanders, staff officers, and military tacticians and strategists.

The knowledge and ideas put forth come not just from me. I am just the recorder, having spent years learning from others. Of course, at the same time, there are certainly some lessons I learned on my own. Unfortunately, it would be next to impossible—even if I could remember them all—to name all of the NCOs from whom I gained valuable knowledge during my years in the army. Whether from military training courses, field manuals, lesson plans, or talks over a cold beer, there are countless unnamed contributors to whom I owe a great deal, and without whom this book would not have been possible.

Naturally the crew at Paladin Press deserves recognition for having faith in me and putting this monster together: Peder Lund, President and Publisher, my editor Rose-Marie Strassberg, and all of the hard-working staff.

Of course, a very special thank-you must go to my beautiful wife of sixteen years (thanks, Susan), who put up with countless hours of me pecking away at my keyboard, listening to my "squeaky" chair, and most of all keeping the money coming in while I devoted my time to writing. And last, but not least, thanks also go to James, Jr., and Charles D., my two sons, whose encouragement and support helped me through rough days and nights.

I hope you, the reader, enjoy and find the results of this effort to your liking.

James W. England
Master Sergeant
U.S. Army, Retired
Columbus, Georgia
October 13, 1986

Introduction

It's only an hour to sunset as a six-man patrol moves quietly and cautiously through the triple canopy jungle. The light is dim, the ground cover sparse. Visibility is less than thirty meters due to the density of the trees and other vegetation. Each move by the patrol is planned and with a purpose—no energy is wasted. The men are barely visible in their surroundings. Their tiger-stripe fatigues and equipment and their highly disciplined movement techniques combine to make them all but invisible in their surroundings. Their movement is slow, quiet, and alert. Stopping every five to ten minutes to look and listen, each man is ever watchful of his surroundings and assigned sector. The rear guard takes care to disguise its back trail as much as possible. The point man diligently searches for signs of the enemy's presence.

As sunset draws near, the dim light grows even fainter. The team makes a sweeping circle to its right, coming to a halt overlooking its own trail of only minutes before.

The team members halt with only a single hand signal to direct them. Automatically they move into a small circular perimeter, kneeling quietly and intently focusing all their senses on their surroundings. After almost ten minutes of total silence and absence of movement, another hand signal. Two of the men move silently out of the circle to scout the surrounding area for signs of the enemy. The four remaining men maintain their silent but alert vigil in the surrounding jungle, eyes constantly sweeping from the treetops to the ground and from left to right, weapons at the ready.

After what seems like an eternity, the two scouts return. One has a very short ear-to-mouth conference with the team leader. He nods and issues another silent hand signal. Quietly and in pairs, the team begins to prepare a base for the night, one man keepiug watch on the jungle while his teammate silently clears dead leaves, twigs, or anything else that might create an unwanted sound. Rucksacks are quietly removed and placed back-to-back in the center of the tight circle.

Finally satisfied with the organization of their position, two men secure canvas satchels and move out of the circle with their weapons ready. The others sit with their backs to the center, resting but totally alert for any sign or sound of the enemy's approach.

Slowly the two men make a circuit of the position, quietly emplacing four Claymore mines, two to cover their back trail and twe to cover separate escape routes should the team's position be attacked. If they are being tracked, the two mines on their back trail will give the trackers a rude welcome.

As the two men return to the position, the team starts settling in for the night. There will be no smoking, fires, talking above a whisper, standing, nor even much movement. Silence and alertness will be maintained. Cold rations will be eaten, one man at a time. Constantly in touch with their weapons, every movement deliberate and planned, the team will leave their equipment on, except for their heavy rucksacks.

After a quiet and uneventful night, the first light of a new day slowly begins to filter through the jungle canopy. One of the men senses movement to the left front. Silently each team member is alerted to the possible danger. Each man automatically begins scanning his area of responsibility. Not a word is spoken. They have trained hard, aud every movement has been rehearsed until the actions are automatic.

As the telltale sounds of an enemy force moving through the jungle move closer, the team leader grips the detonator connected to the Claymore mines put out the evening before. Each man is tense, intent on ensuring that he sees the enemy before they see him.

Suddenly, about fifty meters away, the enemy force becomes visible. It is moving slowly, alertly sweeping the area to their front. A tracker is expertly following the team's track from the day before. The team leader counts sixteen men, lightly armed and ready for action. They continue moving along the team's back trail until less than twenty meters separates the two forces.

Suddenly a tremendous blast breaks the morning calm as the team leader depresses the electric detonator. Dirt, rock, vegetation, and the screams of dying men rend the once quiet morning air. From the team's position a hailstorm of hot lead saturates the killing zone. In but a few seconds time 180 rounds of deadly automatic fire smother the enemy force.

Just as suddenly as it was broken, silence returns. Only the moans of the dying and wounded can be heard. In seconds the enemy force has been destroyed.

Cautiously, and in pairs, the team members struggle into their heavy rucksacks and move away from the killing zone. They will spend the next few hours putting distance between themselves and the contact area so that they can continue their mission of deep reconnaissance behind the enemy's lines.

This small but highly trained and disciplined team has dealt a quick but deadly blow to a larger enemy force with no losses of its own. The team members have learned their lessons well, and again proven the deadly capabilities of the LRP.

The LRP is a highly trained and specialized force which can be infiltrated deep into enemy territory by a variety of means to obtain intelligence information, disrupt operations, commit sabotage, and generally throw sand into the gears of the enemy's war machine. They must be able to penetrate by air, land, or sea by parachuting, paddling, or walking to their operational area. This need alone demands a very high state of physical and technical training. They must also be able to operate in very small self-reliant teams isolated from higher command for long periods of time. These requirements demand physical fitness, psychological compatibility, a high degree of intelligence and common sense, and individual self-reliance. Every man must have, in addition to the basic soldier skills, special abilities that reinforce the team, including demolitions, linguistics, tracking, and knowledge of power systems, industrial installations, railway systems, and so on. By having highly qualified personnel with a variety of specialties, a team can quickly be assembled for a particular task. The personnel selected must possess self-discipline, be capable of keeping silent about their work, be intent on avoiding publicity, and be willing to conduct themselves off duty in an unassuming and anonymous manner. Their potential missions include reconnaissance of obstacles and intelligence acquisition; sabotage, raids, ambushes, and sniping of key personnel; locating enemy nuclear facilities, command, and communications centers; disrupting deployments, economic targets, power distribution systems, and transportation arteries; and conducting counterinsurgency operations. A highly versatile and deadly force.

For the battlefield commander, the timely acquisition of intelligence on enemy forces and deep targets allows for more effective employment of combat forces and supporting weapons systems, the critical factors that decide the outcome of battles and wars. From aerial observation to communications monitoring and electronic sensor devices, modern military commanders have an impressive array of intelligence acquisition means available to them. However, our fascination with technology has resulted in the development of people-sniffers, defoliants, seismic and acoustical devices, radars, and sundry black boxes to the point where we are in danger of failing to make the critical distinction between equipping men and manning equipment. Certainly the latest technology must be employed to do those things that men cannot do as well, and to supplement human capabilities whenever possible. However, the error we are inclined to make is to rely too heavily upon hardware when experience dictates that a mix of men and machines is the more desirable and more efficient approach.

Certainly the desire to reduce casualties by limiting the individual soldier's exposure to danger is highly commendable. However, when systems fail, as they often do, the danger to the soldier can be even greater than the original danger we were trying to avoid. Even in this day and age, equipment breaks down and requires periods of maintenance. Operators still become numb staring at screens and concentrating on sounds. Mistakes are made and machines fail just when we have been conditioned to rely on them, and wind, animals, temperatures, and enemy countermeasures can make their reliability, and accuracy, highly suspect.

All the computers and gadgetry in the world cannot win the fight without that all-important human element. We can no more replace a seasoned commander with an "intelligent computer" than we can replace an experienced observer with electronic sensors. However, modern technology can make their job easier and increase efficiency. Based on computer logic and simulations, the Israeli raid on Entebbe, Uganda, should never have succeeded. Just as a computer cannot replace the will to win, neither can a sensor tell you what type of tank it has detected, its condition, or the status of the crew. Finding targets, determining their priority of engagement, and accurately engaging them is still more efficient when the human equation is included, and thus remains the preferred method. The hazards of employing long range patrol elements must be considered an acceptable risk that can be justified many times over through success on the battlefield as a result of timely, and qualified, combat intelligence acquisition.

To win on the modern battlefield still requires combat personnel on the scene who are capable of sensing the actual situation, reporting impressions, evaluating intentions, and reporting back to the commander who must make the decisions in real time. Regardless of how subject to error the human observation may be, gut feelings and instinct still spell success. The force that denies them is destined to lose.

One method of gathering intelligence has remained in use throughout centuries of military operations—that of sending a soldier on the ground to "snoop and poop." A highly trained and properly employed ground patrol is still the commander's most flexible and dependable means of acquiring targets and intelligence data, even when the potential for human error and exaggeration are considered. Unlike implanted sensors, people sniffers, seismic and acoustical devices, radar and other electronic equipment, the ground patrol can be redirected when the situation or intelligence dictates.

The most effective intelligence acquisition programs are those that blend the latest technology and highly trained soldiers together as a team. Technology must be used to supplement human capabilities, not replace them. The human factor assists the operators of technical equipment by corroborating and expanding on the intelligence gathered. This in turn aids in the overall assessment of the intelligence data. Timely and detailed combat intelligence and target acquisition data are a considerable force multiplier on today's fast-paced and fluid battlefield, increasing the commander's flexibility in the employment of his forces.

The trained and experienced reconnaissance and intelligence team can turn seemingly bland data into useful combat intelligence. Lightly equipped enemy soldiers without packs can be assumed to be close to their operating base, while men heavily laden with packs and equipment are redeploying to a new location. All armies have routines that can divulge timely combat intelligence. They eat at certain times and in certain orders. A field kitchen is manned and equipped to feed a specified number of soldiers.

Latrines in base camps have a direct numerical relation to the number of troops served. This is the type of seemingly unimportant information that can be parlayed into useful combat intelligence that only a man on the ground can accurately report.

Properly developed and applied patrolling strategy and tactics provide the force that excels at it the eyes and ears on the battlefield, and serve to blind the enemy. An aggressive ground patrol plan provides the commander with timely intelligence data and also provides a special purpose force for sniper missions, ambushes, raids, and destroying critical targets.

The art of patrolling, although constantly changing over the years, still retains certain principles. New lessons may be learned and added and missions modified, but the patrol in general has remained the same. However, patrol operations come into their own when properly planned and executed by well-led, highly trained, properly equipped, and dedicated soldiers. As with all military operations we must continue to evaluate the how, when, and why of these operations, what their missions should be and how they mesh with other elements of the force.

Armies have frequently developed specialized organizations for ground patrol operations in both reconnaissance and combat. Today, to achieve maximum patrol effectiveness across the broad spectrum of combat requires a dedicated unit with the conduct of small patrols as its sole mission. During World War II, specialized units dedicated to patrolling in many cases developed a folklore all their own. Units such as the British Long Range Desert Group (LRDG) and Special Air Service (SAS) came into existence during the desert war and performed valuable intelligence services. The British Army and Marine Commandos and Special Boat Service (SBS) were also successful units, while the U.S. Army Rangers, Navy Underwater Demolitions Teams (UDT), and Marine Raiders also conducted specialized patrol operations with considerable success. Failures by these elite units were more often than not attributable to misuse by higher level commanders rather than unit error. Although all of these units did not perform strictly patrol missions, all served to hone and perfect patrolling as an art and force multiplier.

The postwar period saw the continued development of temporary or permanent specialized units, using patrolling as a primary or secondary method of operation. Much of this specialization evolved around the long range, or deep penetration, patrol. The major catalyst behind this development was the spread of insurgency and counterinsurgency warfare, or wars of national liberation. In this type of warfare the art of patrolling reached its zenith with capabilities and tactical and strategic value increasing tenfold or more. The patrol at times became the principal rather than the supporting method of operation.

One of the most difficult problems in counterinsurgency warfare is finding the enemy; the war is fought on a battlefield that has neither a front nor a rear. The enemy himself is the only valid point of reference, and it is he who dictates the limits and dimensions of the battlefield. For these reasons patrolling has come into its own. It has been proven time and again that a small group of well-trained soldiers can survive in the enemy's environment; can penetrate deeply to locate the enemy's safe havens; can either gather intelligence for future operations, or from concealed positions direct aircraft or long-range artillery fires; or engage directly unsuspecting enemy units. The enemy can admittedly be hard to find, but finding him is not an impossible task. The enemy's habitats and habits provide definite fingerprints and often provide the clues that a patrol relies on for success.

The SAS has become the principal, if not primary, means of human intelligence gathering for the British forces. Trained in combat operations as well as reconnaissance methods, they are capable of conducting long-range patrol operations during any type of armed conflict.

Although the SAS has operated in a wide range of areas since World War II, its most recent and well-known operations were conducted by the 22nd SAS Regiment and the SBS during the Falklands War. They deployed long-range patrol elements to acquire targets and intelligence data for British forces. Perhaps their longest, and certainly very successful, operations were conducted during the counterterrorist emergency, in Malaysia, where they were at times the primary combat force, with other operations deep in terrorist-infested territory to find the enemy so they could be engaged by supporting forces and long-range weapons systems.

The most distinct differences between SAS operations and U.S. Army LRP operations in Vietnam was their unit mission, method of command and control, and duration of individual team missions. Regardless of any operational and organizational differences, however, the general concept was still the same; that of small, highly trained teams operating in enemy controlled or infested areas for extended periods of time to gather intelligence and, when necessary, engage the enemy in combat.

The Soviet high command recognized the need for deep penetration operations early in World War II. Spetznoz, the Soviet special forces, are organized and trained to conduct deep penetration missions with an emphasis on combat rather then reconnaissance, at a depth of up to 350 kilometers. Similar forces have been used by the Soviets since 1943 to disrupt the enemy's rear area in support of assaults. The total strength of Soviet Spetznoz forces have been variously estimated at 20,000 to 50,000 personnel.

In addition to Spetznoz units, the Soviet army also has a LRP company assigned to each division, and additional companies at Army and Front level. A number of specialized regimental-size "diversionary" forces are also available which come directly under the control of the high command. Each Soviet naval infantry regiment also has a reconnaissance company. Although their mission is not necessarily long-range patrolling, they add additional penetration capability. Soviet Naval Infantry Commandos, similar to the U.S. Navy SEALs and the British SBS, are a small force of platoon-sized units, one with each fleet. They further expand the Soviet ability to conduct small team specialized operations.

The Soviets also field an equivalent to the U.S. Army Special Forces and British SAS, referred to as *Vysotniki*. Although not a LRP force as such, it is fully capable of conducting LRP-type operations in any combat environment.

In addition to Soviet forces, all the other Warsaw Pact armies maintain LRP forces, normally with a company-sized unit with each division. Poland alone fields thirteen long-range patrol companies. There are estimated to be approximately 20,000 Warsaw Pact personnel trained and equipped to perform LRP operations, in addition to available Soviet forces.

The Soviets have a firm commitment to the use of deep penetration forces and have relied on them since 1943 to disrupt the enemy's rear, seize key targets, conduct sabotage missions, and assassinate key personnel. They have been used as recently as the 1968 invasion of Czechoslovakia; and during the 1979 invasion of Afghanistan, Spetznaz troops were the first on the ground, seizing key facilities and the airfield at Kabul. It has been recently rumored that Spetznaz forces were also involved in the March 1986 ouster of the North Yemen government. Soviet LRP forces can undoubtedly be accounted a decisive force in years to come.

As of this writing, the U.S. Army is in the process of developing a new doctrine and organizational structure for long-range patrol units to be called Long Range Surveillance Units, or LRSU (pronounced "LURSUE"). After more than ten years, the Army has finally recognized their weakness in combat intelligence acquisition and is bringing back the specialized LRP unit concept. The name has changed, however, and the proposed mission capabilities have been unnecessarily limited to primarily stationary surveillance functions.

As the Army develops this new (?) long-range patrol doctrine for the "Air-land Battlefield" of the future, it is discouraging to note that they are trying to divorce themselves from the "unsavory LRRP experience of Vietnam," to quote General Richardson, commander of the Training and Doctrine command. By failing to look in-depth at how we operated in Vietnam, the Army fails to recognize and correct the doctrinal problems encountered in LRP operations during the nation's longest and most divisive war.

The term "LRP," or "LRRP," first came into use during the Korean War, but gained considerable prominence during our involvement in Vietnam. At the height of the Vietnam War, the U.S. Army deployed thirteen long-range patrol units with two additional companies in the United States, in addition to Special Forces, Navy SEALs, and Marine Force Reconnaissance also deployed in Vietnam. Unfortunately, as the war wound down, the LRP companies were deactivated. All of them were off the Army's roll of active units by October 1974.

As a follow-on, two Ranger battalions were activated (and since then a third), assuming the mission, with Special Forces, of conducting long-range patrols. Although there remain a few National Guard LRP units, they are not active units as of this writing.

The LRP doctrine during Vietnam was basically sound, but often misunderstood by commanders, resulting in less than effective utilization of the teams. The units were considered Long Range Patrol (LRP) units, not strictly Long Range Reconnaissance Patrols (LRRP). Their missions encompassed the full range of patrols, and were, more often than not, contact oriented. Here's a short look at some of the things that went into creating our Vietnam LRP experience:

- All Army LRP units were separate companies lacking any centralized higher headquarters (MACV and USARV don't count) that could review methods and doctrine, evaluate, and direct changes. The LRP commanders provided some continuity within the unit, since they usually spend their entire 12-month tour with the LRP unit. Unfortunately, too often they were lieutenants or captains, with too little rank and occasionally too little experience, to effect changes when their teams were being misused. The bigger problem, however, was that the support commanders and their staffs changed all too frequently, resulting in constant changes in LRP employment. The doctrine in use boiled down to the desires of the commander and his staff, and was not always good LRP sense. Only where the LRP unit commander was given broad, or almost total, control of team employment and missions did the LRRP/LRP doctrine even come close to being effective.
- Contact with the enemy spelled extraction. However, this problem was compounded by commanders pushing for contact with the enemy and body counts, not solely because the teams could

not avoid contact. Team members did not receive promotions and awards for a good "no contact recon mission," but for successful ambushes that resulted in body counts. The Army's awards system does not support the LRP operations concept. A team would not normally receive a Bronze Star for Valor, or higher award, for operating successfully in a heavily infested enemy area without making contact with the enemy, nor could they by regulation qualify for the coveted Combat Infantryman Badge (CIB). It was a real problem that was never addressed, then or since.

- Many units had a policy that if a team brought back a POW, they got a three-day in-country R&R. An excellent policy if you want them to make contact with the enemy, but a bankrupt policy if you do not.
- One Ranger-LRP company suffered 13 KIAs and 24 WIAs over a fifteen-month period while conducting over 1,000 missions. At the same time, they had a confirmed enemy body count of over 260 KIAs and over 200 WIAs. That spells success in any language, unless you look only at reconnaissance and avoid contact with the enemy. Then it may tell you something else. Unfortunately, successful contact with the enemy only served to increase the desire for the teams to make further contact.
- Seldom was a team assigned a strictly reconnaissance mission. Contact was not only expected, but desired, by the controlling headquarters.
- Team sizes varied from four to twelve men on a team, with weapons ranging all the way from M16s to M60 machine guns, 90mm recoilless rifles, and even mortars.

Prior to January 1969, U.S. Army LRP units were organized as Long Range Reconnaissance Patrol Companies, with various battalion and regimental designations. In addition, most brigade-sized infantry and cavalry units formed their own LRP detachments from their own personnel and equipment assets. Starting in January 1969 all LRP units were reorganized and redesignated as Airborne Ranger Long Range Patrol Companies of the 75th Infantry Regiment, Airborne, Merrill's Marauders, with the mission of conducting long-range patrol operations. Each company was operationally attached to a ground division or field force (Corps) headquarters. Separate brigades such as the 173rd Airborne also were given a LRP Ranger company. This action brought the units under the U.S. Army Combat Arms Regimental System, which provided them with a unique unit lineage, but did little to unify and consolidate tactics, operations, and training. Without a regimental headquarters, it was a regiment in name only. The Army's Infantry School at Fort Benning, Georgia, retained the regimental color, and was responsible for doctrine, tactics, and training methodology, but was located over 9,000 miles away.

Each company still had to generally find its own way in the area of team and unit tactics. Lessons learned were slow in filtering up and down the chain of command. However, the reorganization and redesignation did make for better use of limited assets and increased morale and esprit de corps.

Having served as long-range patrol team leader in Vietnam with Company K, Ranger, 75th Infantry, and having gotten hooked on the subject and method of operation, I have spent a great deal of time researching and studying long-range patrol and deep penetration operations. Unable to find a definitive reference on the subject, I decided that it was high time that a detailed reference manual was made available for military scholars and others with an interest in LRPs. Not a "what happened" book, but rather "how to do it."

Rather than randomly covering individual unit and country doctrines or lessons learned, this book is intended to pull it all together from various sources to establish a definitive work covering all potential methods of operation and employment of long-range patrol units and teams, to include training, equipment, and organization. In many instances LRP doctrine has been developed on a situation, or mission, basis intended to fill a specific battlefield requirement. In most cases only a single mission type was envisioned by the doctrine and failed to take into account other potential future needs, resulting in a fairly narrow operational mission. In addition to tried and tested doctrines, I have expanded into new areas and even added a few new twists. The reader must keep in mind that everything is subject to change based on the specific situation, forces available, level of training, and other factors. You must always approach doctrine issues as a guide, and with an open mind. So drop your preconceived ideas and read on.

1 Strategic and Tactical Operational Doctrine

INTRODUCTION

Historically, LRP operations have been primarily concerned with the acquisition of combat intelligence rather than direct engagement with the enemy. However, a well-trained and properly equipped LRP team has the capability of engaging the enemy for short periods of time, with or without external support, to achieve limited combat objectives in support of strategic and tactical operations.

In developing LRP force operational doctrine, at team or unit level, it is necessary to look at unit size and organizational structure, the various types and levels of military and paramilitary operations, and the environmental and geographical conditions in the proposed area of operations. Special consideration must be given to the specific equipment available, since it will have a very direct influence on LRP forces capabilities and limitations. The dimensions of LRP doctrine operational depth are also concerned with time, distance, resources, and the ability to successfully penetrate the enemy's rear area defenses without detection.

Specific details on organizational structure are covered in Chapter Three. For the purposes of this book and the doctrinal issues discussed, it is assumed that the basic LRP force is a company-sized element consisting of a command element, operations section, communications platoon, logistics support element, and three patrol platoons. Each patrol platoon consists of a platoon headquarters and six LRP teams of six men each, for a total of eighteen operational LRP teams in the company.

MILITARY OPERATIONAL CONCEPTS

Successful military operations require initiative, synchronization, agility, and depth. The underlying purpose of every military effort must be the seizure and retention of the initiative. The LRP force can be a valuable asset through the timely acquisition of intelligence which allows the commander more effectively to deploy and maneuver his combat assets. When deployed during deep attacks, the LRP force can aid in synchronizing operations through on-the-spot real-time intelligence reporting. The properly equipped and organized LRP force can also be employed in a variety of operational modes for both strategic and tactical missions.

Success on the battlefield is tied to three key requirements: timely and accurate intelligence, total preparation of the conflict area, and effective application of combat resources. These essential elements are not mutually exclusive and none can be effective without the others. Because of the complex nature of any battlefield, the intelligence-gathering process must be continuous, active, and responsive. For this purpose, LRP force elements serve to counter enemy deception operations, aid in the verification of intelligence data and enemy intentions, and participate in friendly deception operations.

When properly employed, the LRP force can be a major contributor to the intelligence preparation of the battlefield (IPB) by obtaining accurate and current data on enemy dispositions and morale, terrain, and other factors. The LRP force contributes to this effort by:

Human Intelligence (HUMINT) Acquisition Operations. The LRP force is primarily a HUMINT acquisition source, conducting intelligence, reconnaissance, and surveillance operations in "real time" through physical deployment into the operational area.

Imagery Intelligence (IMINT) Acquisition Operations. The LRP force is capable of providing IMINT support during deep deployment through the use of photographic equipment as part of their reconnaissance and surveillance function. IMINT is the locating, recognizing, identifying, and describing of objects through optical means, film, and electronic display devices.

Target Acquisition Operations. The LRP force provides timely target acquisition in the operational area through detection, identification, and locatiug of targets in sufficient detail and time to permit effective employment of weapons systems, and maneuver elements. They provide the additional advantages of being able to direct accurate long-range fire onto targets and assess its effectiveness.

STRATEGY AND TACTICS

Strategy is the art and science of combining and employing military forces on a broad scale for gaining advantage in war; it concerns larger, more general, and louger range movements than does tactics. Tactics is the art of handling troops and weapons in the presence of the enemy. Although a distinct line cannot be drawn between the two, strategy is closely related to generalship and tactics to troop-leading. When pertaining to long-range patrol operations, *strategic missions* are accomplished at the direction of a theater or army group commander to provide intelligence to suppert overall strategic war plans, while *tactical* missions are accomplished at corps level or below to affect the immediate battlefield. Strategic missions are normally conducted in the *area of interest*, while tactical missions are conducted in the *area of influence*. Actual on-the-ground team-level operations will very in only minor weys, while company and higher level functions may vary a great deal.

Strategy and tactics are also concerned with the operational levels of war and intelligence:

The strategic operational level of war is the employment of military forces to secure the long-term objectives of national strategy by the application of military power or the threat of force. Strategy establishes the overall operational conditions of the conflict.

Strategic intelligence is that intelligence information required to formulate policy and military plans at national and international levels. It differs from tactical intelligence primarily in its level of use, but may also vary in scope and detail.

The tactical operational level of war is the pursuit of short-term local objectives through the employment of military forces to accomplish specific, high-impact tasks, or to win specific short-term battles or engagements.

Tactical intelligence is intelligence information designed to respond to the needs of commanders in the field, maintain the readiness of operating forces for combat operations, and support the planning and conduct of combat operations. It generally deals with immediate ongoing combat operations.

The operational level of war is the bridge between strategy and tactics. It is the employment of military resources to attain strategic goals within a theater or region, and involves the direction and employment of military assets to insure that tactical operations complement strategic objectives.

THE LRP FORCE AND THE "PRINCIPLES OF WAR"

The successful prosecution of strategic and tactical operations involves the effective application of the principles of war. These principles are not new, but can be influenced by the LRP force through intelligence acquisition and deep penetration combat operations. This must be fully understood in order to develop the total capabilities of the LRP force.

The Objective

The ultimate objective of war is the destruction of the enemy's forces and his will to fight. Every military operation must be directed toward a decisive attainable objective, which may be a locality, a terrain feature, or an enemy force. The LRP force supports tactical and strategic objectives by providing timely battlefield intelligence, locating enemy forces for engagement by theater forces, and engaging the enemy directly within their limited scope of combat capabilities. They further assist in obtaining theater objectives by locating the enemy's weak points, directing effective fire and supporting weapons onto secure rear area targets, and creating confusion and lowered morale in the enemy's rear area.

The Offensive

Offensive action gives the commander the advantage of the initiative and enables him to impose his will on the enemy, which is the only way to achieve decisive results. The LRP force assists in maintaining the offensive by the acquisition of targets for supporting weapons systems, identifying and locating enemy formations, and providing the commander with a clearer picture of his opponent's intentions and tactical dispositions. They aid in offensive action by hampering the enemy's ability to maneuver his forces, while enhancing the offensive action of friendly forces by conducting screening missions forward and to the flanks of attacking forces. The timely acquisition of combat intelligence allows the supported commander to concentrate his forces at key points and times in order to maintain the combat initiative. In the counterinsurgency environment, they may well provide the only means of maintaining the initiative by finding and fixing the enemy's forces and base areas.

Simplicity

The use of uncomplicated plans and clearly expressed orders leads to common understanding and intelligent execution. Simplicity must be applied to organization, methods, and means. The simplicity of LRP force operations as a means of obtaining timely combat intelligence is exemplified by the LRP team on the ground reporting directly to the combat command center as the enemy is observed, greatly reducing the number of channels and processing procedures required to get the information to the ultimate user.

Unity of Effort

The coordinated effort of all forces toward a common goal is best achieved by giving a single commander the necessary authority and tools to accomplish his mission. The attachment to a tactical field command of a LRP force for dedicated reconnaissance and combat support greatly enhances this unity of effort by giving the commander a responsive means of acquiring intelligence to support his tactical operations. Unity of effort for the LRP force is achieved when the LRP commander is given the supporting assets necessary to accomplish his assigned mission.

Mass

The concentration of the maximum available combat power at a critical time and place is achieved through the effective combination and employment of manpower and firepower. The LRP force enhances the capability to effectively mass against the enemy by reporting in real time his intentions, dispositions, capabilities, and reactions to friendly force maneuvers, and through the effective adjustments of long-range artillery and naval gun fire, and tactical or strategic air support.

Economy of Force

A commander must use the minimum essential forces at points other than that of decision. Economy of force is achieved by limited attacks, defensive actions, deception, and retrograde actions. The LRP force enhances this effort, by acquiring timely intelligence which allows the most effective deployment of the supported commander's combat forces and by acting as a screening force for weak defensive sectors and likely avenues of attack.

Maneuver

Maneuver is the deployment of forces to positions which place the enemy at a relative disadvantage. The effective use of firepower is usually a prerequisite to successful maneuver. The LRP force can provide the timely intelligence data needed to achieve success by pinpointing enemy formations, disrupting or delaying their deployments in response to the maneuver, and generally disrupting the enemy's rear area.

Surprise

Surprise consists of hitting the enemy when, where, or in a manner for which he is not prepared. It is achieved by speed, secrecy, deception, variation in means and methods, and at times by the use of seemingly impassable terrain. The LRP force can provide an added dimension to this effort through adjustment of supporting fires on vulnerable enemy positions, disrupting deployments, and generally spreading confusion in the enemy's rear area. This effort can be further enhanced based on accurate combat intelligence regarding weak points in the enemy's defensive positions and identifying the locations of critical targets in the enemy's rear area.

Security

Security consists of measures necessary to prevent surprise, avoid annoyances, preserve freedom of action, and deny the enemy information on our forces. The LRP force enhances security by performing counter-LRP missions within their own command's rear area, keeping the enemy's rear area constantly off balance, identifying enemy forces, and locating enemy surveillance and intelligence-acquisition forces.

BATTLEFIELD OPERATIONAL CONTROL AREAS

There are five battlefield operational control areas, or phase lines, of particular concern when discussing LRP doctrine. These are the forward line of own troops, the area of interest, area of influence, area of operations, and area of counterintelligence responsibility. Their impact on LRP operations deals with the method and depth of employment, and mission objectives. Generally, the LRP force will conduct specific types of operations within each area.

Area of Operations (AO), or Operational Area (OA)

The AO is that portion of the battlefield in which a combat or reconnaissance mission is conducted. For LRP operations this is normally a specifically designated area in which a team, group of teams, or unit will conduct operations. As a minimum, the AO must include the objective area, route of march, and insertion and extraction points. Supporting unit locations may or may not be included. For the LRP unit, the AO may be located anywhere within the areas of influence or interest, and the operations may involve acquisition of strategic or tactical combat intelligence, or conduct of strategic or tactical combat operations.

Area of Influence

The area of influence is that portion of the battlefield or military operations zone where a commander is directly capable of influencing the progress or outcome of operations by maneuvering his forces or by delivering firepower with the fire support systems under his command. In most instances, actions taken in the area of influence will immediately affect the flow or outcome of a battle or campaign. Within this area the commander must be able to find and acquire targets. The LRP influences operations by finding, targeting, and reporting on enemy forces. The time and distance involved will vary depending upon the size of force involved, type and method of operation, and mission objectives. In stability or counterinsurgency operations this area may be called the radius or zone of influence.

Area of Interest

The area of concern to the force commander includes the area of influence and areas adjacent to it that extend into enemy territory. The area of interest also includes enemy areas occupied which could jeopardize the accomplishment of the mission. The force involved seeks to maintain surveillance of enemy activity over the entire area of interest. In most instances intelligence gathered from the area of interest will be used to plan future operations rather than affect ongoing ones. However, this will vary based on the time and distance involved, type of force, and other combat factors. Particular interest will be placed on identifying enemy forces just prior to their entry into the area of influence to allow early engagement with long range weapons systems. In stability or counterinsurgency operations this area may be referred to as the radius or zone of interest.

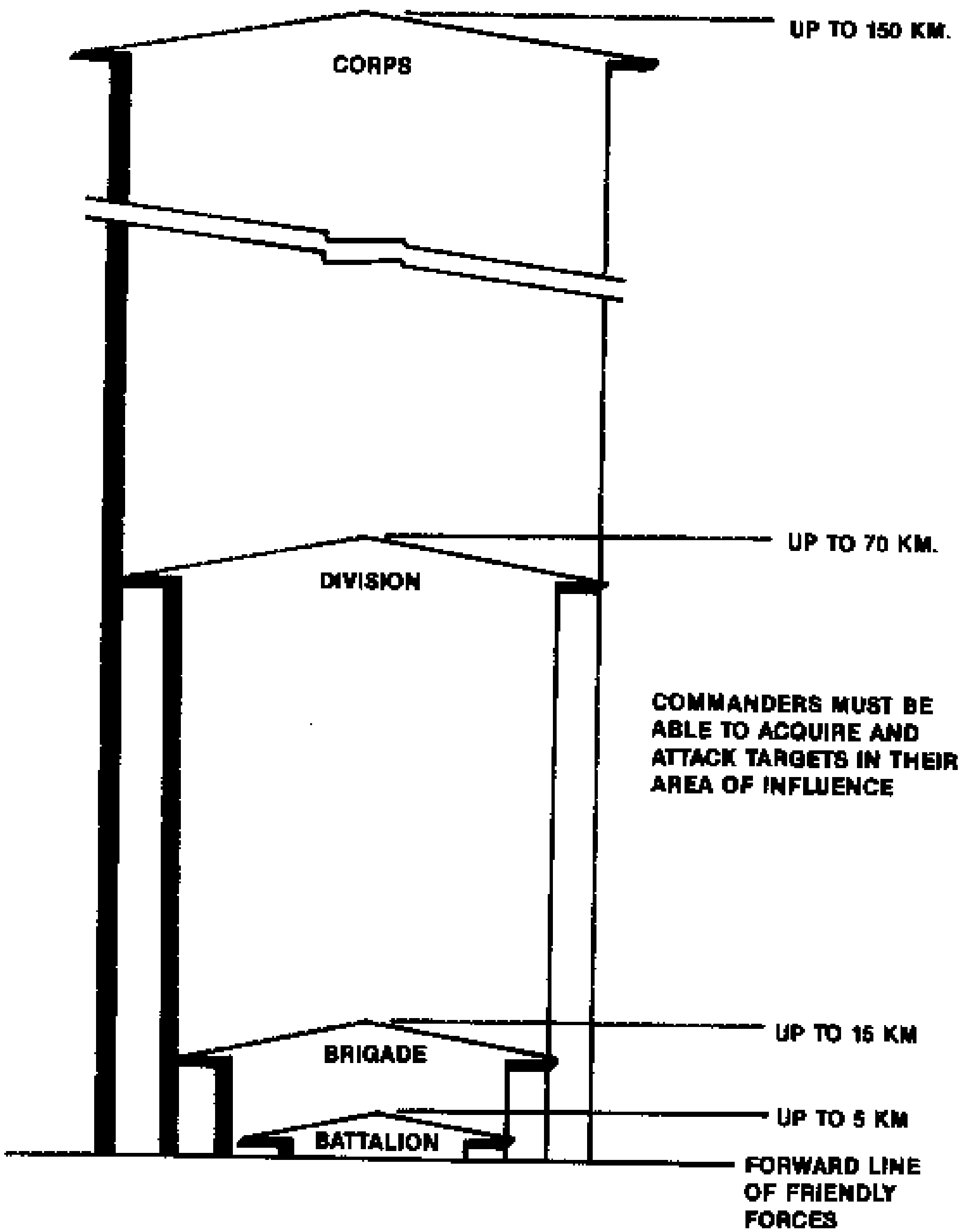
Forward Line of Own Troops (FLOT)

This line, forward of which LRP operations will normally be conducted on the conventional battlefield, is a line on which the mass of forces defends or is capable of defending, against enemy attacks. The leading edge of an advancing force is considered the FLOT, and in this case includes the location of reconnaissance units such as cavalry elements, infantry recon platoons, and other advance reconnaissance and forward probing forces. When the FLOT moves forward, as during a deep attack, close coordination between deployed LRP and the advancing units is essential.

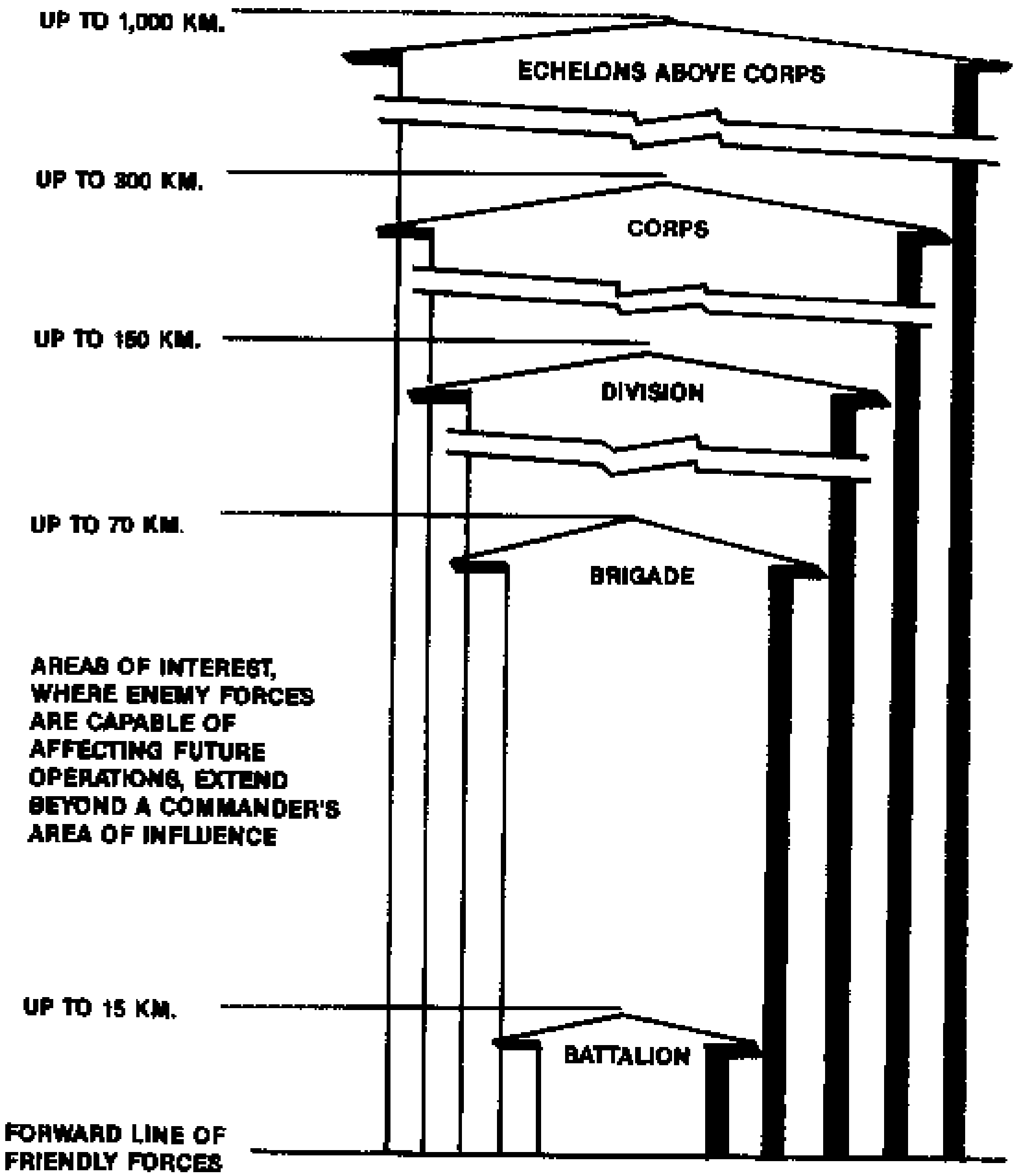
Area of Counterintelligence Responsibility

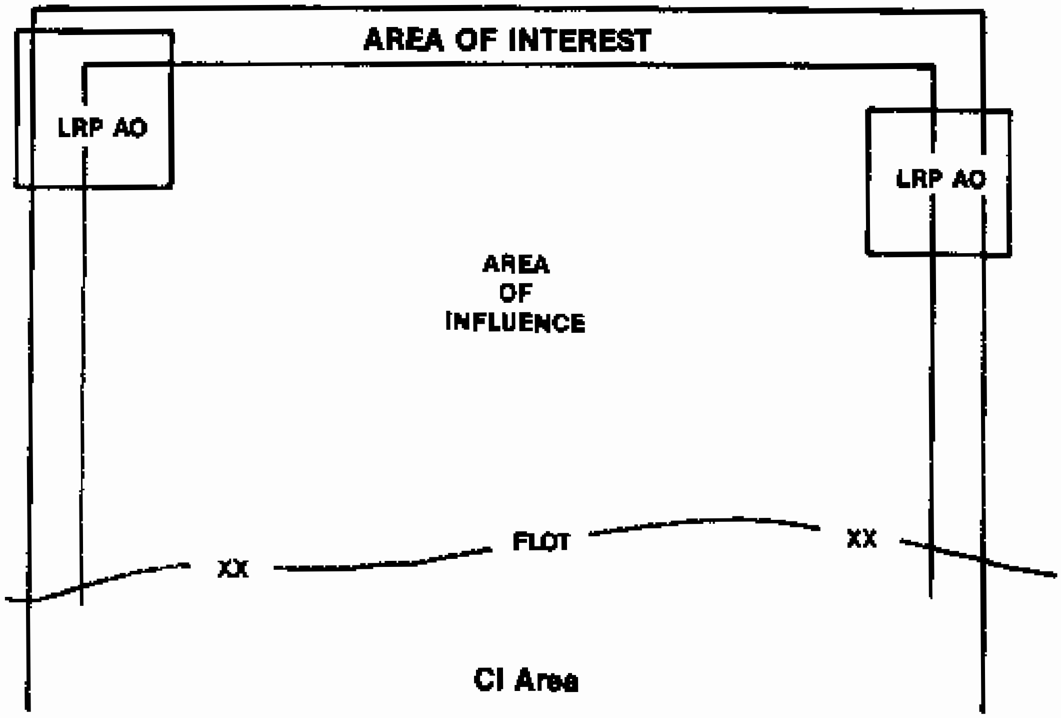
This is the area in which operations are con-

Areas of influence.



Areas of Interest.





ducted to deny the enemy intelligence data and restrict their ability to conduct deep penetration patrol operations. The LRP force may be effectively employed within this area as a counter-LRP element to deny the enemy use of the CI area for intelligence-gathering and LRP-type operations. The LRP force can also function as a border or coastal interdiction force along the boundary of the CI area. The divisional area of counterintelligence responsibility extends from the FLOT to the division's rear boundary. The theater army commander, in coordination with civilian security elements or host nation elements, is responsible for rear-area security behind corps rear boundaries. Echelons below division level usually are not assigned an area of counterintelligence responsibility, but receive support from divisional CI assets when needed. During the conduct of counterinsurgency or stability operations, the entire theater may well be classified as a counterintelligence area.

THE THREAT

Obviously the enemy situation will affect the ability to conduct LRP operations within a given area. However, there are certain areas of concern that will affect LRP mission capabilities to a greater extent than they do more conventional Infantry operations. When planning deployment of LRP forces, the threat situation's effect on mission type, duration, depth, frequency, equipment, and force structure must be evaluated.

Control of Air and Sea Lanes

Uncontested control of air and sea lanes into the LRP AO, although desirable, is not essential. However, for air insertion, extraction, support, and resupply, the LRP force will require supporting air assets capable of penetrating enemy air space with a high degree of success. The same requirement exists for access and control of sea and inland water corridors when their use is an integral part of the LRP operation. Evaluation during initial planning stages is essential. Sufficient dedicated and properly trained crews with adequate equipment must be available for the duration of the planned operations. Availability of assets will affect mission type and duration, depth, method of insertion and extraction. Alternate emergency plans must be developed in the event the enemy is able to disrupt primary air, and/or seaborne support operation plans. Teams must be able to conduct long-term evasion operations, survive off the land, and return by alternate land or other routes when the situation dictates. Although capable of ground infiltration and exfiltration, the team's effectiveness, endurance, and stealth become overly taxed, reducing their overall capabilities, and placing additional limitations on their method of operation.

Density and Effectiveness of Enemy Rear Area Operations

An enemy who conducts aggressive and very active rear-area security and protection operations will severely hamper LRP deep penetration capabilities. Enemy rear area operations must be thoroughly evaluated prior to commencing LRP operations, and throughout their duration. Particular attention should be directed to their effect on evasion. Intelligence data on the enemy's rear-area operations must be continuously updated by LRP teams and all other available sources. The scope and limits of LRP operations will be severely hampered by an enemy that actively employs aggressive ground, air, and vehicle patrols, scout and tracker dogs, and makes extensive use of radio direction finding (RDF) equipment. Physical endurance may be taxed and mental stress increased if the team is required to continuously move to avoid detection or is unable to move and must constantly hide from an aggressive enemy. LRP operations may in fact become impossible. Mission depth and duration may have to be severely reduced, or at best the types of missions limited. Of course these factors must be balanced against a possible objective of siphoning off enemy strength to secure their rear areas, which could easily balance the negative aspects. Contact with the enemy, regardless of the type of mission, will be a constant threat requiring the extensive use of evasion plans, emergency extraction methods, and mission abort plans during all operational and planning phases. The ability of the team to break contact with the enemy and continue its original mission may be extremely limited, and will require close control and instantaneous evaluation to insure the timely implementation of emergency plans. All of these factors must be balanced against team and force capabilities, training, and dedication.

A well-led and highly trained force can overcome many of these obstacles and limit their adverse impact on mission capabilities. To overcome or lessen the impact of these areas of concern the LRP force must emphasize the following techniques:

1. Extensive training in counter-tracking skills;
2. Use of radio burst transmissions and random contacts;
3. Extensive training in stealth, camouflage, and concealment;
4. Extensive evasion, emergency extraction, and mission abort plans.

The LRP force will be opposed by enemy forces varying from primitive to highly trained troops equipped with modern weapons and sophisticated detection equipment. Evaluate the following potential enemy force capabilities when planning the deployment of LRP elements:

1. Ability to detect air, sea, or land movement into and within the proposed area of operations, to include their ability to cover gaps in their manned defenses with portable or vehicle-mounted surveillance equipment.
2. Their ability to react to intrusion into air or sea corridors.
3. Extent of active rear-area security and protection operations.

THE THREAT AND HIGH-INTENSITY ENVIRONMENT OPERATIONS

When reviewing Soviet rear-area operations, and security in particular, one tends to question the feasibility of the effective deployment of LRP teams, especially deep in the Soviet rear. A review of Army Field Manual 100-2-2, on Soviet internal security operations, and a review of literature dealing with Soviet World War II rear-area operations, certainly makes the feasibility questionable at best. The inherent ability of the Soviet apparatus to control populations and geographic areas is well known. Because of this, the ability not only to penetrate the Soviet rear area successfully, but also to carry out operations for any extended period of time becomes highly suspect. It may be more advantageous for LRP doctrine to be directed toward mid-intensity and low-intensity warfare environments rather than toward high-intensity conflicts. As a minimum, the distance of insertion or operation within the Soviet rear area may have to be shortened at least to 30 to 50 kilometers rather than the possibly unobtainable 60 or more kilometers. The more effective use of LRP forces during total war may well be the "economy of force" coverage of relatively quiet areas, to allow for early warning and shifting of combat forces. This is a critical question that must be answered early on, because if the force does not have a realistic ability to penetrate the rest of the doctrine is of little importance.

THE SPECTRUM OF CONFLICT

The spectrum of conflict concerns the wide-ranging levels and types of military conflicts possible in the modern world. The LRP, more than any other type of military unit, must base its type of mission on the type of conflict in which it is involved. The type of conflict will in some cases dramatically alter the force's capabilities, limitations, and place within the battlefield. The spectrum is subdivided into four levels, and then further subdivided based on the type of warfare or operations:

High-intensity warfare characteristics. Total war, full mobilization, war in all dimensions, intent to conquer, and tactical, strategic, or theater* nuclear war.

Mid-intensity warfare characteristics. Regular forces engaged in war, theater conventional or limited nuclear/chemical war, attacks on political and economic infrastructure, invasion, attacks on civil targets, expansion of military forces, and mobilization.

Low-intensity warfare characteristics. Military assistance operations, border incidents, terrorism, sabotage, hostage-taking and rescues, limited objective combat operations, internal security and stability operations, counterinsurgency operations, and limited** conventional war.

Peacetime characteristics. Drug smuggling and illegal immigration.

Any level of conflict can, of course, involve any or all of the lesser levels of warfare to some degree. However, as the level of intensity increases, the nature of the overall LRP mission will also change. In many respects the lower the intensity is, the greater the chance effectiveness is possible in the use of the LRP force. In the low-intensity environment, the LRP comes into its own and in many cases becomes the predominant ground force.

It takes a very open and even unorthodox mind to fully appreciate and understand the potential capabilities of the LRP force across the entire spectrum of conflict, if they are properly trained, well led, motivated, and adequately equipped and organized. Not only are extensive internal security operations possible, but, when necessary, the LRP force could provide the nucleus for an excellent insurgency force as well. The LRP force also has the potential to conduct strike missions (raid, ambush, destruction of facilities), reconnaissance and surveillance, and rescue and recovery operations. Although small in size, the LRP force can accomplish a wide variety of missions across the entire spectrum of conflict with only its share of the mission altering as the intensity and depth of the conflict increases.

The LRP's greatest worth will be in the low-intensity conflict. In the existing international environment the probability of a nation becoming involved in a low-intensity conflict is extremely high, with an even higher probability that it will be a counterinsurgency operation. During the period 1945 to 1977, there were no fewer than 56 conflicts involving a significant part of the world's population. In 1983 some 40 to 45 nations around the world were involved in a war of some type. In 1984, more than one-fifth of the nations around the world were involved in a conflict, of which more than 30 were counterinsurgency or insurgency operations. Clearly, the LRP force has a potential mission at a level of warfare in which they can readily excel.

When employed in counterinsurgency operations, the LRP force mission would be to find, fix, and engage the enemy. Their job would be to win back land and people through effective use of area saturation operations. The intelligence data collected would be focused on eliminating the guerrillas' infrastructure, denying freedom of movement, and maintaining constant pressure on their combat forces. A well-balanced mix of reconnaissance and direct-action combat missions would be essential. However, the low-intensity conflict defies purely military solutions. It requires a cross-disciplinary approach which recognizes the interplay of social, economic, political, and military factors. The LRP force has the ability to provide a much more low-key contribution to the counterinsurgency environment than a more conventional military force, and contributes to the resolution of the conflict by assisting local forces in the prosecution of military operations. In the low-intensity conflict, the initiative rests with the side that can influence or exploit the process of change. Over-

*Continental, geographic, or similar limits

**Border or territorial dispute

zealous, excessive, conventional military operations will more often than not serve to alienate the local population rather than win them over, while LRP operations can be used to avoid this very problem through their much more selective employment capabilities. A primary goal in counterinsurgency operations is to restrict the use of force and the level of commitment to the minimum feasible level. This implies short and decisive actions, with minimum forces, to obtain the maximum effect; that is the LRP.

It is generally easier to wage guerrilla warfare than to combat it. A primary key to success is determining the stage of the conflict in order to apply the proper method of operation. From the perspective of the COIN planner, however, the stages through which such a war progresses can be properly distinguished by the responses needed to combat them. In its first stage, a revolutionary war can be combated with security assistance, advisers in a training role, low-key military operations, and civic action teams. In the second stage, one adds special operations forces, mobility forces such as tactical airlift units, and advisers engaged in active field operations. Finally, in the third stage, only the direct insertion of regular combat forces in strength has any chance of averting defeat.

Mao Tse-Tung's concept of revolutionary warfare, developed more than fifty years ago, envisioned a protracted war that would be fought in three stages:

Stage one: organization. Conducted when the revolutionary movement is weakest and most vulnerable. The LRP force can counter this stage by operating to isolate the infrastructure members in their remote bases and eliminate them through the use of small ambushes, raids, and sniper teams. This phase of LRP-COIN operations is also directed towards the denial of contact with outside support elements to hasten the withering and death of the movement. Their training camps, rest areas, and other havens must be systematically located and destroyed. The primary advantage of the LRP force in this situation is the ability to selectively apply very limited force to achieve mission objectives. When the teams are divided between native personnel and assisting nation personnel (three of each) they can become doubly effective.

Stage two: expansion. This stage is characterized by sabotage, terrorism, and bold though small military operations aimed at reducing the effectiveness and control of the legitimate government and attracting new recruits. In this stage, the tempo of the guerrilla activity significantly increases. LRP operations would also increase in intensity, with the addition of airmobile reaction forces capable of responding to targets acquired, but the actual method and objectives of the operations would be unchanged.

Stage three: mobile warfare. The decisive phase in which the revolutionary war takes on conventional appearance, and the guerrilla usually takes on an auxiliary role. Although at this stage major military units and operations will become the norm, the LRP force's mission and objectives will generally remain unchanged, allowing a two-pronged assault on the revolutionary army through their employment to acquire targets for attack by conventional forces. Ambush and sniper missions decrease, while raids, target acquisition, and reconnaissance missions increase.

The revolutionary guerrilla considers patience to be a virtue second only to persistence. The LRP force must operate with the same tenacity to win.

LRP MISSION AND OPERATIONAL CAPABILITIES

Potential LRP missions include strike (combat) and intelligence or reconnaissance operations. In general terms their mission would be to penetrate the enemy's rear area to neutralize or destroy enemy forces and equipment, locate and identify targets for current and future operations, and perform other tasks in support of strategic, operational, and tactical objectives. Missions are normally carried out at the direction of the theater or area commander. However, missions may also be conducted in support of operational commanders during limited duration operations, or when assigned by the theater commander.

The operational level involves the employment of LRP forces for a specific mission within a clearly defined operational area. Operational commanders requesting and receiving LRP support are responsible for providing mission support and ensuring that sufficient priority is accorded the LRP mission to enhance its success. LRP elements so deployed neither replace dedicated reconnaissance assets, nor do they fulfill total reconnaissance needs. The LRP force, together with other assets, must be employed to provide an intelligence-acquisition capability throughout the entire depth of the operational area. Operational level support missions must be further integrated with other strategic and tactical missions to permit the most efficient utilization of the LRP force.

The strategic level may involve extremely sensitive operations requiring the control and support of the highest level of command. LRP elements must be positioned to obtain the optimum mission responsiveness while enhancing force survivability and operational security. Primary consideration must be given to the availability of timely and accurate intelligence affecting the LRP mission as well as communications, logistics, infiltration, and exfiltration support.

The tactical level, at corps or division level, is not always clearly separable from the operation level. An operation designed to defeat an enemy force in an extended area does so through operational maneuver and a series of tactical actions. Normally LRP forces would not be deployed to support operations below division level during high-intensity operations, below brigade level during mid-intensity operations, or below battalion level during low-intensity operations. During peacetime operations, they would normally not be deployed below theater level.

Strategic LRP Operations

These are missions primarily conducted in the supported unit commander's area of interest rather than his area of influence. These operations are conducted during mid- to high-intensity warfare in support of a corps, army, or theater commander. Rather than affecting the immediate battlefield, they are directed toward gathering intelligence data for overall strategic operations planning. Deployment would be outside the current combat area (area of influence), either on the flanks, in the enemy's rear area, or to maintain surveillance of a potential adversary's frontier, borders, or installations. A typical strategic LRP mission would be conducted 80 or more kilometers forward of the FLOT, and would normally consist of reconnaissance or surveillance. Mission duration would normally exceed seven days, and could be thirty days or longer. Except for combat missions, contact with enemy forces and the civilian population would be avoided as much as possible through stealth, camouflage, and concealment.

Strategic deep penetration LRP operations are a high-risk gamble, and should only be undertaken when the expected gains justify the potential risks. If properly planned and executed, there is a high probability of success benefitting the overall strategic operational plan. The key to success lies in the avoidance of detection. If infiltration and exfiltration can be effectively masked from the enemy, operations can to some degree be confused with those of resistance fighters.

Tactical LRP Operations

These are missions primarily conducted in the supported commander's area of influence, but may also be conducted in the area of interest to a shallower depth. These operations are conducted during low- or mid-intensity conflicts in support of a corps or lower level command, but may also be conducted during high-intensity conflicts or peacetime. They would normally be conducted to affect the immediate battlefield, be of greater frequency, and have broader objectives. They are conducted both to gain combat intelligence and to engage the enemy. A typical tactical LRP mission would occur 5 to 80 kilometers forward of the FLOT, and would include strike (combat), reconnaissance, or surveillance missions. Mission duration would normally not exceed seven days, and should not exceed fourteen days.

Tactical LRP operations can be a considerable force multiplier and enhancer when properly planned, executed, and supported. The LRP force offers flexibility with a wide-ranging choice of mission capabilities. However, the using commander must neither ignore nor misunderstand the limitations of those capabilities. For the most part only a six-man team will be on the ground at any given position and, although they have the capability of engaging vastly superior forces, contact must be of short duration. The LRP team is not intended to take and hold ground, but rather to gather combat intelligence and strike the enemy through swift, violent, short duration contact. Efforts to conduct platoon and larger size operations with LRP-type forces in the past have not always met with success. The team members are trained to operate in small elements, and their effectiveness is reduced when attempting to operate as an Infantry platoon or company. When a task calls for an infantry platoon or company, available infantry units should be tasked, not the LRP force.

LRP TEAM OPERATIONS

LRP team operations will generally fall into three categories: strike, intelligence acquisition, and special operations. Within these three categories, a wide variety of mission types can be assigned to a LRP team.

LRP Strike (Combat) Operations

These are conducted against targets that will have a direct impact on the supported commander's overall strategic or tactical objective, or that are of high value, of political significance, or time-sensitive. They are intended to inflict damage or destroy specific targets, and can be conducted throughout the depth of the battlefield in support of conventional or special operations. They are characterized by short duration and rapid withdrawal. Prolonged combat action from a fixed position is avoided. When properly executed, strike operations enable friendly forces to seize and maintain the initiative.

Strike operations are conducted as either quick response or deliberate actions. Quick response operations rely on the LRP force's readiness to execute a mission before the enemy can react to their presence. Deliberate operations rely on meticulous planning for every phase; detailed reconnaissance and surveillance of the target area; deceptive countermeasures and secrecy; thorough preparation and rehearsals; and speed, surprise, precision, and audacity. Both types of operations must be completed before the enemy can react in strength. Whether an operation should be deliberate or quick response is a military or political decision normally determined by available time.

Strike operations weaken enemy operational readiness and combat effectiveness, and support of offensive or defensive operations by:

1. Disrupting enemy defensive and offensive capabilities by preventing effective and timely employment of reserve forces through the interdiction of avenues of approach to an objective, defensive, or operational area.
2. Conducting destruction operations, sabotage, and supporting attacks against enemy forces and facilities such as airfields, railway lines, road and rail bridges, tunnels, dams, power facilities, logistics and maintenance activities, command and control activities, and communications systems.
3. Conducting multiple attacks by individual teams over a wide area against related targets or portions of a target system.
4. Conducting strike-reconnaissance missions to locate and destroy key targets, or disrupt their operations or deployment.
5. Attacking enemy weapon systems to support fire suppression plans.
6. Augmenting unconventional warfare operations, to include performing insurgency operations as an irregular combat force.

Missions objectives are accomplished by two basic methods, the raid and the ambush. Planning must consider the enemy strength in the objective area and their intention and ability either to reinforce or alter the target area once the attack is underway.

Ambushes are surprise attacks from concealed positions upon moving or temporarily halted enemy forces. Near ambushes are normally conducted with the intention of destroying the enemy force, while far ambushes are conducted to harass. LRP force will conduct either hasty or planned ambushes, the major difference being information about the target. Teams may conduct point ambushes while the LRP force conducts area ambushes with numerous teams over a large operational area. Single- or multi-team missions may be conducted with the LRP team deployed to ambush a specific unit or targets of opportunity.

A properly planned, sited, and executed ambush could pit the LRP team against any size enemy force, even a battalion, with, of course, realistic objectives, such as disruption of march, harassment, destruction of key equipment, and so on. The objective need not be the total destruction of the enemy force. Resupply parties, recurring enemy patrols, routine couriers, and similar enemy forces make excellent targets for LRP ambush operations.

Whenever possible, LRP ambush operations should be combined with reconnaissance missions to obtain the maximum amount of intelligence about the enemy. In the ideal situation, the team would establish a surveillance position to observe the general operational area and then move into a suitable ambush position for the final phase of the mission. This allows better target selection and increases the probability of success. In the counterinsurgency environment it may well be desirable always to include an ambush as the last action prior to withdrawal or extraction.

Frequent ambushes serve to channelize and hinder enemy movement within the battle area, or rear area, and siphon off combat assets for defense of the area of operations. Frequent and successful ambushes also sap the enemy's aggressiveness, cause them to be defensive-minded, and, if accomplished in sufficient depth, have considerable psychological impact. Ambushes also cause the enemy to become reluctant to go on small patrols or move in convoys or small groups. Night ambushes can be even more effective by causing fear of night movement, confusion, and panic when ambushed.

Ambushes can be extremely effective in counterinsurgency since they force the insurgent force into decisive combat at unfavorable times and places, deny freedom of movement, and deprive the enemy of weapons, ammunition, and equipment, resulting in the capture of personnel or creation of casualties within the enemy force.

Ambushes may be accomplished by electronic target designation and long-range ground fire or air strikes, attack by sniper fire or small arms fire, or directional mines and demolitions. Team members are normally limited to individnal weapons (rifles, submachine guns, and shotguns), with limited use of heavier weapons such as machine guns and rocket launchers.

Raids involve the swift penetration or attack of critical enemy installations, facilities, or positions to secure information, create confusion, or destroy or damage critical equipment or personnel, and are similar to ambushes in their capabilities and purpose. Radar facilities, communications centers, road and rail bridges, and key headquarters command centers would be excellent targets. The primary purpose could be to disrupt a key facility at a critical time. Raids are useful when no other method of engagement is considered adequate, or when the psychological impact of a ground operation is desirable. The raid combat patrol wonld consist of one or more teams deployed to attack a specific target with limited objectives. The raid may be accomplished by electronic target designation and long-range ground fire or air strikes, or direct attack by sniper on small arms fire, demolitions, or special munitions.

Sniper combat patrol. Although in reality an ambush or raid, the sniper mission is mentioned here for clarity. The sniper team is normally deployed to eliminate either a specific or random individual target, and is very useful as a psychological weapon in the enemy's rear area. Can be employed to disrupt enemy operations, discourage freedom of movement, and tie down security forces. In the low-intensity environment it is an excellent means of destroying the infrastructure of the insurgent force.

Deep penetration combat team. Although conducted as an ambush or raid, the deep penetration mission is characterized by its extreme depth in the enemy's rear area. By nature, these missions must be short, swift, and violent, with limited objectives. The team would be inserted to assassinate or snipe key military commanders, disrupt transportation or production facilities, or conduct similar aims. Mission duration would normally be extremely short unless preceded by a reconnaissance or surveillance mission by the same team, with a designated combat mission for execution just prior to extraction. The risk factor is extremely high, as it endangers not only the team involved, but also any other teams deployed in the enemy's rear area. This type of high-risk mission should only be employed when local insurgent or resistance forces are either incapable of conducting the operation or nonexistent, when air assets or long-range artillery fire are unable to accomplish the desired objective, or when the expected gains outweigh the risks. Of course the reason, purpose, and risks should also be balanced against the potential psychological advantages that may be gained from striking the enemy in his own backyard.

Intelligence Missions

Intelligence missions consist of reconnaissance or surveillance conducted in support of tactical or strategic operations. Success depends on the team's ability to remain undetected within its area of operations. A discussion of techniques, equipment, and information requirements is covered in Chapters 5 and 10. Surveillance is the systematic observation of a particular area or target through visual, aural, electronic, photographic, or other means. LRP team surveillance missions are normally conducted from stationary hides unless the objective is to shadow a particular target wherever it moves. Reconnaissance is undertaken to obtain information about the activities and resources of an enemy force, or to secure deta concerning the geographic characteristics of a particular area. LRP team intelligence missions generally fall into one of the following categories:

Area reconnaissance patrol. A team is deployed to gather combat intelligence within a specific area. The size of the AO would vary with the terrain and other appropriate factors.

Route reconnaissance patrol. A team is deployed to operate along a specific route, normally a proposed route for a future attack, to gather detailed intelligence relating to bridges, terrain, roads, and other factors that would affect the ability of a friendly or enemy force to move through or along the route.

Point reconnaissance patrol. A team is deployed to gather intelligence about a specific point, such as an installation or facility.

Surveillance team. This team maintains prolonged surveillance of a specific route, target, or area to monitor activities over a set period of time, e.g., keeping tabs on a reserve combat element.

Deep penetration surveillance team. The LRP team is inserted deep in the enemy's rear area to maintain stationary surveillance from a hide position on production facilities, airfields, transportation facilities, or specific military units. The team also monitors and evaluates the morale and welfare of enemy military forces and the civilian population. Movement within the area of operations is held to a minimum to avoid detection.

Deep penetration reconnaissance team. The team is inserted to conduct a route, area, or point reconnaissance, either deep in the enemy's rear area or to their flank. The mission's objective is normally to confirm data for future tactical plans, verify enemy capabilities on terrain data, and other functions useful to strategic planners. The risk of detection is extremely high due to movement requirements and the depth of the operation. Planners must ensure the benefits outweigh the potential risks. The detection of one team would automatically increase the risk to future or remaining teams since the enemy's rear-area security forces would probably assume an increased alert and operational posture.

Strategic surveillance team. This team maintains surveillance of enemy activities along strategically important transportation routes (naval, air, or ground; sea, river, or lake). When at all possible, friendly, or at least neutral, territory should be used for the observation position.

Special operations

These LRP missions either combine aspects of strike and intelligence missions, or are highly sensitive or unusual in nature. In most instances they will resemble the raid or ambush, but may or may not involve contact with the enemy. Missions may include search, rescue, and recovery operations of equipment or personnel; abduction or capture of selected personnel; target acquisition and designation; or antiterrorist and special combat missions.

Hunter-Killer team combat patrol. Normally employed in counterinsurgency operations to track down and engage insurgent forces. Although a variety of operational methods are possible, the following two examples are given as clarification:

1. A team is inserted into a specific AO to search out and track down small enemy elements and eliminate them through ambush or violent attack. Employed against squad or smaller size enemy forces.
2. A team is inserted into a specific AO to search out and track down enemy elements to their position for attack by airmobile infantry elements, air cavalry, or ground attack aviation. The team would normally not directly engage the enemy force unless as a holding action or to supplement reaction forces.

Search and clear combat patrol. Although similar to the Hunter-Killer patrol, the primary difference is in the area in which this method is employed. Search and clear teams could be utilized either in terrorist- or insurgent-occupied territory, or during internal security or stability operations. If personnel are located within the AO, they may or may not be engaged depending upon the environment. Basically, the team is assigned an area to search thoroughly for the purpose of capture, detention, or engagement of unauthorized or hostile personnel. In many respects it is an area reconnaissance and combat patrol combined. The use of stealth may or may not be essential.

Forward observer (FO) combat patrol. This mission entails the deployment of a team to act as a stationary or mobile forward-observer element for artillery and air support. Detection by the enemy would decrease their effectiveness and require relocating. Normally they would be directed to engage targets of opportunity with the available fire support, or to direct harassing and interdiction fire onto the enemy's transportation routes, rest areas, and rear assembly and supply areas. Their use considerably increases the effectiveness of indirect fire weapons and ground attack aircraft through the timely identification and locating of targets before they realize they are targets. The team could also immediately assess the effectiveness of the artillery fire or air strike. Target acquisition may consist of electronically marking or designating targets for terminal guidance of strike aircraft or munitions. Forward air control missions may include armed reconnaissance, close air support, or interdiction.

Pathfinder operations. The LRP team can function as a pathfinder team, securing and marking landing sites for airborne or airmobile forces. This could be carried out as a primary mission if other assets are not available, but would normally be accomplished as part of a reconnaissance mission with extraction accomplished via linkup with the landed forces. LZ/DZ marking equipment would have to be air-dropped to the team, cached upon initial insertion, or accomplished using field-expedient methods. The mission may include marking of a predesignated LZ/DZ or the selection of a suitable LZ/DZ through reconnaissance.

Antiterrorist missions consist of locating, targeting, and/or attacking terrorist bases through highly classified covert and clandestine peacetime operations. Their objective is to destroy or cripple the terrorist organization's ability to conduct operations.

Search, rescue, and recovery missions are employed in support of search and rescue unit operations when it is necessary to penetrate deep into enemy controlled territory to rescue sensitive personnel or recover critical classified equipment or documents. LRP teams are employed when tracking, stealth, and search techniques are required.

Abduction or capture mission, also referred to as a "snatch" mission, is intended to abduct or capture specific personnel. This operation differs from the normal prisoner capture in that the target is usually identified ahead of time and occupies a sensitive or critical position. Likely targets might include high-level commanders, heads of terrorist or insurgent groups, or technicians possessing key technical war-related information. The team may operate as part of a larger raid or ambush or independently.

LRP FORCE UNIT LEVEL OPERATIONS

Unit level operations are accomplished through the concentrated employment of a wide variety of team missions. However, they are unique and different from regular infantry operations, and understanding this uniqueness will make the difference between highly successful and marginally successful LRP operations. This is where special-operations doctrine usually goes astray, with the controlling headquarters too frequently trying to command the LRP team rather than assigning a mission to the LRP force and allowing its commander to determine the best approach.

To obtain maximum effectiveness, the "using" commander should assign the LRP force commander specific areas of operation with broad general objectives which support his overall theater or command objectives. The LRP commander would then plan and conduct the individual team missions necessary to achieve these objectives. This control method is even more appropriate in counterinsurgency and internal security. Necessary support elements would either be placed directly under the LRP commander's control or, at a minimum, a very specific priority of use and support established to enhance accomplishment of the mission.

The range and combination of potential missions and operational methods are limited only by the imagination of the LRP commander and his staff, the support available, and the enemy situation. The following are a few examples of operational modes:

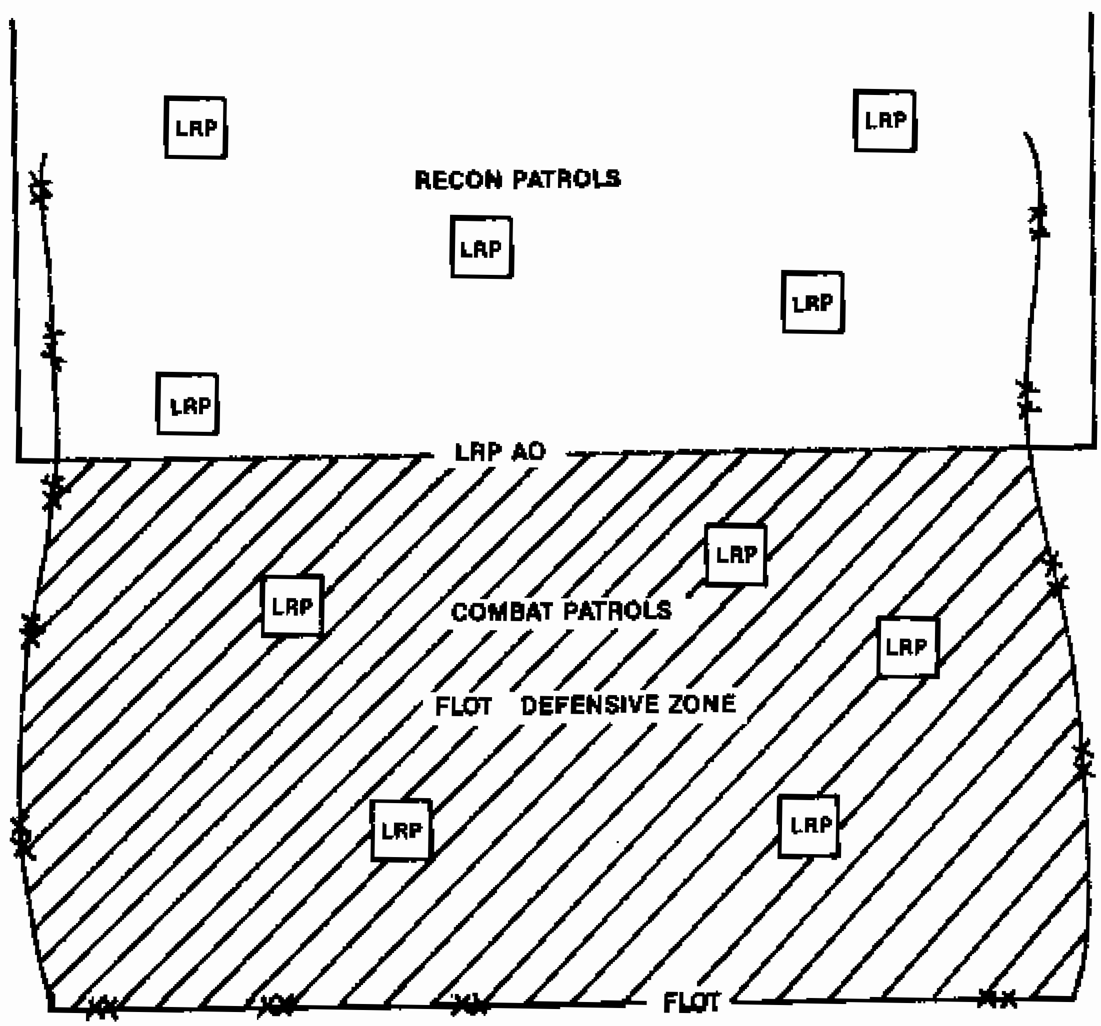
Deep reconnaissance-diversionary operations. The role of the LRP force would indeed be reconnaissance, at the same time undertaking destruction and diversionary missions as the situation develops, providing it does not involve them in a pitched battle. The primary strike mission would be to disrupt troop deployments by directing long-range artillery fire and supporting air assets. The reconnaissance mission would be to identify deployment units and their location, identify nuclear weapons, tactical field headquarters, lines of communication, transport units, suitable landing sites for airborne or airmobile forces, and so on. Mission length could be up to thirty days or more, although the team would rarely stay active in one locality for more than a few days. Whenever possible the team should be extracted and replaced at seven- to ten-day intervals. The primary threat to these operations would be a hostile and alert civilian population, combined with helicopter search capabilities and an active mobile search force.

Area saturation, search and clear, or Hunter-Killer. The LRP force would saturate an area to a specific unit, deny use of the area to the enemy, or achieve similar objectives. Initially, the AO would be saturated with reconnaissance teams to acquire the intelligence necessary to effectively employ strike teams. A wide variety of reconnaissance and strike teams would be employed to accomplish the mission.

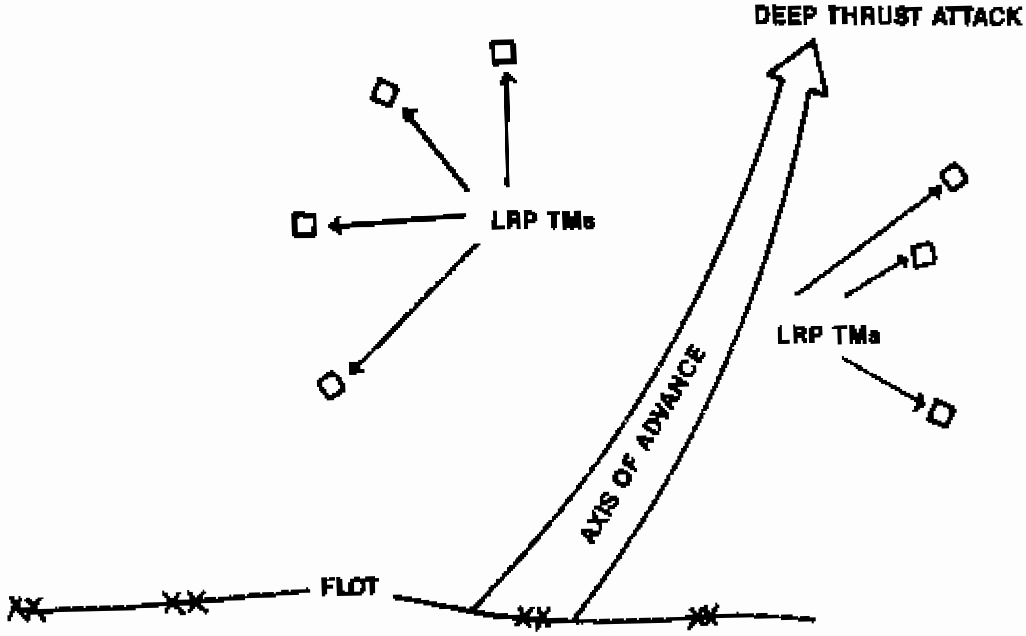
Area saturation, intelligence acquisition. The LRP force would saturate a designated AO to build a combat intelligence profile of the operational area for future tactical operations; or to rule out the need or feasibility of future operations. The LRP commander could employ area, point, or route reconnaissance teams, stationary surveillance teams, or any combination thereof to accomplish the mission. The supported commander would establish the limits of the AO and mission duration, define the desired objectives, and provide needed support.

Economy of force operations. The LRP force would be assigned an AO for the purpose of replacing a larger line unit such as a regiment or brigade. This would be done in a relatively quiet sector to help mask the unit's movement when tactical redeployment is essential to support the overall tactical plan of a division or corps. The LRP force would not engage in major contact with the enemy, but actively occupy the AO by conducting short-range, short-duration patrols. A reserve force capable of reinforcing the LRP force must be available in the event of an enemy assault.

Flank security operations. Similar to the economy of force mission, except that the AO is located to the flank of a planned attack or withdrawal to provide early warning and in some cases delay enemy attacks. Operations would normally consist of short-range patrols. This type of mission should only be assigned when more conventional units are unavailable. The primary mission should be restricted to early warning functions.



Economy of force operation.

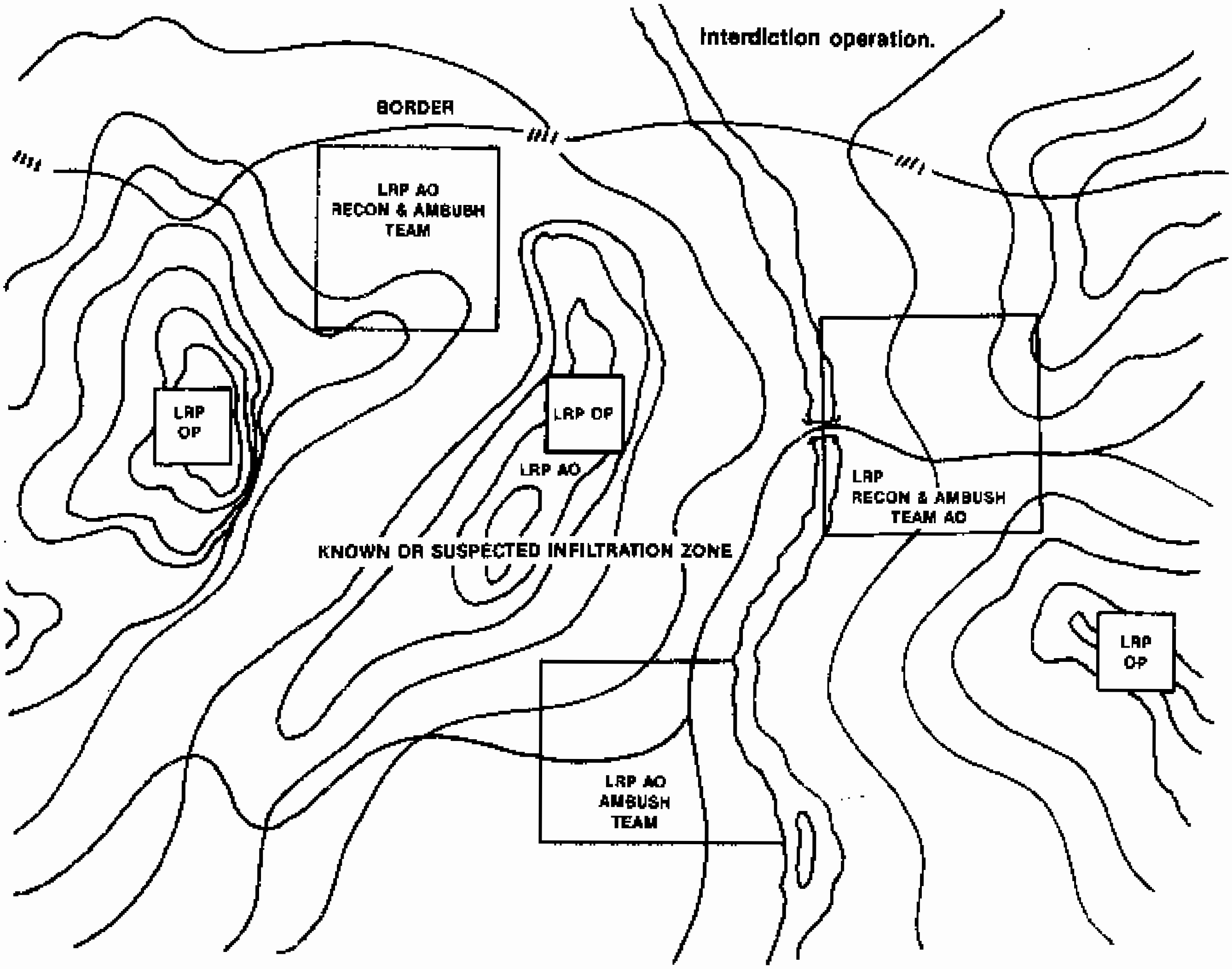


Flank security operation.

Blocking force—delay force operations. The LRP force would maintain surveillance of likely avenues of enemy approach to delay or disrupt their movement through ambushes, sniper fire, and directing air and ground support. This method could use stay-behind teams during withdrawals to delay, block, and confuse the enemy. During counterinsurgency operations by more conventional units, the LRP force could be used to establish ambush and surveillance positions at likely enemy avenues of withdrawal. In more general terms, whenever it is desirable to aggressively deny the enemy freedom of movement through a given area, the LRP force can be utilized to cover a very broad area with a considerable degree of success.

Interdiction force operations. Similar to the blocking or delaying force, with the primary difference being the duration of the operation and the intensity of the conflict. Normally employed during internal security, counterinsurgency, or antiterrorist operations, the LRP force would be assigned an operational area along a border or coast line to interdict infiltrating enemy forces. In this situation a certain number of teams would be maintained on the ground at all times. They would either report on movement only or engage the enemy by ambush, sniper fire, or adjustment of indirect fires. If an adequate response or reaction force is available, effectiveness is substantially increased.

Assault support operations. The LRP force can effectively support conventional assault operations by working closely with the reconnaissance elements involved. The LRP teams would occupy vantage points (observation and forward observer posts), identify and reconnoiter obstacles, and patrol well forward of the leading assault elements to provide an assessment of the enemy's response to the attack. The teams should provide observation to the flanks and point of the proposed route of attack. The teams would secure key points along the axis of advance such as bridges, road junctions, and so on. These points would be secured by observation and brought under effective indirect fire, not physically occupied. For defense and mutual support they would link up with forward-ranging reconnaissance and cavalry elements as early in the assault as possible. The resulting overlapping reconnaissance capability, if used to its fullest, can allow the redirecting of cavalry and attacking forces as the assault develops based on the information flowing in from the LRP elements. The LRP force is in effect the forward-ranging eyes and ears of the attacking force, providing timely information to meet a counterattack or to capitalize on the enemy's shifting of forces to meet the un-



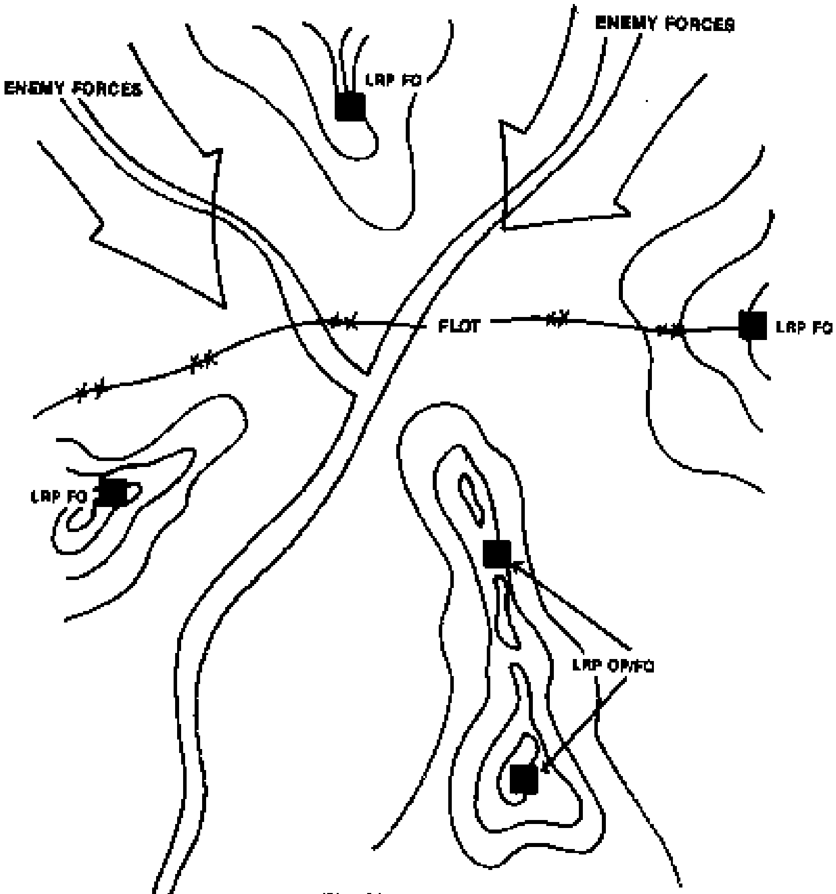
folding attack. LRP teams so employed must travel light and maintain close communication with assault forces. Assets must be available to reinforce or extract the teams should the need arise.

The teams would be infiltrated two or three days prior to the attack to allow ample time to secure suitable observation points prior to the assault. Their primary mission would be to disrupt enemy deployments, destroy critical targets, identify and attack communications and command and control elements by adjustment of long-range fire support.

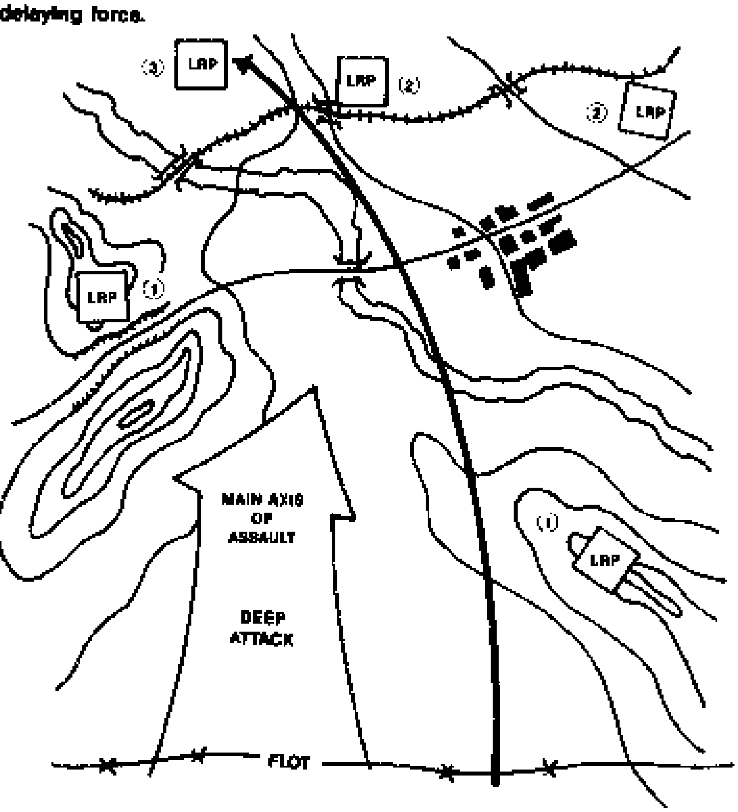
In addition to these, special short-duration task-oriented missions could be developed based on the enemy situation and forces available to enhance operational effectiveness. The aggressive and imaginative commander will evaluate how a LRP force might be employed during any type of operation to obtain maximum use of their wide-ranging capabilities.

During some operations it may be beneficial to equip LRP teams with lightweight motorcycles such as the Suzuki 185. If properly prepared, it can move about the enemy's rear without detection or patrol border and coastal regions. Special equipment can easily be manufactured to allow airlifting four to six cycles on standard medium lift helicopters. They can also be employed to maintain visual contact with a motorized or mechanized enemy force until the team withdraws or directs long-range fire onto their positions. All Terrain Cycles (ATC), either three- or four-wheel, and Fast Attack Vehicles (FAV, dune buggies!) also can be used to give added duration and speed of movement for special LRP operations.

Again, as with all other LRP missions, a wide variety of mission types could be combined to accomplish a specific mission.



Blocking force—delaying force.



Assault support operation.

2 Climate and Terrain

INTRODUCTION

The climate and terrain of the proposed operational theater must be carefully evaluated prior to deploying a LRP force. Although a sound operation always considers these factors, for the LRP force they take on additional areas of concern and evaluation. These areas to a certain extent will dictate both the method and the limits of the operation. The expected, or existing, climate and terrain conditions in the LRP area of operations (AO) must be evaluated as to their effects on insertion, extraction, observation, communications, rations, equipment, tactics, and the physical endurance of the LRP team members.

Climate

Climate plays an extremely important role when evaluating the feasibility of LRP team operations. It may be necessary to keep missions shorter and less ambitious during initial operational phases to allow time for personnel to become acclimated. At the same time, the LRP force must be able to exploit adverse weather conditions that hamper enemy surveillance, detection, and mobility, and increase the time required for reaction forces to effectively engage the LRP teams if they are located.

An extremely hot, dry or humid environment will severely tax the physical endurance of the team members, affecting their individual load capabilities, speed, and duration of movement. Availability of water will be extremely important, especially if the team is to rely on freeze-dried rations that must be reconstituted with water. Consider water consumption per day, availability of water in the AO (and whether it can be adequately purified), type of rations available, and the frequency, duration, and speed of anticipated movement. Individual camouflage is adversely affected and in a very short time (one to three hours) camouflage creams will be sweated off. This can increase the potential of detection.

An extremely cold and wet climate will be extremely taxing on the endurance of the team. Heavy snow will make movement physically difficult and harder to conceal. Stationary surveillance can be physically hazardous; decreased movement increases the risk of cold-weather injuries. The team will normally be unable to have hot food or drinks or to build a fire for heating. However, a small battery-powered immersion water heater should be considered for team use to allow the melting of snow to supply water and heat freeze-dried rations. Ration consumption will become an additional problem, since the cold will increase the burning of calories. To avoid serious cold injuries, mission duration may have to be kept shorter than is operationally desired. Battery life for communications equipment will be reduced, and must be planned for.

Areas with excessive fog, rain, or storms will make extraction and insertion more difficult and increase endurance problems. Highly trained pilots capable of operating in severe weather become essential. In some respects the weather will be helpful in masking insertion and extraction, but at the same time it will make them considerably more hazardous. Continued exposure to wet and cold will tax the physical well-being of the team members with such dangers as immersion foot becoming serious threats. "Goretex" boots, rain suits, and similar protective clothing can be of tremendous benefit in reducing or limiting injuries caused from prolonged exposure to wet climates. Observation capabilities must be closely evaluated; areas with extensive ground fog and poor visibility may nullify the team's ability to conduct effective surveillance, although at the same time protecting the team from detection. These climate conditions could also increase the effectiveness of a short-duration combat mission by providing excellent cover for infiltration, ambush, and so on.

Terrain

Although an obvious planning factor to consider, terrain does have some rather unique aspects when looking at LRP operations. Greater emphasis must be placed on vegetation and ground cover than for conventional Infantry operations. Although the ruggedness of the terrain may decrease potential detection and afford excellent cover and concealment, at the same time it can severely affect physical endurance, reduce fields of observation, and make insertion and extraction difficult.

Dense vegetation and rugged terrain will generally favor strike missions (sniper, ambush, or raid), while sparse ground cover and flat or low-rolling terrain will generally increase the effectiveness of reconnaissance and surveillance missions.

The terrain and ground cover can be a tremendous asset, or liability, to the LRP team. The more rugged the terrain and dense the ground cover, the more taxing the mission will become, with increased ration and water consumption and slower movement. Even things that may seem minor, such as the length of the grass, must be evaluated. The LRP force must develop an intimate knowledge of the operational area and take maximum advantage of difficult terrain for movement. The more difficult the terrain, the less chance there is of an unannounced encounter with enemy forces, especially motorized or mechanized elements.

Extremely rugged terrain can also mask communications, especially if the team must rely on FM communications. As any experienced LRP can vouch, there are dead areas, where no matter what type of antenna or radio is used you will not be able to establish communications. Unfortunately, my most memorable experience with this problem came on a mission in Vietnam. We could not even establish communications with a helicopter flying directly overhead at an altitude of about 200 feet. However, after moving only 100 meters from the insertion point, we were able to establish excellent contact. This problem comes from the particular geological composition of an area, but generally cannot be determined ahead of time. The only real solution is awareness and planning for emergency actions to be taken in the event it happens. In many instances it may be necessary to revise the mission purpose and objectives to compensate for what is actually found on the ground. Flexibility can become an essential virtue.

Planners and LRP team members must become knowledgeable of weather and terrain conditions and their effect on operations. Part of the solution here is to have at least one member of the planning staff become a weather and terrain expert. Regardless of how tough and how capable of enduring severe weather and traversing difficult terrain the soldiers may be, if they cannot see to observe or cannot be effectively inserted, the mission could easily become an exercise in futility.

ASPECTS OF LRP DESERT OPERATIONS

Before attempting to undertake desert operations, an extensive study of Long Range Desert Group and SAS operations in North Africa during World War II should be considered mandatory. They clearly validated the ability of small motorized units to operate deep behind enemy lines. While such modern threats as improved radar capabilities and aerial observation will increase the danger and level of difficulty, the capability is still there.

LRP teams could be mounted on lightweight cross-country vehicles such as motorcycles, All-Terrain Cycles (ATC), or Fast Attack Vehicles. They could effectively operate in the enemy's rear area to shadow enemy forces. Assigned to monitor an enemy force, the team would cling to their assigned unit. When it moves, they move, providing reports on the location and activity of the unit. The team could eventually be employed as a forward observer element for air and artillery support. The increased travel distances, water supply requirements, and need for mobility will generally make the use of small combat vehicles essential.

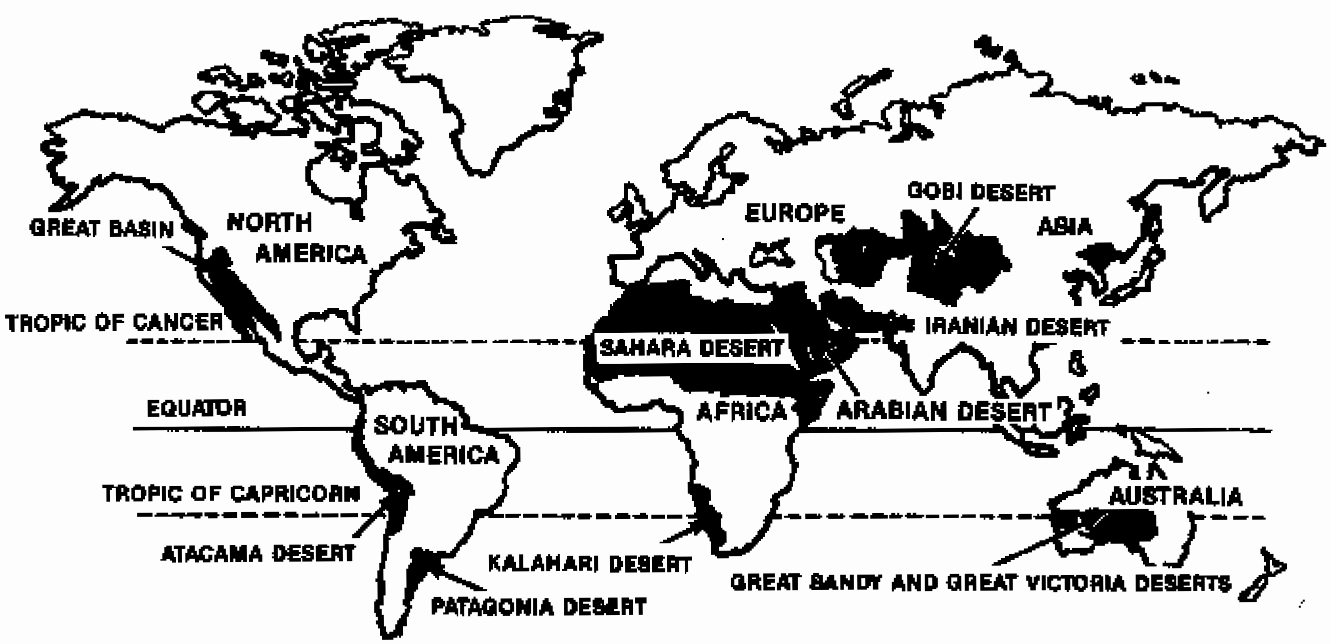
To the LRP's advantage, enemy forces will be more dispersed; wide gaps will exist between enemy units; vehicular traffic will generally be channeled into the few existing roads; and the condition of the soil will hamper the enemy's cross-country mobility.

The use of passive night-vision devices such as starlight scopes is enhanced due to generally good ambient light levels, as is the efficiency of thermal-imaging devices, while daytime observation is degraded due to the distortion of images from heat waves.

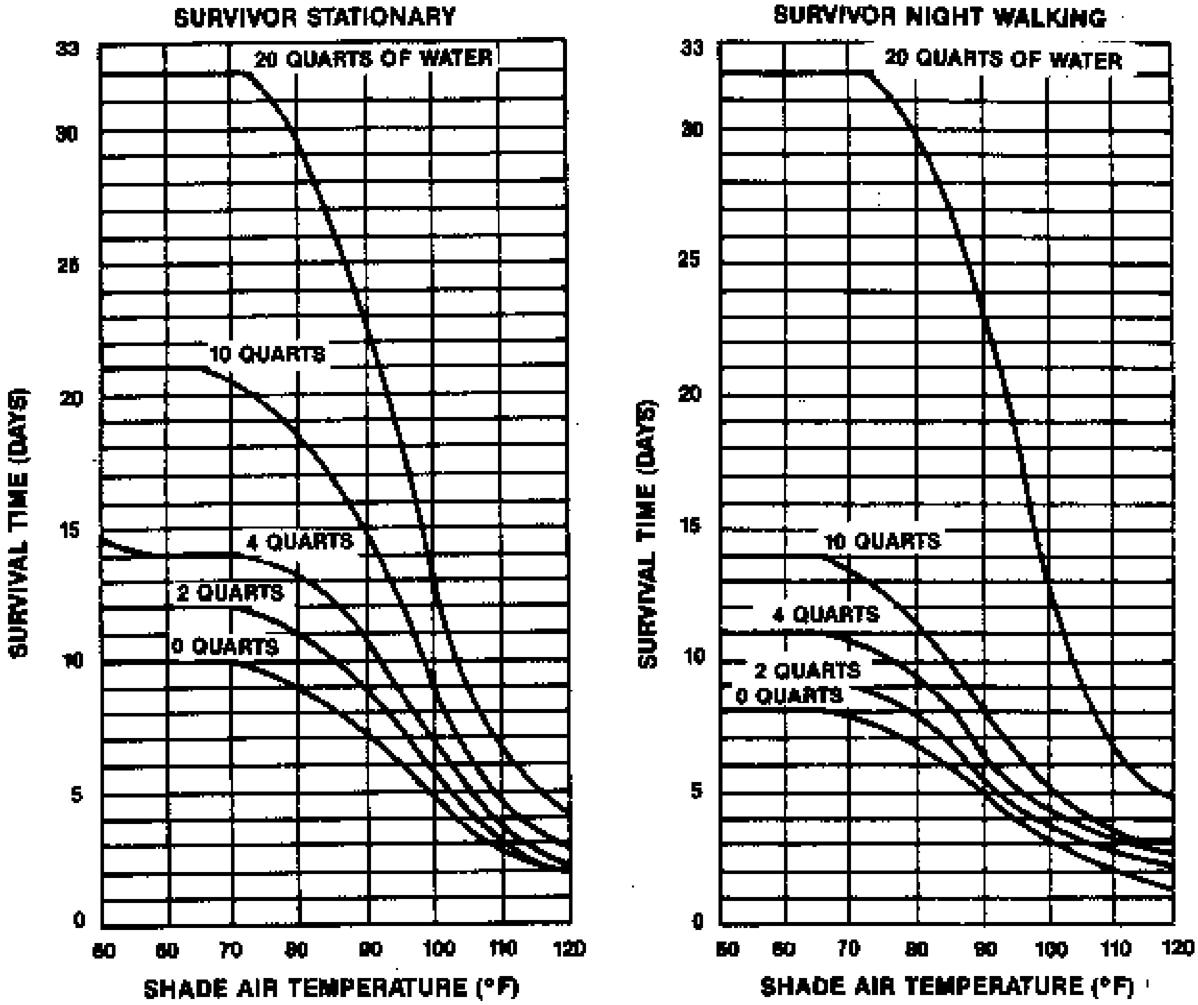
Camouflage efforts will be primarily directed towards avoiding long range detection, as the desert environment will provide minimum camouflage when targets are viewed up close. Camouflage covers for vehicles will be a must, with increased protection against shine. Vehicles must afford an extremely low silhouette, and the team must become adept at using even minor folds in the ground for concealment. Helicopter operations will be hampered due to low air density, lack of covered and concealed routes, increased maintenance requirements, and navigational difficulties due to a general lack of reference points for low-level flight. Prepositioning of resupply caches may be essential. Extremely large quantities of water are required for "active" operations.

Environmental Aspects of LRP Desert Operations

1. Primarily sandy or rocky desert soil.
2. Extremely sparse vegetation.
3. Sparse population and poorly developed transportation networks.
4. Less then 10 percent natural masking by relief, with up to 75 percent of a given area observable from heights.
5. Sudden and extreme fluctuations of temperature (30° to 130° F).
6. Absence of landmarks for orientation and land navigation.
7. Strong winds and sudden violent sand or dust storms which cause a decrease in visibility, communications degradation, and increased maintenance problems.
8. Glaring sunlight, with little shade, and heat waves that obscure visual observation.
9. A shortage or complete lack of water, with increased consumption.
10. Rains that bring mud but little relief from water shortages.
11. Increased danger of heat injury.
12. Long-term survival operations are extremely difficult and hazardous.



Expected Desert Survival



ASPECTS OF LRP JUNGLE OPERATIONS

Examples of jungle operations by small, elite patrol-type forces abound throughout history. The terrain affords ample opportunity to employ the LRP force with a high degree of effectiveness. Control over military forces is usually decentralized due to the density of the terrain, resulting in wide gaps between defending units and vehicular traffic channeled onto existing roads. Dense vegetation, water obstacles, and rugged terrain hinder cross-country mobility.

Observation is frequently restricted to short distances, which would normally negate the effectiveness of stationary surveillance missions. However, careful selection of observation points can still allow effective employment overlooking valleys, and so on. Dense vegetation and rugged terrain, although hampering team observation, would generally aid stealth, camouflage, cover, and concealment, and enhance infiltration and exfiltration capabilities.

Mission duration is restricted due to the harsh climate and availability of water within the area of operations; although a generally wet climate, water can at times be lacking, and unsafe even with the use of water purification tablets, while consumption increases due to heat and humidity.

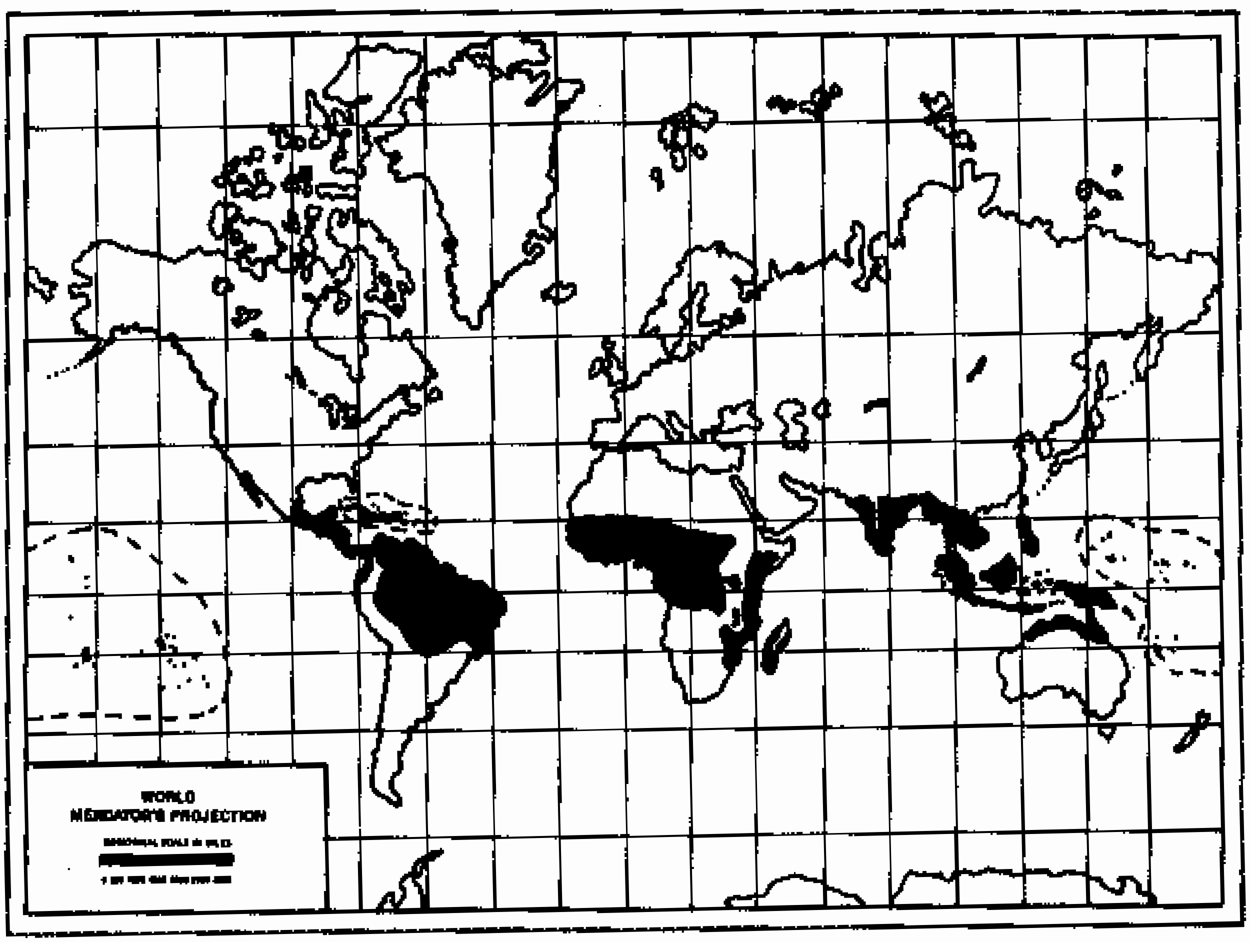
The ability of the LRP force to conduct strike operations is considerably enhanced, with ambush missions extremely profitable. Fields of fire and target acquisition will be adversely affected due to restricted observation. Reduced munitions effects will result due to vegetation and the height and density of the jungle canopy.

Navigation is generally more difficult due to terrain, vegetation, and the frequent inaccuracy of jungle area maps. Streams, roads, and even towns will frequently be swallowed by the jungle. Radio relay sites will be essential for maintaining communications due to masking by the terrain, weather, and vegetation. Air mobility will be essential, with some capabilities enhanced and others degraded. Landing zones may be few and far between, with weather severely restricting operational hours in some areas. Security of flights is enhanced due to generally reduced fields of observation. Resupply operations may also be accomplished with less risk. The use of passive night-vision devices, such as starlight scopes, is degraded due to low ambient light levels in many areas.

Environmental Aspects of LRP Jungle Operations

1. High and constant temperatures, ranging from 64° to 95°F.
2. Oppressive humidity, 65-75 percent daytime, and over 90 percent at night.
3. Heavy rainfall during the greater part of the year, with the possibility of dry spells part of the year. For a given area it will rain at a fairly predictable time each day, usually after midday.
4. Wind velocities are generally low, with an average of 3 mph, seldom over 8 mph.
5. Frequent cloudy and foggy periods will restrict flying.
6. Extremely diversified vegetation and terrain.
7. Elevations can vary from sea level to over 13,000 feet above sea level.
8. Frequent water obstacles: rivers, streams, swamps, and lakes.
9. Tree canopies ranging in height from 20 feet to 180 feet.
10. Undergrowth can reduce visibility and fields of fire to as little as five meters or less.
11. Grass and reeds can grow to a height of 15 feet, with bamboo reaching up to 100 feet in height.
12. Aerial observation is degraded.
13. Decreased effectiveness of munitions of all types.
14. Slow rate of march, seldom exceeding 1.5 kilometers per hour, but in some cases as slow as 100 or less meters per hour.
15. Communications operating range capabilities reduced by 10 percent to 25 percent.
16. Extremely rugged and steep mountainous areas.

Jungles of the world.



ASPECTS OF LRP MOUNTAIN OPERATIONS

The land surface of the world covers approximately 91,730,100 square kilometers, of which 4,345,110 are above 3,000 meters above sea level. The Central Asian Highlands constitute the largest land mass over 3,000 meters, with close to 1,609,300 square kilometers above this height. South America has some 587,394 square kilometers. All the rest of the land above 3,000 meters is of little consequence on a worldwide basis. However, if the many millions of square kilometers from 500 to 3,000 meters are added, the example becomes exceedingly clear and shows that mountain operations can occur in practically every country in the world, and in all types of environments.

Mountains are generally defined as land forms higher than 500 meters above the surrounding plain, characterized by steep slopes. They may consist of an isolated peak, single ridges, or complex ranges extending for long distances. History records many cases in which forces inferior in numbers and equipment have held off superior attackers in mountainous areas. For the LRP, however, we are more concerned with the ability to move, communicate, and observe enemy forces while remaining undetected.

To the team's benefit, sound and radar ranging are limited by dead space, shielding of sound and electromagnetic waves, and multiple reflection of echoes. Communications may require additional, or different, radios. The combined problems of terrain, cold, ice, and dampness make rapid and reliable communications extremely difficult. Since mountainous terrain restricts line-of-sight communication, such as FM and multichannel radio, extensive use is made of radio relay and retransmission sites. However, siting communication teams on high ground has its own problems. These include difficulties in establishing the sites, loss of mobility, and increased likelihood of locations being predicted or discovered.

Mountainous terrain degrades ground-to-air communications. While nap-of-the-earth flight techniques are used to avoid radar and visual detection, they also often degrade FM radio transmissions and reinforce the requirement for radio relay and retransmission sites.

The weather tends to change rapidly, and severely. Fog, frontal systems, wind, icing, and storms can easily disrupt or delay helicopter operations. Changes in temperature, relative humidity, and air pressure affect aircraft lift capability. Increases in any of these factors, plus higher altitudes, mean decreased life capability. For a given load, the helicopter must produce extra power, which requires more fuel and increases engine strain. Besides limited visibility, low clouds and fog may cause helicopters to ice up. Ice on rotor blades results in significant loss of lift, and since ice does not break off rotor blades uniformly, severe rotor blade imbalance can occur.

Winds in mountainous terrain are almost impossible to predict. On the windward side of mountains, air flow normally is steady, but on the leeward side, winds are turbulent, with strong vertical currents. Turbulence from even moderate winds (11 to 14 mph) can seriously hamper helicopter operations. Aircrews require special training to minimize weather and wind hazards. Turbulence may either preclude helicopter usage or require them to be flown at higher altitudes, increasing the risk of detection and enemy fire. Mountainous terrain can complicate flight route selection. Routes may not always be the most direct, nor offer the best cover and concealment. Landing zones may be limited both in number and suitability.

Employment of artillery or air support may be hampered due to the terrain. Adjustment of fire is complicated by variations in atmospheric pressures and temperatures. Dead space and terrain masking will limit fields of fire. More rounds will generally be required per target due to increased difficulty in adjustment of fire and decreased bursting radius caused by firing into snow or forested areas.

Mountainous terrain will severely hamper enemy operations. Supply routes are major targets, and mountains afford excellent opportunities for ambushes and attacks. Enemy air-defense capabilities are degraded due to masking of radars, fire, and decentralized control.

Ration caloric requirements increase due to increased strenuous activity, and cold weather will increase the need for vitamin C. Mission loads must be kept as light as possible due to the ruggedness of the terrain, while at the same time movement may require use of mountaineering equipment that will add additional weight.

Environmental Aspects of LRP Mountain Operations

Mountain operational environments will vary widely, based on soil composition, surface, configuration, altitude, latitude, and climatic conditions.

1. Slides aud floods can be quite frequent.
2. Special equipment is frequently required.
3. Number and usability of landing zones, roads, and waterways are reduced.
4. Increased physical strain.
5. Slopes are commonly 4° to 30°, and will include vertical or overhanging cliffs and precipices.
6. Increased danger of suuburn at higher altitudes.
7. Atmospheric pressure drops as the altitude increases, the temperature drops and the air becomes more rarefied.
8. Extreme weather changes are possible during a single day.
9. Temperature inversion is quite frequent.
10. Temperatures will normally fall 3-5°F per 300-meter gain in altitude.

ASPECTS OF LRP ARCTIC OPERATIONS

In addition to the factors already covered under mountain operations, the following factors will need to be considered when planning LRP operations in extremely cold or arctic environments:

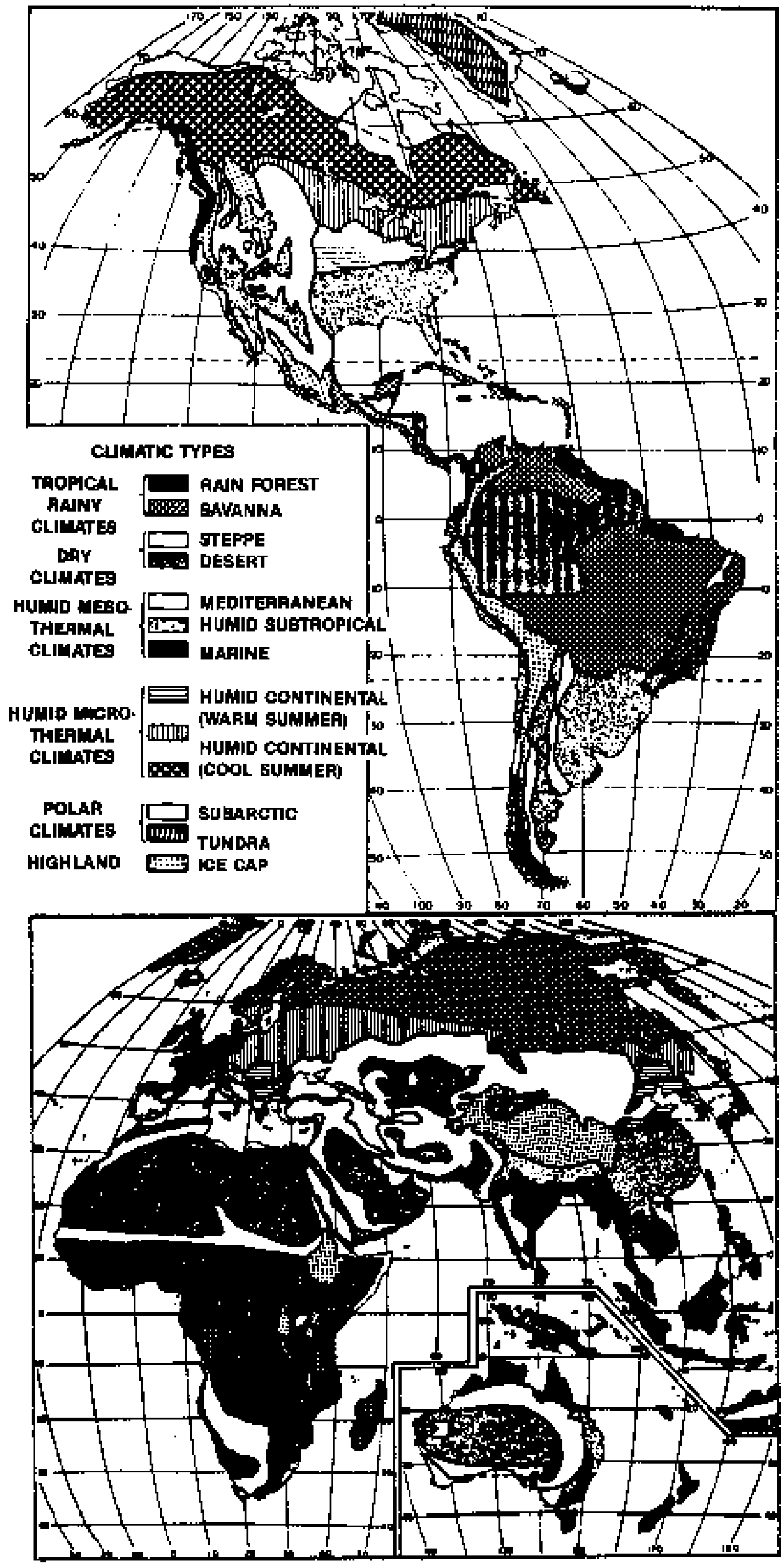
1. Human and mechanical efficiency are considerably reduced due to the harsh weather.
2. Special clothing and equipment are essential, but also serve to increase the team's mission load weight. Warming shelters will need to be built, but can easily be camouflaged. An enriched high-calorie diet with hot food aud drink must be provided as often as possible. Water and medical supplies will freeze if not protected.
3. Batteries will have a much shorter life expectancy, and communications will be all but impossible in some areas due to storms and electromagnetic anomalies.
4. Mobility will be restricted in most cases, with the use of skis and snowshoes essential in many areas. Air support is restricted due to severe weather. Deep snow will make orientation more difficult.
5. The effectiveness of artillery fire is decreased by deep snow, slower rates of fire, and decreased range. Range estimation without radar or rangefinders is much more difficult due to "white out" and lack of valid reference points.

ASPECTS OF LRP URBAN OPERATIONS

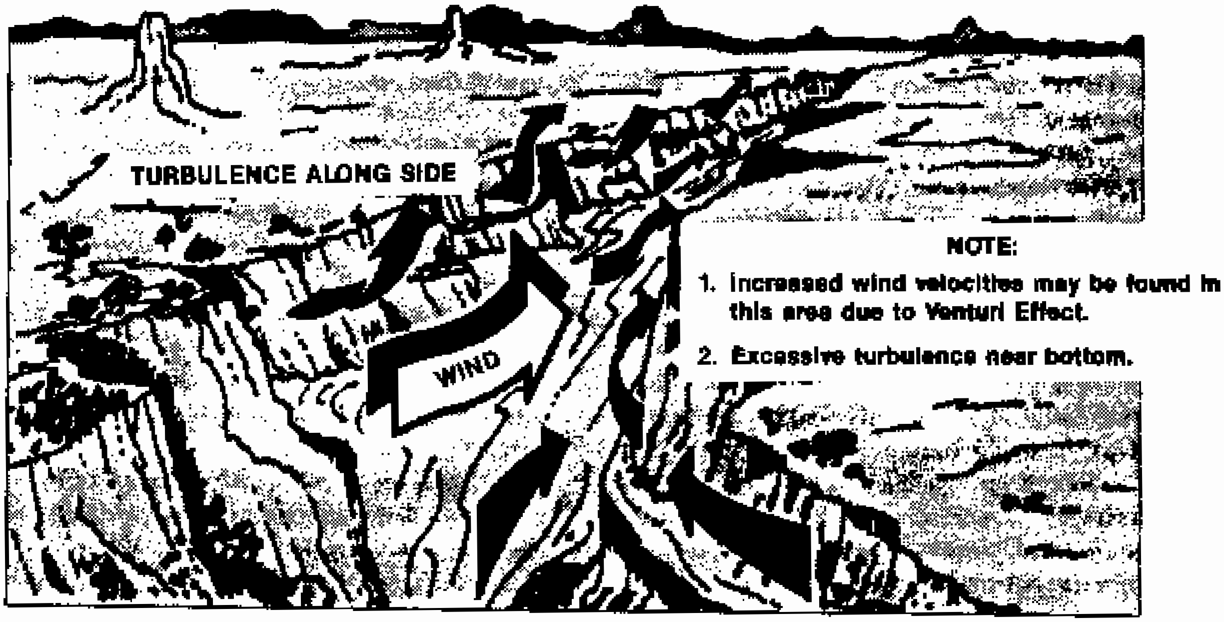
In dense urban areas such as Europe, a team would encounter a city or town about every 40 to 50 kilometers, with one or two small cities per 300 square kilometers. Although teams will be able to effectively bypass them, it may at times become necessary to operate in the outskirts or even within the city. However, this should be the rare exception rather than the norm. Storm sewers and tunnel systems can be used for infiltration and exfiltration when it is essential for a team to move through an urban area.

CLIMATE EFFECTS ON OPERATIONS

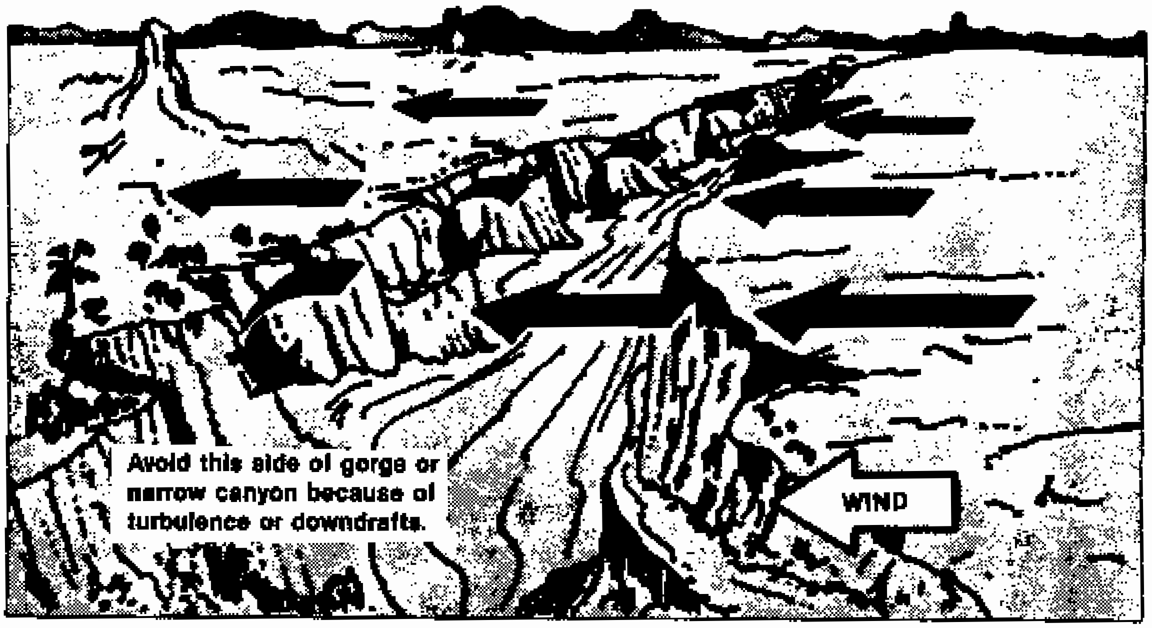
In addition to the areas already covered, it is essential that the effects of factors such as wind chill, wind currents, and so on also be understood and evaluated as to their effects on planned operations. Survival and other aspects can be adversely affected without a full understanding of the climate within the operational area. Planners should know when it rains, how much, and how predictably. The following illustrations will give some insight into this area, but a detailed study and review of the conditions in the proposed area of operations is a must. As an example, understanding the flow of wind currents, in relationship to the terrain, can assist air operations planning and scent tracking, along with surviving the wind-chill factor.

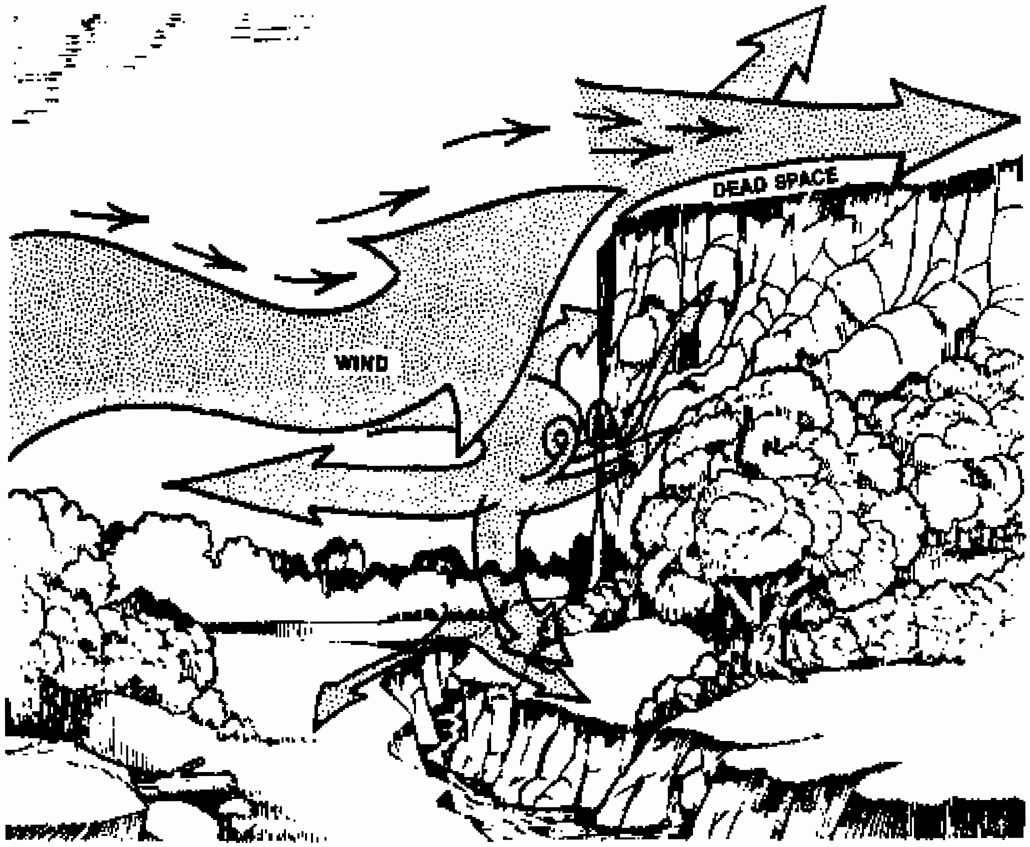

CLIMATIC TYPES
TROPICAL RAINY CLIMATES
RAIN FOREST
SAVANNA
DRY CLIMATES
STEPPE
DESERT
HUMID MESO-THERMAL CLIMATES
MEDITERRANEAN
HUMID SUBTROPICAL
MARINE
HUMID MICRO-THERMAL CLIMATES
HUMID CONTINENTAL (WARM SUMMER)
HUMID CONTINENTAL (COOL SUMMER)
POLAR CLIMATES
SUBARCTIC
TUNDRA
HIGHLAND
ICE CAP

Wind flow in valley or canyon.

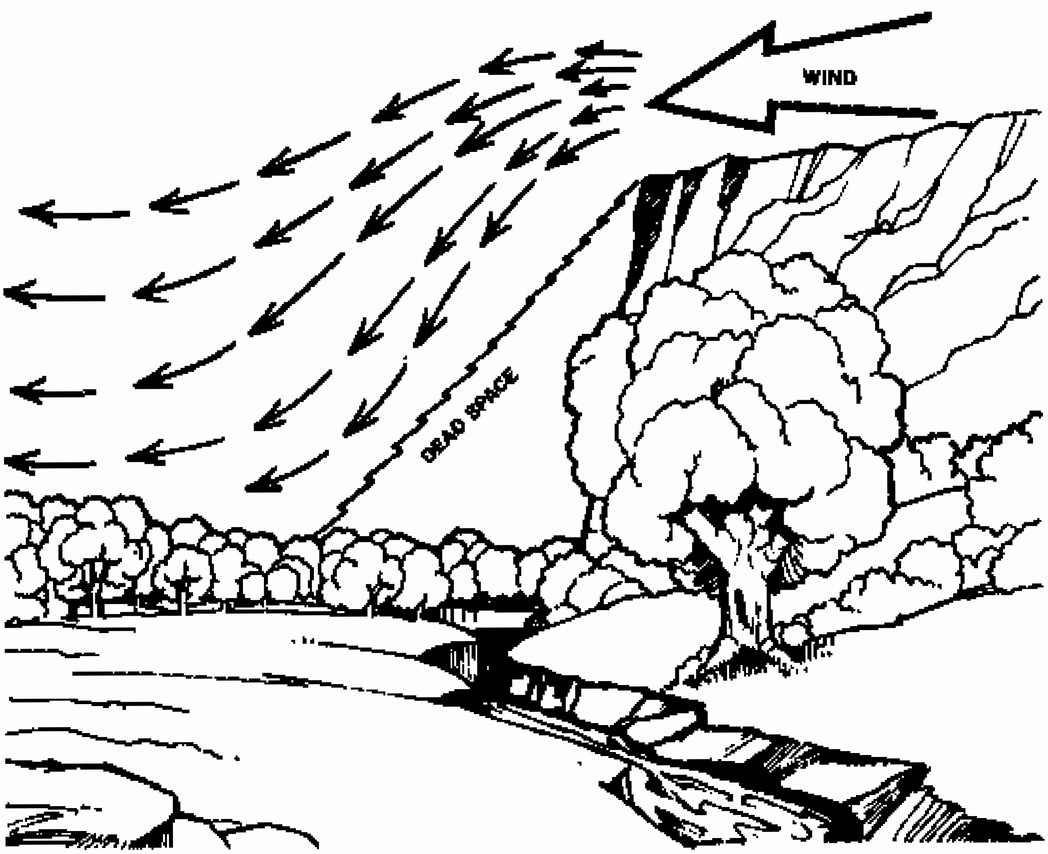


Wind flow over gorge or canyon.

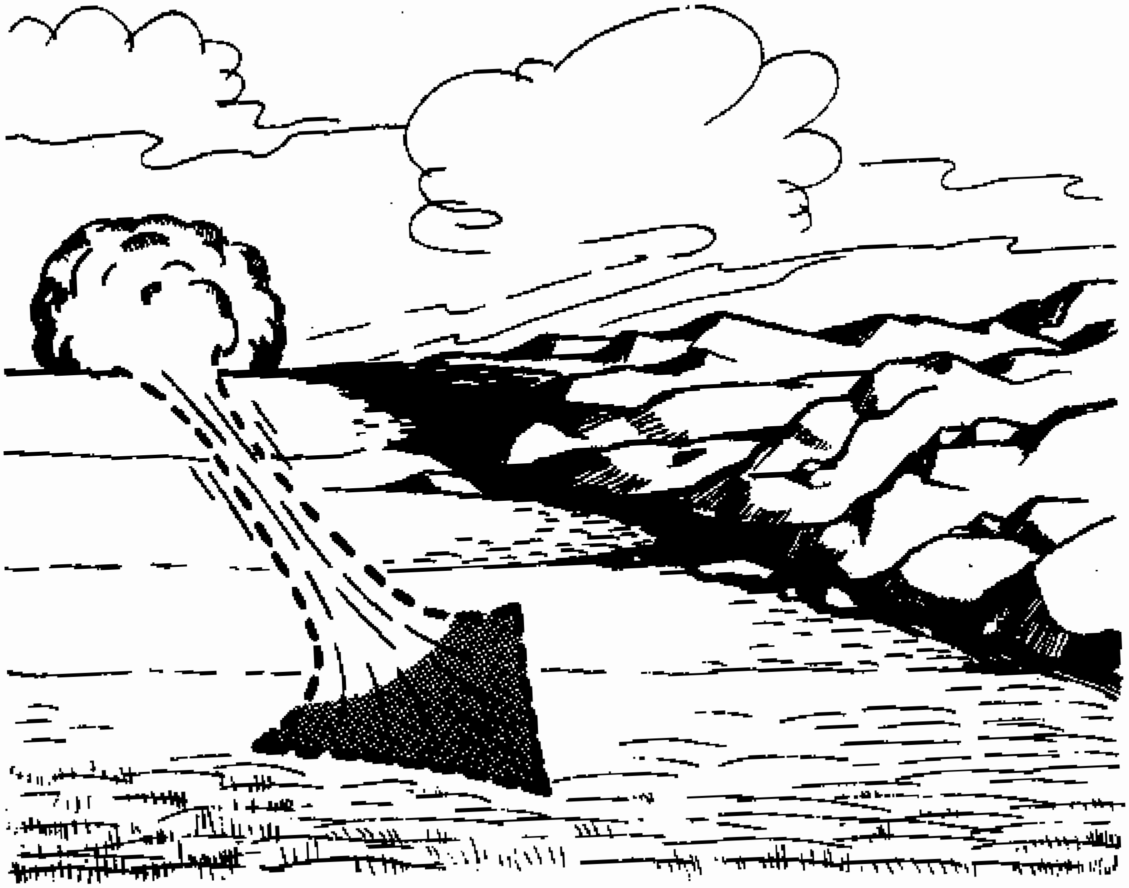




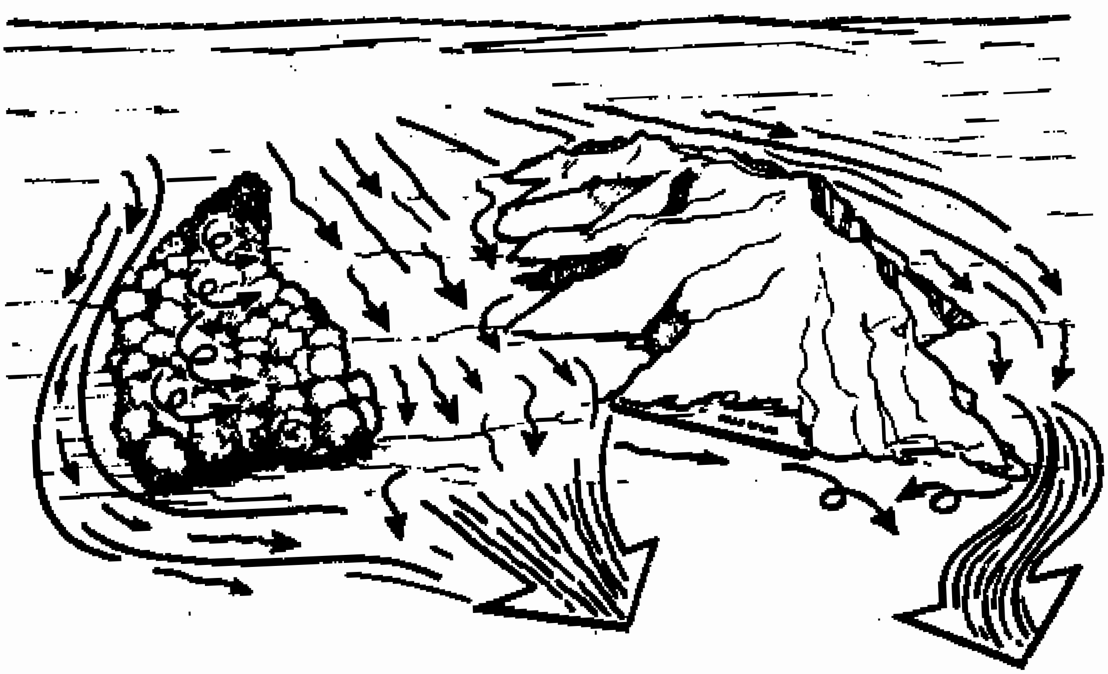
Effect of wind blowing toward mesa.



Effect of wind blowing from a mesa.



Effect of wind on open terrain.



Wind defection by natural terrain.

Wind speed affects the degree of cold (i.e., wind chill factor). For example, personnel can be fairly comfortable at temperature down to 0°F; however, a 15-mph wind at 5°F or a 30-mph wind at 15°F can cause exposed flesh to freeze.

WINDSPEED																						
KNOTS	MPH	TEMPERATURE (°F)																				
CALM	CALM	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60
		EQUIVALENT CHILL TEMPERATURE																				
3 6	5	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-65	-70
7 10	10	30	20	15	10	5	0	-10	-15	-20	-25	-35	-40	-45	-50	-60	-65	-70	-75	-80	-90	-95
11 15	15	25	15	10	0	-5	-10	-20	-25	-30	-40	-45	-50	-60	-65	-70	-80	-85	-90	-100	-105	-110
16 19	20	20	10	5	0	-10	-15	-25	-30	-35	-45	-50	-60	-65	-75	-80	-85	-95	-100	-110	-115	-120
20 23	25	15	10	0	-5	-15	-20	-30	-35	-45	-50	-60	-65	-75	-80	-90	-95	-105	-110	-120	-125	-135
24 28	30	10	5	0	-10	-20	-25	-30	-40	-50	-55	-65	-70	-80	-85	-95	-100	-110	-115	-125	-130	-140
29 32	35	10	5	-5	-10	-20	-30	-35	-40	-50	-60	-65	-75	-80	-90	-100	-105	-115	-120	-130	-135	-145
33 36	40	10	0	-5	-15	-20	-30	-35	-45	-55	-60	-70	-75	-85	-95	-100	-110	-115	-125	-130	-140	-150

WINDS ABOVE 40 HAVE LITTLE ADDITIONAL EFFECT	LITTLE DANGER	INCREASING DANGER (Flesh may freeze within 1 min.)	GREAT DANGER (Flesh may freeze within 30 seconds.)

INSTRUCTIONS

Measure local temperature and wind speed if possible; if not, estimate, enter table at closest 5°F interval along the top and with appropriate wind speed along left side. Intersection gives approximate equivalent chill temperature; that is, the temperature that would cause the same rate of cooling under calm conditions.

NOTES

1. *Wind.* The above table was constructed using miles per hour (MPH); however a scale giving the equivalent range in knots has been included on the chart to facilitate its use with either unit.

   Wind may be calm but freezing danger great if person is exposed in moving vehicle, under helicopter rotors, in propeller blast, etc. It is the rate of relative air movement that counts and the cooling effect is the same whether you are moving through the air or it is blowing past you.

   Effect of wind will be less if person has even slight protection for exposed parts—light gloves on hands, parka hood shielding face, etc.
2. *Activity.* Danger is less if subject is active. A man produces about 100 watts (341 BTUs) of heat standing still but up to 1,000 watts (3413 BTUs) in vigorous activity like cross country skiing.
3. *Proper use of clothing* and *adequate diet* are both important.
4. *Common sense.* There is no substitute for it. The table serves only as a guide to the cooling effect of the wind on bare flesh when the person if first exposed. General body cooling and many other factors affect the risk of freezing injury.

AERIAL OBSERVATION AND PHOTO RECONNAISSANCE (TM 1-300)

Restricted visibility. Hinders or prevents observation. May require use of indirect sensors and electronic devices.
Winds aloft. Affect routes and range of aircraft or drone.
Precipitation. Significantly affects visibility and photographic resolutions.
Clouds. May hinder or prevent observation. Density and height affect quality of photographs.

AVIATION AND AIRBORNE OPERATIONS (TM 1-300)

Restricted visibility. Seriously limits close air support and airborne operations. Army aviation operations may be limited. Creates hazard for high performance aircraft during takeoff and landing.
Wind. Parachute operations in winds over 15 mph can scatter personnel, supplies, and equipment, and hinder assembly and reorganization. High velocity increases landing injuries and damage to supplies and equipment, and may seriously limit Army aviation. Helicopter operations are adversely affected by gustiness. Winds aloft modify range and payload of all aircraft.
Precipitation. Effect on trafficability can limit or prohibit use of landing strips. Heavy rain or snowfall can reduce surface visibility.
Cloud cover. Aids helicopter and light aircraft in avoiding fighter aircraft and visually directed ground fire. Low clouds can prevent penetration of target areas by close air support aircraft.
Turbulence/icing aloft. Causes discomfort to personnel, strain or damage to airframes, difficulty in control, and decreases lift.
Temperature/humidity/pressure. Affects lift and load capabilities of aircraft. Of particular significance to helicopters.

AMPHIBIOUS OPERATIONS

Restricted visibility. Aids in protecting convoy from enemy observation. Offers some protection from air attack at landing area, and can be exploited during small-scale landings. Decreases effectiveness of close air and naval gunfire support and accuracy of artillery air spotting. Movement between ship and shore is difficult.
Wind. Ships are forced to slow down when moving through high waves. Convoys may be scattered. Deck gear and cargo may be lost or damaged. Ship-to-shore movement may be limited or made impossible. Troops may suffer from seasickness. When prevailing winds are on shore, surf may be too high to permit safe landing, may disrupt landing formations, and cause casualties. Retracting a landing craft from the beach in heavy surf is difficult and dangerous. Strong wind on tide at landing area may greatly alter width of beach. Strong offshore wind with ebbing tide may blow water to an extreme distance from the beach proper, requiring personnel and material to pass over wide exposed beach. Powerful onshore wind can increase the advance of high tide, flooding beach installations and activities.
Precipitation. Can restrict visibility and conceal approach to objective area. May affect coastal trafficability and delay onshore movement.
Cloud cover. May affect concealment of convoys, air support and defense, and aerial ship-to-shore discharge operations.
Temperature/humidity. No significant effect, other than on personnel comfort, and on possibility of ice formation at low temperatures.

ARMOR AND ARMORED CAVALRY

Restricted visibility. Affects observation, control, and coordinated maneuver. May assist movement by reducing enemy observation and threat of air attack. Reduces effectiveness of gun firing.
Wind. Strong surface winds may produce dust or sand storms, decreasing visibility and impairing operation of engines and vehicles.
Precipitation. Lowers visibility. Mud or ice may seriously limit or prohibit mobile operations.
Cloud cover. Influences operation of both supporting and enemy aircraft.
Temperature. Affects viscosity of lubricants. Low temperatures affect engine-starting operations and necessitate longer warmup time. Sudden thaws may affect vehicle mobility.

ARTILLERY (FM 6-15)

Restricted visibility. Restricts visual ranging and target acquisition.
Wind. Tends to deflect projectile from normal path, particularly when fired at long range. Effect on projectile increases with increase in wind velocity and size of projectile. Reduces efficiency of sound-ranging operations by distorting sound propagation. Strong winds increase effectiveness of incendiary munitions. Turbulent winds in mountainous areas reduce effectiveness of meteorological messages and, therefore, the accuracy of fire.
Precipitation. Decreases effectiveness of incendiary munitions. Can limit mobility of prime mover or self-propelled artillery.
Cloud cover. Influences operation of manned and unmanned target acquisition aircraft.
Temperature/humidity. Frozen ground decreases capability of projectile to penetrate the earth but increases casualty effect of point-detonating shells. Powder temperature is a factor in computing muzzle velocity. Amount of water vapor in

the air affects projectile trajectory. Humidity also affects sound-ranging. Temperature and humidity can reduce crew efficiency and increase instrument maintenance requirements.

BIOLOGICAL OPERATIONS (FM 3-8 and FM 3-10)

Restricted visibility. Attenuates ultraviolet radiation, decreasing decay rate of some biological agents. Makes observation of biological clouds more difficult; helps to achieve surprise in attack.

Wind. Biological agents are effective at various speeds. Downwind area coverage increases with increased wind speed.

Precipitation. Heavy rain or snow normally reduces effectiveness of agents.

Cloud cover. Reduces ultraviolet radiation, decreasing decay rate of some agents.

Temperature/humidity. Moderately cool temperatures are desirable for employment of wet biological agents because they favor the survival of micro-organisms in aerosols. Aerosols have high decay rate during periods of low relative humidity; increased moisture reduces decay rate.

COMMAND POST AND BIVOUAC SITE SELECTION

Restricted visibility. Ground fog and excessive humidity are likely to form in valley air (cold) drainage areas. Greater security measures may be required to reduce risk of surprise attack in such areas.

Wind. Sites with protection from strong surface winds should be considered. Downwind sides of hills are preferred.

Precipitation. Runoff drains into concave land surfaces; convex surfaces should be selected. Care should be used in selecting entrance and exit routes which will be passable after heavy precipitation.

Cloud cover. No bearing on choice of location, but may afford concealment and enhance camouflage measures.

Temperature/humidity. Basins or depressions normally have lowest temperature of the terrain. Pooling of colder air in valleys and depressions increases their vulnerability to chemical and biological attack. In the northern hemisphere, preference is given to southwesterly slopes of hills and mountains where temperature is usually higher than on other slopes.

CHEMICAL OPERATIONS (FM 3-8 and FM 3-10)

Restricted visibility. Makes observation of chemical clouds more difficult and helps in achieving surprise in a chemical attack.

Wind. High winds increase evaporation rate of liquid chemical agents and dissipate chemical clouds more rapidly than low winds. Effects of wind speed on persistent-effect agents are variable. Large area attacks with nonpersistent-effect agents are most effective in winds not exceeding 15 knots; small-area attacks with rockets or shells are most effective in winds not exceeding 5 knots. Wind direction must be considered for target coverage and for determining hazard to friendly troops.

Precipitation. Normally reduces effectiveness of chemical agent. Heavy rains wash liquid contamination into low areas and stream beds, presenting a lingering hazard.

Cloud cover. Heavy cloud cover reduces heating and the resultant dispersion of agents is favorable for daytime chemical-agent employment.

Temperature/humidity. Blister Agent (HD) is highly effective in hot, humid weather because the body is more sensitive to both vapor and liquid under such conditions. High temperature increases evaporation rate of agents and decreases duration of effectiveness. The reverse occurs at low temperatures.

Stability (temp gradient). Stability of the air layer 0.5 to 2.0 meters above the surface has direct bearing on extent and effectiveness of chemical clouds. Under stable conditions, clouds persist with time, remain concentrated, and stay close to ground as they travel downwind.

COMMUNICATIONS AND RADAR

Restricted visibility. Limits all forms of visual communication.

Wind. Can damage or prevent use of radio and radar antennas.

Precipitation. May reduce talking range of field-wire circuits and produce radar clutter which can obscure target echoes. Wire communications are affected by heavy accumulation of snow and ice on wires and antennas.

Cloud cover. Little effect on communications, but electrical storms interfere with low-frequency radio reception. Drones cannot be radar-tracked in clouds of high moisture content.

Temperature/humidity. Large temperature variations necessitate special stringing of communication wire to allow for expansion and contraction. High humidity and temperature have adverse effect on wire insulation. Irregular distribution of temperature, pressure, and water vapor aloft refracts radar and very-high-frequency and ultra-high-frequency radio waves. Refraction varies greatly with atmospheric changes.

EQUIPMENT AND SUPPLIES

Restricted visibility. Delays supply distribution, but increases passive security.

Wind. Can damage or destroy unprotected equipment. Blown sand and dust damage painted surfaces, engines, and weapons.

Precipitation. Can cause rotting or mildewing of rubber, leather, cloth, or rope. Heavy snow can cause roofs to collapse.

Cloud cover. Blocks out direct sunlight, reducing dehydration of exposed food, but accelerates growth of fungus and bacteria.
Temperature/humidity. Have direct influence on consumption rate of most supplies, notably fuel oil and food. High temperature and humidity cause rapid deterioration of some types of electrical insulating material, and corrosion of metal such as small arms and artillery pieces. Wood, paper, sugar, glue, and leather are sensitive to extremes of humidity. Food, medicine, film and photographic chemicals require special handling during extremes of temperatures or humidity. Evaporation losses of gasoline and other volatile stocks are high in fluctuating temperatures.

FLAME WEAPONS

Restricted visibility. Flame weapons have particularly demoralizing effects when used against enemy during poor visibility.
Wind. Affects range and accuracy. Crosswind or headwind breaks up fuel and decreases range; following wind increases range. Best results are obtained when it is calm or when flame throwers are positioned to take advantage of following wind. Firing into strong headwinds may cause fuel from portable flame throwers to be blown back on operator.
Precipitation. Rain has little effect on flame fuel in flight. Although fuel will float and burn on water, incendiary effect is diminished. Snow has little effect on fuel in flight, but tends to smother flame, reducing incendiary effect.
Cloud cover. No effect.
Temperature/humidity. High temperatures increase incendiary effect; fuels may have to be thickened to avoid excessive burning. Low temperatures decrease incendiary effect; more fuel may be required.

INFRARED

Restricted visibility. Infrared (IR) radiation is severely attenuated by heavy fog, with smaller haze particles affecting visible wavelengths. In light fogs, the near IR spectral region is superior to visible light; however,as water droplets increase in size, and visibility decreases to about 1,000 yards near IR detection devices are virtually useless. Middle-to-far devices have from two-to-four times the detection range of visible light under these conditions.
Wind. High windspeed can reduce hot target vulnerability to passive IR detection because of increased cooling rate of target.
Precipitation. In rain, IR radiation has little advantage over visible light. Larger raindrops also affect certain radar wavelengths.
Cloud cover. Radiation is attenuated in a cloud due to scattering by water droplets and selective absorption by liquid water. Sky background affects capability of IR homing-missile system to acquire and track target.
Temperature/humidity. During clear, dry conditions, IR transmittance is optimum. Only selective absorption, by water vapor and carbon dioxide, is important at low altitudes.

Note. Weather effects on an IR system depend upon characteristics of the particular system, IR target characteristics, and on a fairly detailed description of the transmission path.

ILLUMINANTS

Restricted visibility. Greatly reduces illuminants' effectiveness. Has more detrimental effect on searchlight than on flare, because searchlight beam is relatively close to the ground, and its intensity is affected by atmospheric conditions over the whole range, whereas flare is affected only by conditions in target area.
Winds. Flares may be blown rapidly away from target area, reducing time of effectiveness. Wind blowing toward friendly troops may illuminate positions or start fires in friendly territory. No effect on searchlight illumination.
Precipitation. Reduces visibility, although illumination is highly effective over snow-covered terrain because of surface reflection.
Cloud cover. Reflected illumination, almost equal to that of a full moon, may be obtained by directing searchlight beam against lowlying (500-3000 feet) clouds. Area beneath reflection point receives higher intensity illumination than it would from diffusion alone.
Temperature/humidity. No effect.

MINES

Restricted visibility. Affects rate of mine emplacement but, at same time, helps conceal mine-laying personnel.
Winds. In deserts or dry areas, wind may blow away dust or sand, exposing mines, or may deposit large quantities on the mines, preventing detonation.
Precipitation. Concealment of mines is difficult after a snowfall, and mines are revealed when snow melts. Rains may make mine-laying easier by softening the ground. Mines continually covered by water are not considered as reliable as those laid in well-dressed areas.
Cloud cover. Low ceilings inhibit or prevent aerial observations or attacks, enhancing mine laying opportunities.
Temperature/humidity. Frozen ground greatly hinders mine emplacement.

MORTARS

Restricted visibility. Hinders visual target acquisition.
Wind. Can modify the normal trajectory of a projectile.
Precipitation. Affects visibility.
Temperature/humidity. Variation in air temperature causes variation in range. As temperature rises, velocity and range

of projectile increase with no increase in powder charge.

Air resistance and density. At the same muzzle velocity, a heavier projectile travels farther because it is affected less by air resistance than a lighter projectile of the same size and shape. An increase in air density causes greater resistance to the projectile and decreases its range.

NUCLEAR OPERATIONS (TM 3–210)

Restricted visibility. Maximum thermal effect is realized on clear day. Smoke, haze, mist, or fog have pronounced influence on thermal radiation. Degree of visibility determines the distance to which personnel are subjected to temporary burst dazzle. Can also make poststrike analysis inaccurate or impossible.

Wind. Direction and speed have no significant influence on blast, thermal radiation, or initial nuclear radiation, but velocity affects movement and location of fallout from surface or subsurface burst by depositing contaminated dirt and debris downwind. Extent of contaminated area depends on velocity of winds between the ground and the nuclear cloud top.

Precipitation. Has significant effect on blast and also affects range of thermal intensity. Buildings, vegetation, and other flammable material require higher thermal intensities for ignition, and spread of fire is limited. Troops take shelter, giving themselves some degree of protection. Wet uniforms require much higher thermal intensities for ignition. Heavy rain can flush radioactive material from buildings, equipment, and vegetation, reducing intensities, and can deposit high concentrations in drainage systems, on low ground, and on flat, undrained areas.

Cloud cover. May affect intensity of thermal radiation reaching target. If burst is above or within cloud layer, a large portion of thermal radiation may be attenuated. In a burst below cloud layer, some of the thermal energy is reflected downward, intensifying the effect on target.

Temperature/humidity. Extremely low temperatures cause personnel to seek shelter, reducing their vulnerability to shock wave. Low temperatures also adversely affect stability and strength of certain materials, increasing a shelter's vulnerability to shock wave. Ambient temperature has no significant effect on thermal radiation; however, by influencing clothing requirements, it can increase or decrease vulnerability of troops. Prolonged high temperatures in dry weather make shelters more vulnerable to thermal radiation by lowering the kindling temperatures of structural materials. Very high or low humidity has no direct effect upon thermal radiation, but can affect target vulnerability, to a degree, by the moisture content of clothing, structures, equipment, and vegetation. Temperature may significantly affect nuclear radiation, because relative air density affects initial nuclear radiation. Since climatic conditions usually determine the type of shelter occupied by personnel, temperatures indirectly affect the vulnerability of troops to nuclear radiation.

PERSONNEL

Restricted visibility. Increases probability of personnel becoming lost or having accidents. Detection and identification are more difficult. Field functions require more time.

Wind. Adverse effects usually increase with rising windspeed. The higher the windspeed, the more intense the resulting wind chill. Winds which produce blizzards or dust/sand-storms restrict visibility.

Snow cover. Rate of march for foot troops is decreased depending on nature and depth of snow. Normally, 12 inches or more of snow will prevent foot marches except with skis or snowshoes.

Precipitation. Affects morale and efficiency, especially in freezing rain or sleet. Prolonged rains may affect water supplies, causing conditions conducive to typhoid, dysentery, and other intestinal diseases, and creating breeding grounds for mosquitoes. Drought conditions create water supply problems and cause dust which induces throat irritations.

Cloud cover. Can help prevent sunstroke, but also inhibits drying of terrain after a rain. Prolonged exposure to sunshine or glare can cause conjunctivitis, sunburn, snowburn, or snow blindness, and create requirements for protective glasses, protective clothing, and medicines.

Temperature/humidity. Affects efficiency, physical well-being, and morale of personnel. Extreme conditions cause heat exhaustion and frostbite, and can lower the individual's level of resistance to many diseases. Water requirements of the human body vary with temperature and amount of exercise. In the jungle, where humidity is high, perspiration does not completely evaporate, but runs off the skin, increasing water losses. In desert regions, perspiration evaporates so rapidly that dehydration may result. At high desert temperatures, a man working hard may require as much as 3 gallons of drinking water per day. Low temperatures may produce cold weather injuries, and require use of clothing which reduces physical efficiency.

RIFLE SIGHTING AND FIRING

Restricted visibility. Reduces target acquisition capability and accuracy.

Wind. Affects the flight of bullet.

Precipitation. May restrict visibility.

Cloud cover. Alternate patches of sunshine and shadow affect aiming.

Temperature/humidity. Together with improper lubrication may cause malfunctions.

ROCKETS

Restricted visibility. Affects target acquisition capability.

Wind. Low level winds affect rocket during entire burning phase; effects are greatest as rocket leaves launcher, and diminish rapidly to motor burnout. During powered flight, the thrust of a free rocket causes it to follow a path toward the direction from which wind is blowing. The magnitude of this deviation depends on the velocity of wind striking the fin surfaces of rocket. After burnout, rocket will still align itself with the relative wind; however, since no thrust is being applied, it is affected by wind in the same manner as an artillery projectile. High winds endanger controlling radars and rockets on their launchers.

Precipitation. At high speeds, the rocket collides with heavy precipitation which pits the rocket, damaging smooth, aerodynamic surface with degradation of range and accuracy.

Cloud cover. No effect.

Temperature/humidity. At high temperatures, propellant burns faster, more efficiently, and delivers greater thrust over shorter period of time, increasing velocity and range of missile. Exposure to direct rays of sun or to chilling wind can result in an improperly conditioned rocket.

SENTRY OR SCOUT DOGS

Restricted visibility. Little effect on use of sentry dogs.

Wind. Carries human scent to or away from the dog. Human scents from foxholes are borne by the wind as they rise and evaporate, and are not as strong as those from men in the open. During calm periods a dog's sense of hearing may be of more value than its sense of smell.

Precipitation. Causes scents to remain close to their sources.

Cloud cover. No effect.

Temperature/humidity. Human scent dissipates more rapidly in high temperature and low humidity than in higher humidity. Heat from sun causes scent to evaporate rapidly.

SOUND—RANGING

Wind. May cause errors in plotting of sound waves. Noise produced by high winds may either decrease or increase audibility.

Precipitation. Heavy precipitation decreases audibility and reduces effectiveness of listening posts.

Cloud cover. No effect.

Temperature/humidity. Sound-ranging computations are based on corrections applied to a standard atmosphere. Temperatures and humidity corrections must be incorporated into this standard atmosphere to arrive at deviation amounts.

TRAFFICABILITY AND TRANSPORTATION

Restricted visibility. Increases vehicular accident rate. Impairs driver's ability to judge distances and speeds and to clearly distinguish other vehicles, persons, and objects. Enhances operations by providing passive security.

Wind. Blowing snow, sand, and dust may reduce visibility, create sand dunes or snowdrifts, or litter roadways with fallen trees and debris, blocking or delaying traffic.

Precipitation. Long exposure to moisture affects subsoil of even the best pavement. Saturated subsoil under poor surfaces can restrict or stop all movement. Highway transportation is restricted or halted by heavy snowfalls or icy road surfaces; in all cases, speeds are reduced. Mud can make unsurfaced roads impassable, and impede or stop cross-country movement. Flooding can immobilize a force or completely disorganize and endanger it. Both fixed and floating bridges may become unusable or swept away in high water. Maintenance problems may reduce vehicle availability.

Cloud cover. Can slow down drying of roads and affect soil trafficability.

Temperature/humidity. Freezing temperatures may increase trafficability of some soils, or create ice sheet making movement difficult. Thawing may make previously frozen soils impassable or damage roads with poor foundations. Melting snow can cause floods or avalanches in mountain areas. Temperature rise can turn trafficable snow into mud and slush. Midwinter thaws followed by subzero temperatures may freeze deep ruts and create dangerous ice conditions. Extreme temperatures can affect maintenance requirements and vehicle availability.

3 Organizational Structure

INTRODUCTION

The organizational structure of the LRP force by necessity must be as varied and flexible as the LRP mission itself. When planning the force structure, you must consider not only the manning of the LRP element, but also the specific mission to be performed, supporting forces required, command and control, and so on. Lack of adequate support and poor organizational structure will decrease mission capability and jeopardize the success of LRP operations.

In order to achieve the highest degree of effectiveness, all LRP units should belong to one parent organization, whether a regiment, brigade, or battalion. This improves manning, training, flexibility, and tactical deployment capabilities. Due to their potentially far-flung mission commitments and deployments, the parent organization would function more as a training, logistics, and doctrine-coordinating headquarters than as a tactical field command. LRP units would be able to learn from each other while having a higher headquarters to run interference on doctrine, tactics, deployment, and utilization.

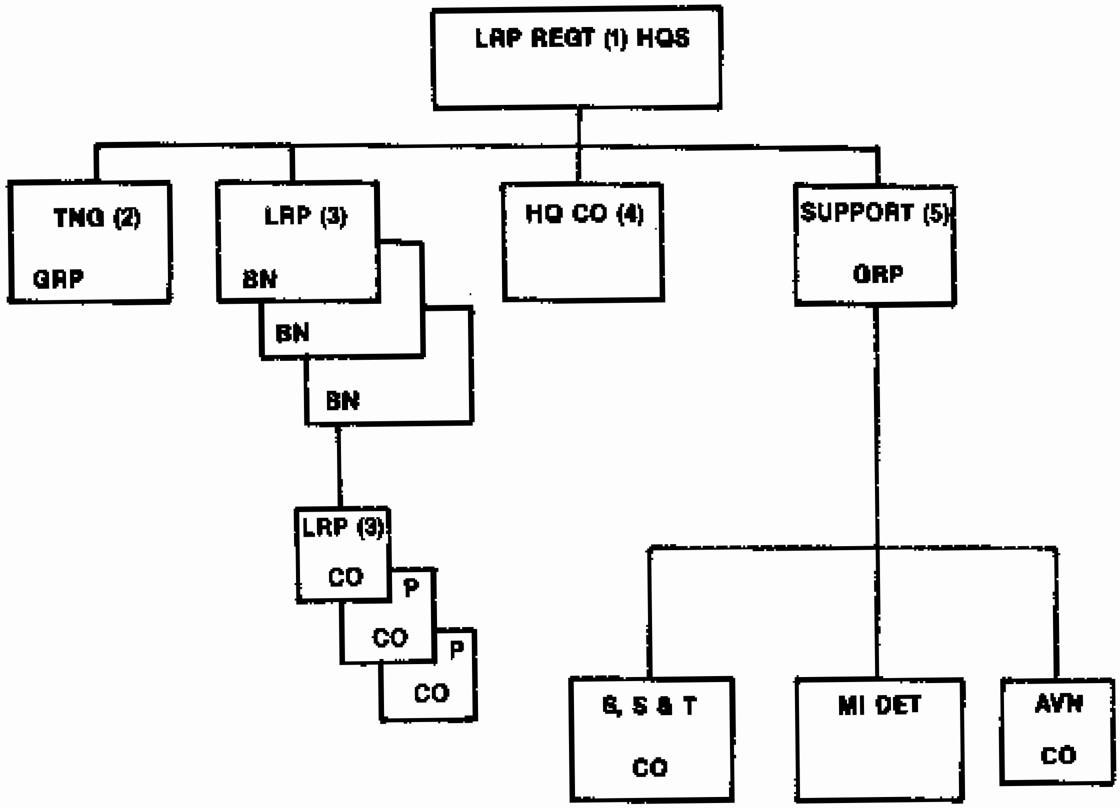
The basic LRP organizational element is the company, which is capable of fielding independent detachments or being reinforced for specific missions. To achieve the desired degree of flexibility, the LRP force structure should consist of a headquarters element augmented by the appropriate number of support and patrol elements required for a mission.

LRP SPECIAL OPERATIONS REGIMENT

Although at first thought a LRP regiment might sound ludicrous, it must be recalled that in 1970 the U.S. Army had fifteen operational LRP companies. At three companies to a battalion, that would have given them five full battalions! Throughout this period there was never a battalion or higher level LRP headquarters, just separate companies. There was no centralized, or higher level "LRP oriented" control over doctrine, tactics, deployment, or mission utilization to ensure proper and effective use of units and teams. This has been a problem since the first special or elite military units appeared. Without a higher level LRP commander to intercede, LRP elements can be misused. What is needed is a specially trained and organized headquarters to keep things on track and ensure the LRP force is effectively deployed within its capabilities and limitations. A LRP regimental headquarters could go a long way toward accomplishing this.

As a controlling headquarters, the regiment would have the primary mission of planning LRP contingency operations for any environment or theater, wartime or peacetime, and identifying units for mission deployment, augmentation, and so on. The regiment would direct or coordinate cross attachments and augmentations as needed to tailor a particular force for their operational environment, and oversee training, doctrine, and replacement of personnel to ensure high standards.

LRP special operations regiment.



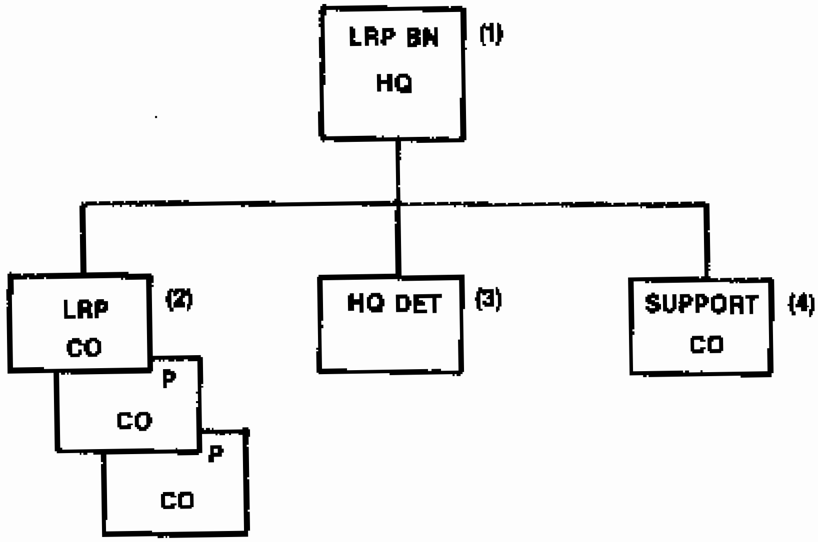
The long-range patrol special operations regiment is composed of normal regimental staff elements (1); S-1, S-2, S-3, S-4, and S-5. The training command for all LRP oriented courses is shown (2). The number of battalions varies from three to six (3). The number of companies could also be varied and different for each battalion. The standard regimental headquarters company is shown (4), and the military intelligence detachment (MI) is provided to support and analyze force-wide LRP intelligence reports to benefit training, doctrine, and tactical/strategic employment (5). The size of the aviation element varies based on needs. The S, S&T Company and composite organizations handle supply, service (personnel, etc.), medical, and transportation requirements. The Headquarters Company, Staff, Training Group, and Support Group (6) would be co-located, with LRP battalions deployed to various geographic areas.

LRP BATTALION

The LRP battalion would basically parallel the regiment's mission and organization, but with a considerably smaller staff working closely with the regimental staff in carrying out its assigned missions. In the event an entire battalion is attached to the same theater or corps headquarters, the battalion headquarters detachment would be co-located with the supported headquarters. The battalion commander and his staff would then look out for LRP mission interests and advise the supported commander on LRP capabilities, limitations, and employment. The LRP battalion would normally consist of three, but not more than six operational LRP companies and a headquarters detachment, with the LRP patrol platoon as the primary building block.

Assets for special task force organizations may be drawn from battalion elements, and, when appropriate, commanded by the battalion commander or one of his key staff officers or company commanders. The battalion staff is capable of planning, directing, and otherwise supervising the employment of all subordinate LRP elements. However, detailed team mission and company planning is routinely accomplished at company level.

Long-Range Patrol Battalion



The long-range patrol battalion is composed of normal battalion staff elements (1); S-1, S-2, S-3, S-4, and S-5. The number of companies varies from three to six (2). The number of patrol platoons in each company could also vary, and could be different for each company. The standard battalion headquarters detachment is shown (3), and special augmentation may be required as mission needs dictate (4). The battalion Headquarters Detachment, Staff, and Support Company would be co-located, while the LRP companies would normally be deployed to various field areas.

TASK-ORIENTED FORCE STRUCTURING

Depending on the overall size of the LRP force, expected terrain to be encountered, level and intensity of operations, and overall deployment plan, it may be desirable to have elements of the force specialize in a specific deployment area or mission task. LRP teams, platoons, and companies form the basic building blocks for the LRP-oriented task force or for internal force structuring. Elements may be functionally tailored by task for multi-discipline or single-discipline operations; i.e., organized for surveillance, sniper, strike missions, or any combination. This may provide specific language skills or area expertise, or meet special equipment or skill needs based on geographic or mission requirements. The force can also be tailored to meet the specific needs of a supported command. Specific force tailoring would allow the development of increased levels of expertise, specialization of equipment, and task-oriented training. When possible, LRP elements should be tailored based on both regional and functional considerations for maximum effectiveness.

A LRP-oriented task force organized to conduct a specific operation could provide a flexible tactical field organization. The task force could be specifically tailored for its mission and augmented as needed with supporting forces. It would consist of one or more LRP platoons or companies. The force would be a mix of LRP elements, service support, combat support, and combat units organized for a specific mission, with the LRP force having either a primary or supporting mission role. More specific and detailed examples of the LRP-oriented task force in various operational modes are covered in Chapter 15.

EXAMPLES OF FORCE STRUCTURING

Mission-Oriented Task Force

—Task force headquarters, remote area COIN operation
—LRP company (+)
—Airmobile infantry battalion
—Air cavalry troop (aeroscout, aerorifle, and aeroweapon platoons)
—Aviation medium-lift assault helicopter company
—Composite artillery battalion: 150mm, 155mm, and 8-inch batteries
—Combat support and service support elements

Area-Oriented Force Structuring

—Mountain LRP company, with one arctic platoon
—Jungle LRP company (one Spanish platoon, one Burmese platoon)
—Desert LRP company (Arabic language)
—Riverine LRP company (swamp, river, and coastal operations)
—LRP company (German-Polish language)

Task-Oriented Force Structuring

—Mountain LRP company: Stationary surveillance
—Jungle LRP company: Area and point reconnaissance and strike missions
—Desert LRP company: Stationary reconnaissance and strike missions
—Riverine LRP company: Point reconnaissance and strike missions
—LRP company (+): Strike platoon (1), Recon platoon (2), Sniper platoon (1)
—LRP-COIN company: Strike platoon (1), Recon platoon (2), Sniper platoon (1), Dog platoon (1)
—LRP Assault support company: Recon platoon (1), FO platoon (2)

LRP FORCE COMMAND AND CONTROL

One of the paramount issues in LRP doctrine and organizational structure is that of command and control, both during operational deployment and mission planning. Historically, the demise or failure of special purpose forces or elite units has more often than not been the result of misuse by the controlling commanders, and for this reason very thorough planning is required prior to implementing specific command and control procedures and channels.

LRP unit commanders must have a considerable degree of latitude for planning the deployment of their teams, and must have at least limited veto authority over missions to avoid misuse. In planning operations, the supported headquarters would be restricted to providing only a very general mission or operations order, with the specific methods, number of teams, and so on, being left to the LRP commander. The LRP commander should also have the authority to cancel the insertion of a team when the situation warrants and to terminate a mission early when necessary. The most satisfactory means for accomplishing this is to assign the LRP unit specific areas of operation with a general mission (intelligence or engaging the enemy, or both), and then allow the LRP operations section to plan the missions necessary to accomplish the assigned task.

LRP forces are normally attached to support field commands, but stay under direct operational control of their next higher LRP headquarters. Operations may be assigned and conducted with the following concepts of command and control:

General Support (GS). Provides LRP capability to the military force as a whole. Remains under the operational control of the LRP force commander. Responds to tasking with priorities established by the LRP command or the requesting supported commander.

Direct Support (DS). Provides dedicated LRP capability to a designated commander (theater, corps, etc.). Remains under the command of the LRP force commander. Responds to tasking with priorities established by the designated commander, requesting supported commander, or LRP force commander.

Operational Control (OPCON). The LRP force is attached to the supported unit with full operational control going to the commander of attachment. Used during establishment of a mission-oriented task force, when there is a need for more control by the supported unit than direct support can provide.

Attachment is done to provide a dedicated unit with administrative and logistical support of the LRP company or detachment. Operational control remains with the LRP higher headquarters. This is a routine action required by the limited organic support capabilities of the LRP force.

Command and control of the LRP unit is normally exercised through the staff intelligence officer (S-2/G-2) for the purpose of integrating LRP operations into the overall intelligence gathering plan for the command, while detailed coordination with the operations officer (S-3/G-3) ensures that LRP operations support the operations plan. When the LRP force's primary task is strike missions, control would be exercised through the operations officer.

The relationship of the LRP force and the controlling headquarters will vary depending upon the type of conflict, size of military force employed, and other factors. Generally speaking, the following formula can be used to determine operational control:

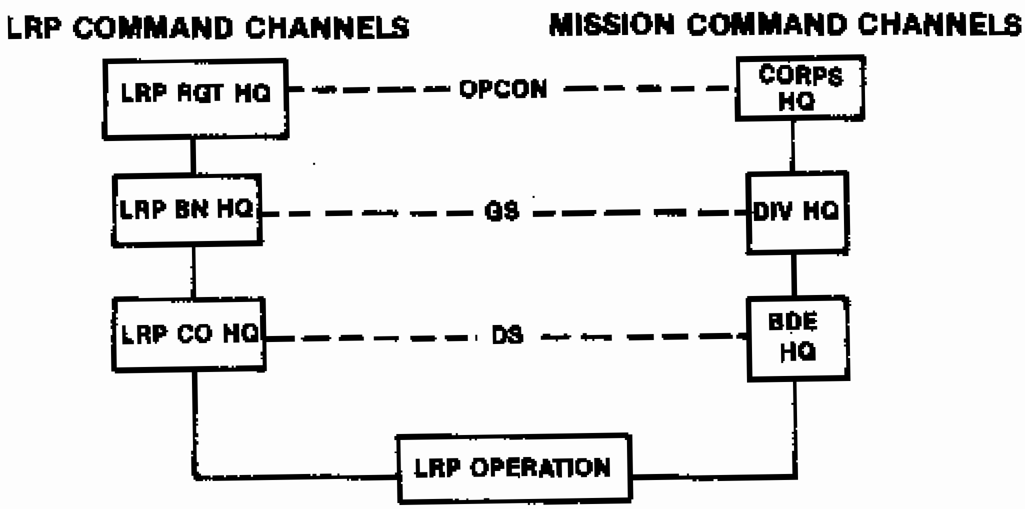
> During operations in an area controlled by an army corps size element,

with three ground divisions and a LRP battalion with four LRP companies, the LRP battalion headquarters would be co-located with the corps headquarters in DS support along with one LRP company in GS. The remaining three LRP companies would be divided between the three ground divisions for DS operational control. When deemed appropriate for mission requirements, separate LRP detachments could be formed for DS of sub-elements within each division, but never lower than battalion level.

During conventional military operations LRP units normally conduct operations in support of division or larger size forces. Again, the highest level LRP headquarters would co-locate with the principal controlling headquarters, with subordinate LRP forces detailed in direct support of sub-elements of the conventional forces.

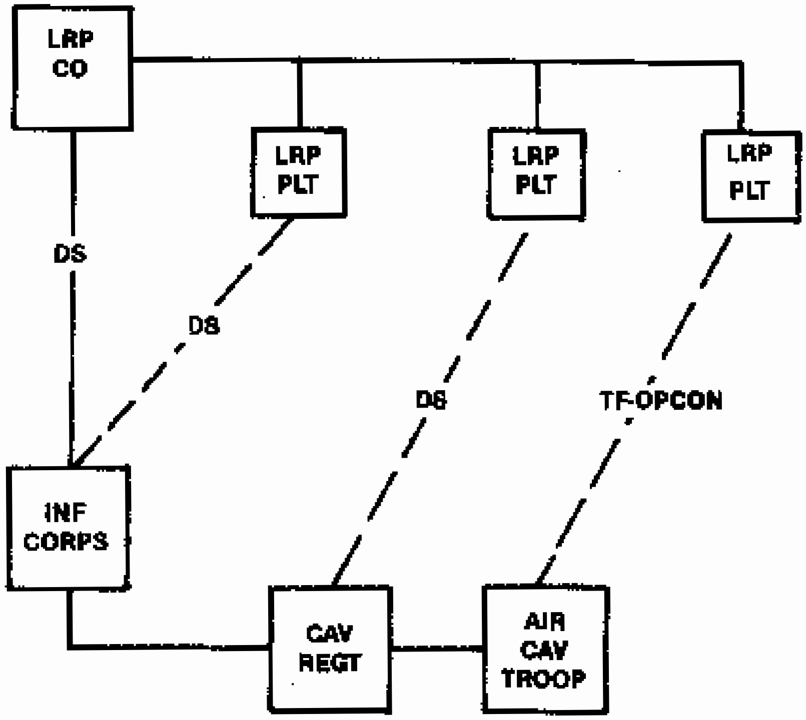
When both strategic and tactical LRP missions are to be conducted, part of the LRP force should be earmarked for strategic missions, with the remaining elements conducting tactical missions.

Command and control of operational LRP units by necessity must run counter to the normally accepted structure. Although the LRP unit works for a field unit commander (brigade, division, corps, etc.), the LRP force chain of command must retain a certain degree of control and autonomy. This will always be one of the most difficult balances to achieve. Depending on the type and duration of missions planned, the location of the operational areas, and other factors, the LRP force would operate within a dual chain of command. For example, a corps headquarters would assign a general mission to the LRP battalion, which would in turn be under the scrutiny of the LRP regimental headquarters during performance of the mission.



COMMAND AND CONTROL FUNCTIONS AND RESPONSIBILITIES

LRP Channel	Mission Channel
Tactics	Objective
Force Requirements	Support Requirements
Duration, team mission	Duration, general mission
Insertion/Extraction	
Resupply	



Command and control.

OPERATIONAL MISSION SUPPORT

Due to the lack of assigned support assets, a well-planned and coordinated support plan must be established during the initial stage of operational deployment. When planning the deployment of a LRP force in support of theater or area operations, the following factors must be considered:

Aviation Support. With air as the probable primary means of insertion and extraction of the LRP teams, sufficient aircraft and pilots trained in special operations are essential. Aerial fire support by helicopter gunships or fighter-bomber aircraft must be assessed. Due to the small size of the LRP teams, they must have priority for air support, since their ability to engage the enemy is extremely limited. As a general rule, air support should be on-call for LRP use with a five minute or less response time when contact is expected or desired. Longer response times in excess of 30 to 45 minutes are practical when the primary mission is reconnaissance.

Indirect Fire Support, Ground, or Naval. Preplanned indirect fire support should be readily available when at all possible. As with aviation support, LRP teams must have priority. On-call support by one or more batteries is desirable, with preplanned fires coordinated for support of insertion, extraction, resupply, and evasion.

Reaction/Response Forces. During some missions it may be necessary or desirable to detail a platoon or larger force as a reaction/response force. LRP teams on stand-down can also be used for this purpose. An immediate reaction force should be on standby during insertion/extraction operations.

Communications Support. During deep penetration operations or when extensive radio jamming is present, aerial communications relays and other communications support may be necessary. Unit communications capabilities should be adequate, and operations planning must take this factor into consideration.

Administrative and Logistical Support. Due to the LRP unit's lack of organic administrative and logistics support, it must either have attached support elements, be attached to a larger unit, or have support units specifically tasked to provide dedicated support. The LRP company could be attached to a brigade or larger size unit headquarters, a cavalry squadron, or a military intelligence battalion for the administrative and logistical support. This support should be planned for during the early stages of deployment to ensure that mission capability does not suffer. The LRP unit can be transported by military or civilian cargo aircraft, and must have outside support to relocate all assets by ground movement.

Perimeter/Operations Base Security. The LRP force will require support to secure its perimeter for other than short periods. This can normally be resolved by co-locating the force with its supporting unit. This would also reduce mission planning and coordination time and work loads.

Supporting Combat Elements. During some operations it may be necessary to place senior commanders under the control of the LRP force commander. The controlling headquarters commander must look closely at this aspect and, when mission effectiveness dictates, take action to direct subordination. An example might be an air cavalry unit flying dedicated mission support for a LRP area saturation operation. If control is given to the senior commander, based solely on rank, mission accomplishment may suffer needlessly. When the LRP operation is the dominant mission of a task organized force, combat effectiveness would dictate that the LRP commander be in command of the entire force. Primary operations planning must be a LRP unit responsibility. When feasible, a senior officer from the LRP battalion or regimental headquarters could also command a LRP mission-oriented task force. Another solution would be to attach the supporting units to the LRP battalion or regiment, which would then have the tasking and command authority to support LRP company operations.

LONG-RANGE PATROL COMPANY ORGANIZATION

Mission

The primary mission of the LRP company is to plan, coordinate, and conduct long-range patrol operations in support of strategic and tactical objectives. It is the principal force organized for this purpose.

Capabilities

The basic LRP company is capable of fielding three patrol platoons consisting of six LRP patrol teams each, and is capable of conducting extended operations, but requires augmentation in service support, transportation, and fire support. The company can deploy 18 teams at full strength for short-duration missions or conduct extended operations using a rotational team deployment plan. Under the rotational concept, nine teams can be maintained on the ground in an assigned operational area indefinitely. With augmentation, up to six platoons can be controlled. The company has a dedicated operations and intelligence staff capable of planning and controlling all operational missions.

Organizational Structure

The LRP company consists of three patrol platoons, a headquarters, communications, and support platoon. For separate operations, or when operating in a remote location, or when support is not otherwise available, the company can be augmented with support elements. Augmentation may also be desirable for task force operations, and may include a food service section, medical support team, transportation support, and aviation, fire support, and other combat or combat support forces.

The planned method of operation may also require augmentation: Coastal operations may require attachment of a patrol boat element; motorized operations may require additional transportation equipment.

Additional patrol platoons can be added by augmenting unit support elements to support up to a maximum of six patrol platoons:

1. *Operations & Intelligence Section:* Add one additional liaison team for each platoon added,
2. *Communications Platoon:* Add one additional communications team for each platoon added,
3. Support *Platoon:* Add one more soldier to each subsection for each platoon added.

Patrol platoons can be detached and operate as separate detachments by splitting forces as follows: one patrol platoon, one communications team, one liaison team, and one clerk/specialist from each section in the support platoon. Companies can be augmented by adding additional teams, patrol platoons, or detachments from another company, or by forming new teams within the company. Whenever possible, entire platoons or detachments should be used for augmentation to maintain unit integrity. Planned levels of reinforcement or augmentation should be established, to include identification of elements, prior to deployment and could be structured as follows:

Operational LRP Company

3 patrol platoons, 6 teams each
18 operational LRP teams, using 6 man teams
27 operational LRP teams, using 4 man teams

Level 1 Reinforcement

3 patrol platoons, 8 teams each
Six teams, or one platoon added
24 operational LRP teams, using 6 man teams
36 operational LRP teams, using 4 man teams

Level 2 Reinforcement

4 patrol platoons, 6 teams each
One platoon, of six teams added
24 operational LRP teams, using 6 man teams
36 operational LRP teams, using 4 man teams

Level 3 Reinforcement

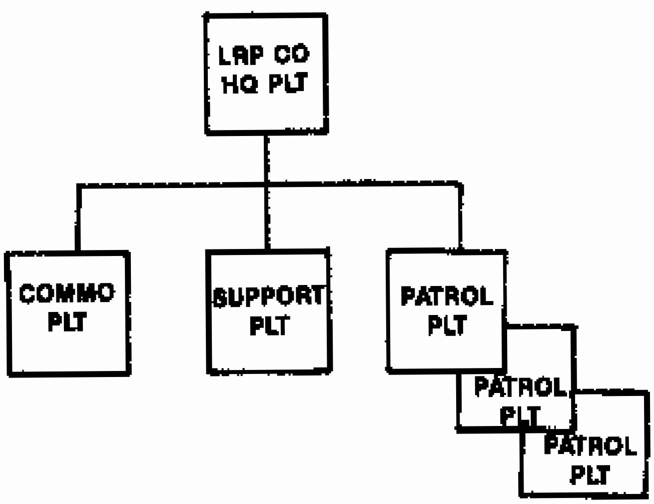
5 patrol platoons, 6 teams each
Two platoons, of six teams each added
30 operational LRP teams, using 6 man teams
45 operational LRP teams, using 4 man teams

Level 4 Reinforcement

6 patrol platoons, 6 teams each
Three platoons, of six teams each added
36 operational LRP teams, using 6 man teams
54 operational LRP teams, using 4 man teams

The type of operation or mission and conflict will generally dictate the preferred method and extent of augmentation or reinforcement.

Long range patrol company.



Officers: 10; Enlisted: 200; Total: 210

HEADQUARTERS PLATOON

Mission

The Headquarters platoon is organized and staffed to provide command and control of deployed operational elements, to include operational planning, intelligence data review and analysis, and limited internal administrative services in response to assigned strategic and tactical mission objectives.

Capabilities

The platoon is capable of staffing three separate LRP detachment headquarters, augmenting other companies, and providing liaison teams to supported units. The operations and intelligence section can field three separate liaison teams, or three Ops and Intl cells for separate detachments or augmentation of another company. With minimal augmentation, the platoon can support up to three additional patrol platoons.

HEADQUARTERS PLATOON ORGANIZATIONAL STRUCTURE

Officers: 5 Enlisted: 26
Total: 31

HQ SECTION

Company Commander .... Major
Company Executive Officer ... First Lieutenant
Company First Sergeant .... First Sergeant
Senior Company Clerk .... Sergeant
Company Clerk .... Corporal
Company Clerk/Driver .... Corporal

OPERATIONS AND INTELLIGENCE SECTION

Operations Officer .... Captain
Assistant Operations Officer .. First Lieutenant
Operations NCO .... Master Sergeant
Assistant Operations
NCO .... Sergeant First Class
Assistant Operations NCO
(Training) .... Sergeant First Class
Intelligence Officer .... First Lieutenant
Intelligence NCO .... Sergeant First Class
Assistant Intelligence NCO ..... Staff Sergeant
Three Liaison NCOs
(Operations) .... Sergeant First Class

Three Assistant Liaison
NCOs (Intl) . . . . Staff Sergeant
Four Sr Ops & Intl & Liaison Clerks . . Sergeant
Four Ops & Intl & Liaison Clerks . . . . Corporal
Four Ops & Intl &
Liaison Clerks . . . . Private First Class

COMMUNICATIONS PLATOON

Mission

Provides all internal and external communications support for the company.

Capabilities

Provides secure voice, code key, and burst transmissions; radio relay functions; communicates throughout the entire operational frequency bands with ground, air, and naval forces. Plans and coordinates all communications support requirements, to include augmentation when capabilities are exceeded. Provides unit level maintenance for its own, and team, equipment. Radio teams can be deployed deep in enemy territory when necessary to support mission requirements. Up to six patrol platoons can be supported when augmented with additional radio teams. Capable of fielding teams for separate detachments or augmenting other LRP companies.

ORGANIZATIONAL STRUCTURE

Officers: 1 Enlisted: 30
Total: 31

PLATOON HEADQUARTERS

Platoon Leader . . . . First Lieutenant
Platoon Sergeant . . . . Sergeant First Class
Clerk/Driver . . . . Corporal
Communications Equipment
Repair Team . . . . Sergeant/3 Corporals

MOBILE COMMUNICATIONS TEAM
(4 Teams)

Team Leader . . . . Staff Sergeant
Assistant Team Leader . . . . Sergeant
Four Equipment Operators . . . . Corporal

SUPPORT PLATOON

Mission

Provides internal support services for the company, to include supply, weapons and equipment maintenance, parachute packing, aircraft and supply rigging, temporary airfield control, and pathfinder functions.

Capabilities

Can field support teams for separate detachments or, when augmented, can support up to six patrol platoons. The pathfinder/rigger section is capable of preparing all unit equipment and personnel for air movement or delivery, operating a temporary forward combat airfield, and performing pathfinder functions. The armaments section is capable of handling a wide variety of special and foreign weapons and munitions.

ORGANIZATIONAL STRUCTURE

Officers: 1 Enlisted: 21
Total: 22

PLATOON HEADQUARTERS

Platoon Leader . . . . First Lieutenant
Platoon Sergeant . . . . Sergeant First Class
Clerk/Driver . . . . Corporal

SUPPLY SECTION

Supply Sergeant . . . . Staff Sergeant
Assistant Supply Sergeant . . . . Sergeant
Senior Supply Clerk . . . . Corporal
Two Supply Clerk/Drivers . . . Private First Class

PATHFINDER/RIGGER SECTION

Aerial Support NCO
(Rigger/Pathfinder) . . . . Staff Sergeant
Two Pathfinder/Riggers . . . . Sergeant
Three Pathfinder/Riggers . . . . Corporal

ARMAMENTS MAINTENANCE AND SUPPLY SECTION

Armaments NCO . . . . Staff Sergeant
Senior Armorer . . . . Sergeant
Two Small Arms Repair Specialists . . . Corporal

EQUIPMENT MAINTENANCE AND TRANSPORTATION SECTION

Maintenance & Transportation NCO . . Sergeant
Senior Maintenance Specialist/
Driver . . . . Corporal
Two Maintenance Specialist/
Drivers . . . . Private First Class

LRP PATROL PLATOON

Mission

To conduct long-range patrol reconnaissance or strike operations in enemy rear areas in support of strategic or tactical objectives.

Capabilities

Can conduct seperate operations when augmented with a communications team, operations and intelligence liaison team, and a support team. Can field six operational teams and can be augmented with up to two aditional teams without increasing the size of the platoon headquarters. When organized as a separate detachment the platoon leader serves as the detachment commander. The commander may reorganize into nine teams of four men each.

ORGANIZATIONAL STRUCTURE

Officers: 1 Enlisted: 40
Total: 41

PLATOON HEADQUARTERS

Platoon Leader . . . . First Lieutenant
Platoon Sergeant . . . . Sergeant First Class
Assistant Platoon Sergeant . . . . . . Staff Sergeant
Two Radio Operator/Driver . . . . Corporal

LONG-RANGE PATROL TEAM (6 Teams)

Team Leader . . . . Staff Sergeant
Assistant Team Leader . . . . Sergeant
Senior Scout . . . . Sergeant
Scout/Demolitions Specialist . . . . Corporal
Two Scout/Sniper/Weapons
Specialist . . . . Corporal

LONG-RANGE PATROL TEAM

Mission

The primary patrol and combat force of the LRP unit conducts strike, reconnaissance, and surveillance operations in support of strategic and tactical objectives. The primary mission is to penetrate the enemy rear area to gain combat intelligence and conduct limited strike operations through the use of stealth, surprise, and short-duration violent action.

Capabilities

Can operate deep in enemy territory for extended periods of time without being detected; engage superior enemy forces through the use of stealth and swift violent action; acquire, evaluate, and report strategic and tactical combat intelligence; perform forward observer duties for air strikes, artillery, and naval gun fire; track and locate enemy forces; and perform specialized strike operations and pathfinder missions.

ORGANIZATIONAL STRUCTURE

The specific organizational structure of a team can be varied or augmented with additional personnel, but must be based on the mission, theater, terrain, and method of infiltration and exfiltration.

LONG-RANGE PATROL TEAM COMPOSITION

Team Leader . . . . Staff Sergeant
Assistent Team Leader . . . . Sergeant
Senior Scout . . . . Corporal
Scout/Demolitions Specialist . . . . Corporal
Two Scout/Sniper/Weapons
Specialist . . . . Corporal

Although set forth here using a six-man team concept, many variations in size have been used over the years. However, a six-man team is suggested as the optimum size for the following reasons:

1. A larger team is harder to conceal and infiltrate.
2. A smaller team may become non-operational through the loss of one or more team members as a result of combat, injury, or illness.
3. The option exists to augment a team by adding all or part of another team to create a "Heavy Team," or to split teams into smaller four-man teams when appropriate.

The basic team can be augmented with a variety of specialty teams, such as native tracker team of two personnel; language specialist for prisoner snatch operation; local guide, when infiltrating through resistance or guerrilla force controlled areas; and so on.

The augmentation can be for the entire length of a mission or only for certain phases. During certain operations it may be desirable to combine a number of LRP teams with a communications team to form a temporary patrol base. However, this would normally only be practical during stability, counterinsurgency, or peacetime operations. Other operational modes could combine a LRP team with an air-cavalry reconnaissance team or a coastal patrol boat.

It may be desirable in the counterinsurgency environment to add local nationals either to replace an existing team member or to reinforce the normal team composition. However, when using local nationals or native troops considerable care must be taken in selection, and acceptance as a team member.

LONG-RANGE PATROL DETACHMENT

Mission

Task-oriented force organized to conduct LRP operations in DS or GS of a designated command, or to reinforce another LRP unit.

Capabilities

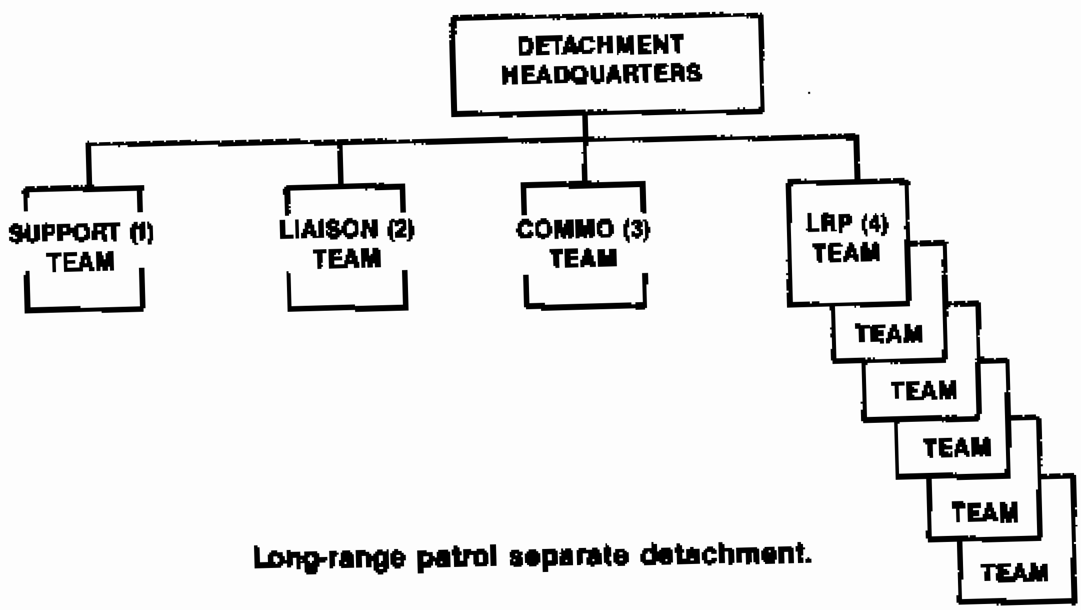
Can perform the full range of LRP-unique missions with appropriate supporting elements. Organized to operate independently of a LRP company in support of a battalion or larger size force or to serve as the nucleus of a LRP-oriented task force. Capable of controlling from six to sixteen six-man LRP teams in their assigned operational area.

Organizational Structure

Not more than two LRP patrol platoons, with supporting elements. Formed using patrol platoon(s) and assets from the company's support, headquarters, and communications platoons. The platoon headquarters becomes the detachment headquarters, and the assistant platoon sergeant is given responsibility for the support team. When more than one LRP platoon is called for, the force planners should consider committing a full company rather than creating a LRP detachment.

The long-range patrol separate detachment consists of 56 men: 1 officer and 55 enlisted men.

1. Composition: Assistant Supply Sergeant or Senior Supply Clerk; Senior Armorer or Small Arms Repair Specialist; Senior Maintenance Specialist or Maintenance Specialist; and Pathfinder/Rigger.
2. Composition: Liaison NCO (Ops); Assistant Liaison NCO (Intl.); Senior Ops & Intl. Liaison Clerk; Ops and Intl. Liaison Clerk; and Ops and Intl. Liaison Clerk.
3. One Mobile Communications Team, plus one Communications Equipment Repairman. If two patrol platoons are to be used, two teams may be needed, depending on the actual mission, terrain, and so on.
4. Two additional LRP teams could be added without further augmentation, or one additional patrol platoon, with an increase in support team size.



Long-range patrol separate detachment.

4 Personnel Selection and Training

PERSONNEL SELECTION

LRP personnel must be specially managed to ensure quality personnel are recruited and retained. The need exists for a very exacting yet flexible selection and retention program for all personnel from the commander to the lowest soldier. They must be hand-picked for initial assignment and for retention. At the same time the system must be flexible enough to allow exceptions to established criteria when personnel appear to have a natural aptitude for LRP duty. The criteria set forth in the following chapter attempt to cover all eventualities.

Assignment and retention must be voluntary. Assignment length should range from 24 to 36 months, followed by return to an assignment in a normal primary specialty, unless the soldier desires to continue in his LRP assignment and his commander concurs. However, this is of less concern in peacetime than wartime. In wartime, the assignment may have to be shortened to 12 to 24 months. The prolonged practice of stealth by team members will wear on them psychologically over time, as will the nerve-racking deployment in a small element deep in enemy territory. Considerable latitude is consequently required as to assignment and retention. Physical and mental reliability is a must. Commanders must be attuned to their men and constantly assess their ability and motivation to continue functioning as a LRP. There must be no stigma associated with being relieved of LRP duties and returned to the regular force. The stress and motivation required will cause many to fall short, even after initial periods of successful assignment and operation.

Follow-on assignments after LRP duty must be geared toward retraining and readjustment. A LRP-only job specialty should be avoided if at all possible. However, similar specialty positions could be easily combined to solve many personnel problems. Reconnaissance platoon personnel for standard infantry battalions, Special Forces-type jobs, and similar specialties could be successfully combined and managed. Job rotation should start with recon platoon assignment, followed by LRP assignment, and the SF duty. The process could then start anew.

The following general selection and disqualification criteria should be used when recruiting and retaining personnel; however, successful completion of a LRP training course or satisfactory performance of LRP duties should be the primary qualifiers.

Personnel Selected for LRP Assignment must be:

1. Volunteers;
2. Proficient in basic military subjects and skills;
3. Above average intelligence with a marked degree of common sense;
4. Possessed of good judgment and even or controlled temperament;
5. Patient, curious, and confident;
6. Loyal, reliable, cooperative, and courageous;
7. Determined and desirous to win;
8. Physically and mentally fit, tough, and alert;
9. Of excellent coordination and stealth when moving through terrain;
10. Free of medical problems such as smoker's cough, sneezing, and so on.

LRP Assignment Disqualifying Factors:

1. History of psychiatric disorder detrimental to reliability;
2. Alcoholism, repeated overindulgence, or unauthorized use, possession, or sale of drugs;
3. Character traits, history of illness, or other information which may cause significant defects in judgment or reliability;
4. Lack of mental or emotional maturity or sense of responsibility;
5. Evidence of inadequate group adjustment;
6. Negligence or delinquency in performance of duty;
7. Poor attitude or lack of motivation toward assignment duties;
8. Financial or family irresponsibility;
9. Any other character trait, or record of misconduct, which in the judgment of the unit commander would be prejudicial to reliable performance of LRP duties.

Personnel assigned LRP duties must be continuously evaluated by their leaders and fellow soldiers. If their reliability becomes suspect they must be removed from LRP duties pending further evaluation.

As a final look at selection criteria, the following discussions highlight major areas of concern and offer insight into the needs and basis of the selection and retention process. Some may sound rather severe and restrictive; however, the desire is to obtain the highest level of quality possible, which still leaves the commander a considerable degree of latitude. To be used properly and with the most effectiveness, they should be considered as guidelines, not concrete policy.

Marksmanship

The LRP soldier must be an expert marksman, with repeated annual or semiannual requalification. Personnel with a hunting background also indicate excellent potential.

Physical Condition

Good health means better reflexes, muscular control, and stamina. The self-control and confidence that is usually associated with athletics and team sports are beneficial to the LRP.

Eye Sight

Glasses must be considered a liability to the LRP since the reflecting light can betray the team. Although contact lenses may be a solution of sorts, they can also become lost or damaged, resulting in an inoperative team member. Stringent vision requirements are a must; even if correctable by glasses bad vision can become a liability. Avoid them. Night-vision capabilities must also be evaluated. It is possible to have good vision in daylight, and yet be virtually blind at night. During medical examinations, personnel should be tested for vitamin A deficiency, since it will impact adversely on both day and night vision.

Smoking

Not smoking on missions may not be enough. Smoker's cough and the increased level of nervousness and irritation normally associated with refraining lowers efficiency and could result in compromise. Personnel selected should be nonsmokers when possible; however, this must be balanced against their actual performance and capabilities. There is a wide spread in habits, from a few cigarettes a day to chain smoking. Performance of personnel during the selection and training process should indicate their performance when required to refrain, and all personnel should be encouraged to quit.

Left-Handedness

Left-handed personnel should be required to become expert shots with their right hand, since the operation of most weapons is slowed when attempting to operate them left-handed. It is not a difficult change to make, and results in a better qualified soldier. All personnel should be required to become equally expert shots when firing either left- or right-handed. As a lefty, I highly endorse this. The last time I fired for qualification I repeatedly switched from right- to left-handed firing depending on the firing position and target, and only missed three targets.

Mental Condition

The LRP, as a sniper and deep penetration team member, must be able to kill individually selected targets calmly and deliberately. He must not be susceptible to emotions, anxiety, or remorse. Psychiatric screening should be employed to evaluate this area.

Equanimity

Many well-disciplined soldiers can rapidly compose themselves after experiencing moments of fear, indecisiveness, and excitement. However, the LRP must not lose control even for an instant. He must possess true equanimity, a perpetual self-possession and serenity which fosters maturity and patience. The soldier who is unable to control his temper will be a severe liability to a LRP team.

Intelligence

The LRP must possess above-average intelligence, display decisiveness, self-reliance, good judgment, and common sense. The selection and training process must be designed to test and evaluate all of these areas.

Fieldcraft

A demonstrable basic knowledge is a must. An outdoors background as a hunter or forest ranger will often identify a potential LRP.

LRP TRAINING PHILOSOPHY AND METHODOLOGY

The LRP soldier will often be forced to solve the problems of the battlefield independently, giving him a great deal of responsibility which will require initiative and high personal discipline. Victory in battle is achieved by well-led and disciplined soldiers who have been conditioned by thorough training to react by habit and instinct to the searing realities of combat. The habits learned in training, good or bad, are the same habits that will move the soldier on the battlefield. The key is to ensure that each soldier is well trained and develops good habits; habits so deeply ingrained that even under the pressure of fear and sudden danger each soldier will react correctly, instinctively, and automatically. On the field of battle the correct insight and the right decision must come instantaneously by intuition honed through intense training.

There is no easy way to achieve this goal. It must be approached with intense dedication while accepting as gospel the timeless truth that better-trained men live longer on the battlefield. The methods of training suggested herein should be considered a starting point, with old subjects deleted and new ones added, and techniques improved as the force matures.

No soldier or military unit is ever completely trained. There will always be weak areas that require additional time and effort, and new techniques and equipment that must be integrated into the training. Never assume that the quality standard is high enough or the content complete enough. Always strive for improvement. Constant evaluation and reinforcement is required. The process must never stop, and must always include basic as well as advanced skills. Sustainment training must be conducted whenever possible to reinforce and sharpen skills and detect weak areas.

A key watchword during every phase or subject taught must be realism. We must practice in training the way we will fight in war. Too often corners are cut and methods employed that degrade the quality of training. Although safety is vitally important, realism must not be sacrificed to the point that the training becomes meaningless. Realism does not mean real bullets as much as it means realistic uniform, environment, and situations. The goal in training must be not only to teach a skill, but also to identify weaknesses, limits of endurance, capabilities, and overall limitations. The simulated battlefield must be the classroom whenever possible, not an air-conditioned building with cushioned seats. The LRP must develop a high state of consciousness of his environment, which can only be achieved through intense constant training.

Training must not overstress the memorization of patrol orders or data. Where checklists are available and can logically be used during actual operations, soldiers should be taught to use them, not memorize them. The good team leader will form a "checklist habit." The mission is too serious to permit even minor mistakes or forgetfulness. Suitable checklists are available, but in the main are far too complicated and tend to fog up the issue with unnecessary details.

A simple checklist that underscores the most important points will serve to stimulate recall. Experience has shown that fatigue, fright, and preoccupation with routine tends to cloud the memory, giving rise to errors. The good team leader will practice giving a patrol operations order, but will never rely strictly on memory rather than using the tried-and-proven checklist.

Cross-training must be integrated into all phases of training. Specialization is asking for trouble. Special duties may be assigned based on expertise, but any team member should be able to accomplish the duty if required.

Once a team is formed, the team members must spend as much time together as possible to learn one another's thoughts, strengths, weaknesses, and so on. Team-building is an essential part of all phases of LRP training and assignment. They must gain confidence in each other, learn to depend on one another, and support each other. Each team member must understand that the performance of the team as a whole is dependent on each member. Work by teams, experience stress by teams, experience danger by teams, talk team language, build and establish team reputations, and maintain team integrity. This must carry over to all phases of training, personnel assignment and management, and even during routine duty assignments. Competition should be conducted between teams, both during the LRP course and unit level training. Special incentive awards or prizes should be established with the purpose of improving performance levels and teamwork.

LRP SPECIALTY TRAINING COURSE

A specialized LRP training course is essential for obtaining the level and quality of initial training desired, and must be controlled, directed, and designed by the LRP regiment. The training course must lean toward training as a team, while unit level training must always be conducted by team.

The course should use a ratio of one instructor or advisor for each five students, with the students divided into LRP-student teams of five personnel each. They will undergo all training in this configuration. Duties within the team are constantly rotated to teach leadership and special skills. On training operations, the advisor functions as a team member, observing and making on-the-spot corrections as needed. Instructors selected must be highly qualified and experienced. Standards of achievement must be high and adhered to. No compromise or slippage must be allowed. This applies equally well to school and unit level training.

Whenever possible, the training course should cover the same phasing as missions themselves to make for a more progressive and orderly course structure. Training should commence with a classroom phase to instruct technical data and then move to a hands-on field phase for practical work and instruction. The team patrol is the primary teaching vehicle, with teams brought together for group instruction periodically. The final phase features a graded field-training exercise where various combat and reconnaissance functions are performed. For maximum effectiveness, the teams would remain in the field environment for the final phases of the course, moving into a patrol base to receive new briefings and instruction.

All training and activities should be performed with full equipment, starting with a relatively light rucksack and progressing up to the normal team load. Although sandbags have been used in courses to simulate load weights, balance and other factors suffer from lack of realism. Use actual equipment and rations. The exception is the substitution of inert training explosives and blank ammunition, but the weight should be the same as the real item.

Physical training must be vigorous and constant throughout the course. An obstacle course simulating various field techniques, insertion skills, and obstacle-negotiating techniques such as rappelling, rope climbing, swimming, and so on, should be used as a routine part of daily physical training.

Certain skills such as stealth, noise, and light discipline should be employed on a routine basis whenever possible. As necessary, administrative times can be set aside when activities are not compatible with these skills.

SPECIAL NOTES ON TRAINING SUBJECTS

Rather than attempt to cover in detail all of the essential training subjects, I will instead pass on some of my thoughts on how some of the more critical subjects should, and should not, be taught. Too often we get hung up in the routine and safety-conscious peacetime atmosphere and lose touch with how we train and why. The training area is too often the classroom or a rigidly organized training range that in no way resembles the battlefield. Although modern technology certainly has a wealth of benefits to offer, our training areas must still look and feel like tactical field areas, not formalized mass-production training centers.

Weapons Training and Target Detection

Most training should involve the use of the standard issue weapon for the LRP force, be extensive, and result in a soldier who is confident in his ability to effectively employ his weapon. The soldier must become one with his weapon. During training, it should be carried at all times, and at least one time period set aside each week for some form of live fire training. The weapons training must be realistic in firing positions, environment, situations, equipment carried, and so on.

Target detection and acquisition classes must be realistic. In all my years of military service I never once attended anything close to a realistic class. In virtually every case the students were standing, and told to sight along little metal aiming stakes. Targets were not engaged, and there was no realism. I cannot recall any real-life situation that ever allowed me to stand up in full view of God and everyone and try to locate an enemy target.

So how do you do it right? First, put the soldier in a realistic environment and situation. Second, give him all the equipment he would normally be required to lug around. Third, equip him and the targets with laser training devices so that he can shoot the targets he sees, and they can shoot him if he exposes himself. The course can then be conducted in two different manners, one where the soldier occupies an observation position, and the other where he attempts to negotiate a course using stalking and stealth techniques. For added benefit, use the soldiers as both the stalkers and observers, so they learn both ends of the game.

There is much that can be said in favor of teaching the standard firing positions. However, they can quickly lose their meaning for the LRP soldier in combat. Although initial training in all the basic firing positions is essential, at some point this training must enter a phase where the positions are usable with the equipment loads and other factors common to the LRP environment. Can you imagine a fully equipped LRP with upwards of eighty pounds of equipment trying to assume a good prone firing position? In most instances the only useful positions for the LRP will be kneeling, standing, half-crouch, and semi-reclined (where he is sitting and leaning back) with the ruck resting on the ground. Another position that may be usable would be squatting; however, if the load is too great and balance is lost, most people would then wind up in the semi-reclined position, and rather abruptly at that. Due to equipment loads, variances in individual size, weight, and strength, a good training program would be one that not only recognizes these variances, but also coaches the soldier to adjust each firing position to suit himself.

As with any weapons training, obtaining a good tight shot group and battle sight zero should be the first priority. After that the course of training should include:

1. Known distance firing using the "Canadian Bull" to learn how to accurately put the bullet where you want it.
2. Field firing using pop-up target systems. The targets should be well hidden and require the firer to first detect them. The use of silhouettes that look like people is highly preferred over those that look like silhouettes.
3. Moving targets, with emphasis on target realism. Terrain should be varied, as should target location and sequencing. Add a few engagements where more than one target comes up at a time, and even include groups of four to eight targets.
4. A majority of targets that should appear (in most cases) within 100 meters as opposed to longer ranges. The LRP engagement in combat will seldom, if ever, exceed that distance. However, the farther ranges should also be included for overall efficiency, and to recognize that combat seldom follows accepted norms.
5. Final stages that concentrate on quick-fire techniques and lane walks where the firers engage numerous targets from a variety of directions. These should further progress to team phases where a full team conducts live immediate action drills, ambushes, and similar actions. For this phase, lifelike targets are a must. Laser-training systems should also be employed to increase the realism, and even to pit individuals and teams against each other.
6. Training in immediate action drills that are extensive and include simulating contact to the front, rear, right flank, left flank, and multiple directions at the same time. The drill must become as much of an ingrained habit as walking. Simulated casualties among the team should be added, with appropriate reaction, as the training progresses.
7. A wide variety of foreign weapons. After an initial block of training on weapons such as the AK-47, FN, G3 and others, the personnel should basically be given a weapon, and told to load and fire. No instruction should be given. They should learn to inspect, assemble, disassemble, load, and fire virtually any weapon on their own, without previous instruction. Detailed field-stripping may not be realistic in some instances, but they should be able to take a weapon down far enough to perform basic maintenance or reduce a stoppage.

Land Navigation and Map Reading

Seldom run just a compass course. Always try to combine it with evasion or patrol training and other similar subjects so more than one skill can be practiced. The primary problem with most exercises is they lack realism. They are timed, and tactical movement is ignored. While you may learn how to navigate using this method, you will frequently find the soldier coming up short, or lost, when he has to keep a pace count, maintain direction, watch for the enemy, and perform other tasks at the same time. Land-navigation exercises should be done frequently, with the level of difficulty increasing each time. Add in the use of other combat skills and even aggressors with each new running of the course. Only then will soldiers learn to navigate on the battlefield with accuracy and confidence.

Evasion Training

The primary problem with most evasion training is that it is usually combined with escape and POW training. Although this method may be useful for the well-trained evader and in training the search teams, it does little to improve the evader's skills. It would be far mora beneficial to return the captured soldier to the starting point, critique him, and send him on his way again. He keeps trying until he succeeds. This incraases the strain on endurance and pushes the soldier beyond his limits. Of course, controllers must be able to identify when the soldier has reached his limits and then afford a rest period before he tries again. The idea should be to transform weak evaders into strong ones. A buddy system where a weak and strong evader are paired together can be worthwhile for strengthening the weak soldier. The course should be run numerous times with the aggressor force becoming more and more active and efficient. The first time through should be the easiest and geared toward building confidence. As the "enemy" becomes tougher, his skills become stronger. Evasion training should follow survival, and camouflage training to ensure the soldier possesses the necessary skills.

Sensory Conditioning

It is possible through frequent and thorough training to heighten the sensory capabilities of the average soldier by familiarizing them with the sights, sounds, and smells of the battlefield. Training lanes can be set up where the soldier is confronted with various stimuli: the sounds of a weapon being loaded; a weapon taken off safe; the hum of a starlight scope; the smells of explosives; and so on. Enemy weapons and equipment should be used along with issue items. Tape recordings can also be used.

The training should progress in phases, first listening to taped sounds of various vehicles, weapons, and equipment. Next, the soldier should negotiate the lane during daylight, and then finally at night. In negotiating the lane, at each point the soldiers would be near a lane controller who would either generate the odor or noise, or simply evaluate the soldier's reaction to it. The soldier would whisper what he sees, hears, or smells to the controller. This would then allew the controller to correct or teach on the spot, making for a much more useful training course.

Stalking, Stealth, Tracking, and Counter-tracking

The only way to learn these skills is by practice, practice, and more practice. They are skills that become weak without frequent use. In addition to incorporating them into patrolling and land navigation exercises, they following training methods can be used:

- Measure off 100-meter lanes that will afford reasonable cover and concealment. Have the soldier check his watch, and then force himself to spend a full two hours crawling that distance, using glass-smooth movements. Using the same lane, repeat the process using a variety of movements which should be geared to the available cover and concealment. For the third time around, use observers to watch for movement and listen for sounds.
- Have the soldier spend as long as it takes to negotiate fifty meters of brush while making no fast or visible movements, and while making no sound whatsoever. For every noise the soldiers make that would be audible to an observer, have them freeze in place for a full five minutes; limit even their breathing.
- Have them sit or lie motionless for an hour. The only things moving should be their chest and eyelids. They don't swat at bugs, don't turn their heads, or do anything but breathe, hear, and see. This exercise can be combined with the first, using pairs who trade off as observer and stalker.
- Have the soldier practice stalking birds and animals, moving only when an outside sound

distracts their prey's attention. The goal, which they will probably never achieve, should be to get close enough to reach out and touch their prey.

Patrolling

Training patrol missions should be the primary training vehicle, allowing all the skills to come together and be realistically applied. They must be varied continuously for maximum exposure to a wide variety of situations. Duties must be rotated to allow each member to apply the instruction received. The controller should provide extremely close supervision and temporarily halt the tactical play when necessary to discuss or critique good and bad performance, and to emphasize principles involved. The controller must guide the team to the correct action by the use of indirect questions or suggestions without seeming to direct them. In most cases it will be far better to allow them to make the mistake first, rather than anticipate the error and correct them in advance. Experience is an excellent teacher and tends to eliminate any doubts the soldier may have as to what might have really happened. The length and frequency of practical exercises should be increased as the team's expertise increases. They should always be pushed close to the limits of individual skill and physical and mental endurance.

LRP TRAINING SUBJECTS

Although by no means all-inclusive, the subjects covered herein are the minimal essential skills for the LRP soldier. Other subjects should be added as experience and mission dictate. Some subjects will require their most intensive coverage during the LRP specialty course, while others will receive only an introduction followed by detailed unit level training. Supporting subjects should be covered in blocks whenever possible, with maximum integration between subjects during practical exercises. During practical exercise, as many skills as possible must be used to ensure maintenance of adequate proficiency.

Outside subject matter experts should be used whenever possible, along with realistic situations. Unit-taught subjects should rely on team leaders and platoon sergeants—in short, a noncomissioned officer program.

Medical, Health, and Hygiene Essential Subjects List

Basic first aid; medicine and drugs; treating special wounds; muscular and intravenous injections; diagnosis and preventive measures; sanitation, health, diet, and food values; physical and psychological impact of deep operations; pain control techniques; stress management; coping with dying; field expedient transportation of wounded; treatment of environmental injuries; and primitive and survival medicine.

Communications and Signaling Essential Subjects List

Standard and special-issue equipment; emergency equipment; field-expedient repair procedures and antennas; message writing and sending; communications, signal, and transmission procedures and methods.

Fire Support Systems and Employment Essential Subjects List

Target designation, identification, and engagement; close air support; adjustment of air and artillery support and naval gunfire procedures; support capabilities and limitations; preplanning mission fire support.

Nuclear, Biological, and Chemical Warfare Essential Subjects List

Basic survival skills; protective measures and equipment; actions on attack; field-expedient decontamination.

Infiltration/Insertion and Exfiltration/Extraction Essential Subjects List

Tactics of infiltrating and exfiltrating target and operational areas; night operational linkup; route and zone selection; helicopter rope ladders, STABO rigs, rappelling, and helocasting; Skyhook; Airborne/Parachute training; HALO; HAHO; SCUBA; Seaborne and waterborne operations; resupply operations and methods; Pathfinder operations and techniques; linkup, stay-behind, and passage of lines.

Land Navigation and Map Reading Essential Subjects List

Maintaining direction with and without a compass or map; water and desert navigation; visualization of the ground from a map; use of foreign maps; use and interpretation of aerial photographs; determining line-of-sight limits for an OP using a map; basic map reading and land navigation skills, with emphasis on reading and interprating the terrain.

Reconnaissance, Surveillance, and Observation Essential Subjects List

Use of vision devices and methods of observation, both long- and short-range, day and night; photography procedures and use of automatic cameras; surveillance techniques and equipment; principles of intelligence acquisition; terrain analysis; handling of POWs and captured equipment; note-taking, reports, and debriefings; tactical field interrogation techniques; effects of weather and terrain; enemy order of battle to include association of combat and support equipment with the category of unit; field sketching, panoramic drawing, and preparation of map overlays.

Weapons and Demolitions Training Essential Subjects List

Individual and team weapons marksmanship training; sniper marksmanship and equipment; foreign weapons qualification and familiarization; care and cleaning of equipment; target detection and identification; holds and leads; range estimation; use of demolitions, special munitions, booby traps, incendiaries, and other sabotage and destructive devices; jungle, mountain, arctic, desert, and waterborne shooting; ambush firing.

Patrol Tactics and Operations Essential Subjects List

Selecting and moving into an OP/base position; immediate action drills; team movement techniques; preparation, organization, and security; special equipment; principles and techniques of patrolling; patrol tactical planning; roadblock techniques; sniper operations; strike missions; special LRP operations.

Combat Field Lore Essential Subjects List

Methods of silent and unobserved passage of natural and manmade obstacles; stalking and stealth movement; tracking and counter-tracking; camouflage, cover, and concealment; night movement; river-crossing techniques; mountaineering skills.

Survival, Evasion, Resistance, and Escape Essential Subjects List

Evasion tactics and techniques; languega and customs of the target country, if applicable; survival behind enemy lines; mountain, woods, jungle, and desert survival craft; techniques of resistance and escape.

Unarmed Combat Essential Subjects List

Knife fighting and silent kill techniques; silent sentry removal; hand-to-hand combat; team and individual skills and techniques.

Physical Fitness Training Essential Subjects List

Buddy-assisted manual resistance exercises; individual isometric exercises; standard conditioning drills; cross-country running and marching; obstacle course negotiation; log drill; guerrilla exercises.

5 Health, Rations and Equipment

MENTAL AND PHYSICAL HEALTH

LRP personnel must be familiar not only with basic first aid, hygiene, and sanitation, but also with advanced emergency care such as the use of serum albumin blood expanders, morphine, and so on. Prior to operations, all personnel should be thoroughly briefed concerning particular health hazards of the operational area and any special medical techniques that may be required. The "buddy system" must be used to avoid heat, cold, and other illnesses or injuries, and to aid in early detection of signs of physical or mental injury and illness.

Familiarity with the symptoms of communicable diseases will allow early detection and diagnosis, and may prevent a team from deploying with a member who may quickly become a liability. Most communicable diseases generally begin with some of the same general symptoms such as headache, loss of appetite, weakness, chilly sensations, nausea, and fever. As a general rule, diseases caused by bacteria develop approximately four days after exposure, and those caused by bacteria develop approximately fourteen days following exposure. However, there are wide variations within these general guidelines.

Climate-associated injuries can be reduced by allowing a ten- to fourteen-day acclimatization period, wherein workloads and the period of exposure are gradually increased, especially in hot humid climates. During acclimatization, the individual's diet should be supplemented with at least 1,000 milligrams of vitamin C daily, since added stress from heat or cold depletes the body's vitamin C stores and prolongs the period of time required to acclimate. Continued supplementation, at a reduced level, following acclimatization can reduce heat and cold injury by as much as ninety percent. Climate injuries can be further prevented by maintaining stable body temperatures by:

- Drinking plenty of liquids to replace losses caused by increased perspiration.
- Reducing exposure to heat during the hottest periods of the day by planning movement in the early morning or late evening hours.
- Using clothing wisely. A head cover insulates from the sun; loose clothing allows for increased circulation, better insulation, and increased evaporation of perspiration.
- Taking frequent rest stops to avoid exhaustion.
- Maintaining a high state of physical fitness.
- Maintaining adequate salt intake (one or two salt tablets per day).

The following conditions will generally tend to increase the risk of heat stress and injuries: fever, recent illness or injury, previous heat injury, dehydration, exertion, fatigue, feverish reactions to immunizations, and poor diet—particularly vitamin C deficiency.

There were two truths formulated about men in combat during World War I that are still true today—every soldier at one time or another will experience a physical or psychological reaction, or both, to combat, and every soldier has a breaking point. Medical records show that for every gas casualty in World War I, there were two psychological casualties. In World War II one psychiatric casualty was medically treated for every three battle casualties. During the Korean and Vietnam conflicts, the number of psychiatric casualties was relatively low, primarily because of the short combat tours, the improved logistical and medical support, friendly air superiority, and the low lethality of the engagements.

The term "psychiatric casualty" can refer to any number of psychological reactions to the stress of combat. These reactions can take many forms: recurrence of pre-existing psychotic disorders (severe emotional breakdown characterized by abnormal behavior, moods, and perceptions), or psychosomatic disorders such as diarrhea or nausea. Some men unnecessarily prolong hospitalization periods or display severe emotional reactions to injuries. Still others abuse drugs or alcohol or deliberately do not take preventive medications such as antimalarial pills. In some cases, they even inflict wounds upon themselves. However, the largest category of psychiatric casualties is "battle fatigue." Battle fatigue is the soldier's psychological and physical reaction to the fear and fatigue that are part of combat. Nearly all soldiers in a line combat unit will eventually experience at least mild battle fatigue. For the LRP, the stress of operating deep behind enemy lines in a small element may well heighten this risk considerably.

The symptoms of battle fatigue vary. A soldier may become increasingly emotional, cry easily, become irritable, use excessive profanity. He may experience sleep disturbances and exaggerated responses to sudden noises and movement. Because these symptoms are fairly common in combat situations, they usually require no medical intervention beyond rest and relaxation. However, more severe forms may require medical treatment and can render the soldier ineffective.

There are many factors that can increase the frequency of battle fatigue rates: near misses or narrow escapes, death or injury of friends or leaders, anticipation of combat, lack of sleep and adequate nourishment, pessimism regarding the outcome of a mission or personal survival, or prolonged deployment in a particularly high-risk area.

Soldiers in their initial exposure to combat will usually show the most dramatic symptoms of battle fatigue: severe tremors and shaking, hallucinations, uncontrollable panic, crying or stupor, and hysterical muteness, blindness or paralysis. These soldiers will require at least some medical treatment. Eighty percent or more of them should be able to return to duty within a few days without further problems.

If operations continue for months, the "Old Sergeant's Syndrome" may appear. Soldiers may show apathy, slowness in thinking, responding, or moving, a lack of concern for their survival, dependence on others, confusion, mild tremors, vomiting or diarrhea, failure to eat, hypersensitivity to sounds or movement, sleep disturbances, open fearfulness, excessive smoking, noticeable reclusiveness, and depression or social withdrawal. In addition, men in leadership positions may demonstrate indecisiveness or poor judgment or they may ask to be completely relieved of their responsibilities. Their problem is "burnout," and may require more than just a few days' rest. The "buddy system" mentioned earlier, using simulated psychiatric casualties during training, and maintaining a high state of unit cohesion, morale, and physical fitness can go a long way toward reducing these problems.

The LRP's reduced diet, mission psychological stresses, and other factors will require close monitoring of all patrol members to allow early detection of physical and mental problems. Rest and recuperative periods are a must, especially when performing extremely long-duration missions. Restricting mission length to approximately seven days would go a long way toward increasing the long-term operational effectiveness of the unit and individual team members. Using a seven-day mission concept, twenty-four hours' rest and recuperation should be allowed following debriefing whenever possible. The following 48 to 72 hours are then used for refitting, briefing, rehearsal, and redeployment. Using this concept and assuming eighteen operational teams, you may maintain twelve teams deployed, with the other six either resting, refitting, rehearsing, or preparing to redeploy.

There are excellent mental conditioning methods that can be used to maintain physical and mental well-being. Most center around some form of meditation or mind control and are useful in improving the quality of rest or just relaxing, controlling pain and body functions, improving observation and memory, or eliminating headaches. An excellent source of self-taught techniques is *Psycho Techniques*, written by Dr. Salvatore V. Didato and published by Playboy Paperbacks (ISBN: 0-872-16941-3, U.S.). *Survival Guns*, by the late Mel Tappan, can provide further insight and training ideas in this critical area.

Psycho techniques, meditation, and self-hypnosis can effectively be used to help deal with extraordinary situations. Meditation is not in itself a form of Eastern religion or solely the province of the martial arts. It is simply a state of calming and focusing the mind on a single thought or group of thoughts. In its simplest form it is but a method of programming the subconscious mind. Learning meditation and psychic techniques will allow the soldier to avoid building up dangerous mental stress, improving his reaction time and awareness of surroundings. It is not something that can be done overnight; the training must start early, and the skills used every day. There are numerous possibilities, benefits, and methods, all of which must be explored and applied by the LRP force.

REMAINING ALERT

Needless to say, remaining alert during a mission is essential not only to its success, but also to your health. Closely linked to alertness is the amount of rest an individual receives, and the physical and mental strain experienced. The LRP team that shortchanges themselves on rest will also substantially cut back on their degree of alertness. Stimulant drugs such as caffeine or "speed" are not effective substitutes for rest. The fact is they can be detrimental to team security and to your health.

The use of stimulants will produce a sensation of increased alertness, which can result in a very dangerous false sense of security. Although the mind may be chemically induced to be wide awake, critical functions such as decision-making and recall are severely impaired by lack of adequate rest. An additional hazard in the use of stimulants is the eventual "crash and burn" which will inevitably occur. This is normally marked by an absolute inability to stay awake. If you should run out of the stimulant being used at the wrong time, the consequences could be devastating. A vitamin B complex supplement would be more useful in maintaining mental alertness, but again cannot be a substitute for much needed rest.

The human body does in fact have the ability to function physically for extremely long periods of time without rest, but this is not true for mental functions. As you get tired, you tend to slur your speech, stumble or lose your sense of balance, nod off, and otherwise lose complete control over your mental and physical functions. It may seem minor, but small errors can get you killed quickly. Although some people will argue that you can condition yourself to go without sleep for extended periods of time, even this conditioning is dependent on the quantity and quality of sleep and rest that you are able to get.

Of course, all of this is not to say that during training you should not push personnel to the limits of their endurance. By all means do so. They must learn what their limits are, and how to recognize when they have reached them. During actual operations rest periods must be planned for to ensure that every team member gets sufficient rest to maintain the necessary level of alertness. Generally speaking, for most people, at least a two-hour sleep period is required. Anything less may in fact do more harm than good. Team members must become attuned to how much sleep they need at any given time to maintain the maximum degree of alertness.

Vitamin B complex, if taken to close to a sleep period, will tend to heighten dream activity and reduce the quality of rest. Take them at least four hours prior to planned sleep periods, or immediately after. On the other hand, the amino acid L-tryptophan, taken in a dosage of 1 to 2 grams, is an excellent sleep inducer that will aid in relaxing you without interfering with the all-important dream and sleep cycle. Calcium (500 mg) and magnesium (250 mg) taken in a two-to-one ratio will also improve the quality of rest, and may be essential for reducing the nervous tension and stress that frequently accompany deep penetration operations. The use of vitamin and other nutrient supplements, combined with a four-hour sleep cycle, would definitely improve team alertness and sleep quality. However, as a caution, this process should be established during training, as each individual's needs and requirements are not the same. A dosage that may aid one individual may put another out for six or eight hours. However, there is no physical or mental health danger involved with these supplements, and no associated crash and burn. They are simply healthy additives.

NUTRITION AND DIET SUPPLEMENTS

I became interested in this subject after suffering from a number of medical problems which eventually resulted in my retirement from active military service with a 60 percent disability rating. What really bothered me about the situation was that although they continued to diagnose my problems, little, if any, treatment was ever prescribed—I simply had to suffer the symptoms and accompanying disabilities.

Shortly following my retirement I happened to come across a book dealing with natural healing and health through proper nutrition. I have been suffering from what is known as Reynaud's Disease for approximately fourteen years, for which there is supposedly no cure, and only one known medication, which I happened to be allergic to. While reading the book I came across a portion dealing with my condition. In the case study discussed, a supplement of vitamin E was administered to eradicate the problem. For those of you unfamiliar with the disease, what basically happens is that you lose circulation in your hands and feet when exposed to cold. The condition progressively worsens over the years, and for some people it eventually results in their being bedridden. To make a long story short, I immediately went out and bought a bottle of vitamin E capsules, 1200 International Units each, and started faithfully taking them. Within only two weeks I had experienced a degree of improvement, and have seen steady improvement ever since. The condition has not been cured, but it has at least improved, which after suffering with it all these years is like a miracle!

I went on to study the subject in depth, and continue to do so to this day. My research eventually evolved to the "why," because it seemed that there had to be some underlying reason why I would need any supplements beyond my normal diet. Looking back through my records and sketching out a history of my general diet, it became obvious that my many months on LRP operations in Vietnam and my generally poor diet was a very likely culprit. For that entire period of time I had existed almost entirely on one meal a day, while at the same time being exposed to high levels of stress and numerous tropical diseases. On further examination it seemed quite obvious that I was probably lucky to have been getting even 30 percent of the recommended daily allowances of essential vitamins and minerals, while at the same time suffering from exposure to conditions that deplete those same vitamins and minerals.

It may well be too late at this point to totally reverse the damage done, but I can certainly campaign to avoid the same situation from occurring for others. I deem it absolutely essential for the LRP force to receive dietary supplements of all the essential vitamins and minerals, and that a nutrition-oriented doctor be assigned at battalion or regimental level, or be made available to the force in a supporting medical command.

Rough terrain, exposure to the elements, the weight of an equipment load, and general stress will increase individual caloric and nutrient needs. By contrast to the normal 2000 to 3000 calories required per day, the LRP member needs from 3000 to 4000, and up to 5000 when the terrain, cold, and load are really tough. Although the body will burn fat already collected and stored as efficiently as it does the food you eat, you must think of calorie consumption as accumulation of energy for reserve output. The LRP must concentrate on supplying his body with a balanced caloric intake on a daily basis. Vitamin packs and protein supplements are essential for LRP team members due to their reduced dietary intake. Dosages should provide in excess of the recognized minimum daily requirement of all vitamins, minerals, amino acids, and proteins. Supplements taken two to three times daily would provide the greatest degree of protection and nutrients.

Just gulping down 5000 calories isn't enough. Eating small quantities often is the most efficient means of providing a constant supply of energy. During an operation, the body's cells are continually worn down; they will need refueling, replenishing, and rejuvenation. Carbohydrates do a good job of supplying the body with energy quickly, so food items like chocolate, sugar, dried fruits, cereals, and breads are good booster snacks. Normally the LRP team will be lucky to eat two actual meals per day. When possible, they should eat breakfast and supper, with lunch consisting of one long snack. Foregoing the sit-down lunch eliminates preparation and after-eating assimilation time, and spreads the lunch out over the day.

Chocolate bars and chewable protein tablets are excellent ways to constantly replenish your calorie supply. Carbohydrates burn out quickly, while both fats and proteins release their energy over longer periods of time. All food items should be as protein-rich as possible. A daily vitamin and mineral supplement will help to take care of the rest.

Protein-rich foods should comprise at least 20 percent of the daily diet, fat up to 20 percent, and carbohydrates the remaining 60 percent. Although these figures are the result of numerous medical studies, at best they are only approximations. The best solution is to have personnel experiment, varying their diets, trying to reach their peak muscular and energy efficiency.

Personnel need to listen to their bodies, but with caution. Fat aids in producing body heat and requires that oxygen be broken down, but in high altitudes, such as the mountains, your body has more trouble breaking it down due to the thinner oxygen, while less fat is needed during desert and jungle operations due to the higher temperatures involved.

There is no quick and simple solution. It will require study, planning, and preperation.

RATIONS

A combination of rations should be made available to the teams to improve morale and diet. In some LRP units in Vietnam each team was issued U.S. LRP Rations (freeze-dried ration), Indigenous Personnel Rations (IPR), and the standard C Rations. They were then able to pick and choose. C Rations provided such items as canned fruit, peanut butter and jelly, toilet paper, sugar and cream, while the U.S. LRP Rations provided the primary lightweight meal, and could either be reconstituted with water or eaten dry. The IPR Rations provided rice, which could be prepared ahead and carried in a 3″ × 12″ tube-type plastic bag. The IPR Ration also had a variety of useful seasonings and dehydrated meat items.

Modern food-processing techniques have resulted in a wide variety of lightweight and compact rations suitable for field use. For the LRP team, quality, nutrition, and ease of preparation are most important.

Dehydrating and freeze-drying foods eliminate a major component of food weight: water. Air-drying, or vacuum dehydrating, is accomplished by placing the food in warm air, or in a vacuum chamber, until its water content has evaporated. The water evaporating to the surface of the food carries with it salts and some proteins, and the concentration of these substances at the surface produces a tough, sometimes even hard, layer.

Freeze-drying, on the other hand, involves removing the water by drawing off the ice crystals of frozen foods in a vacuum. Mineral salts and proteins do not move to the surface and a more stable distribution results. The foods remain about the same size and shape, nutritional value and taste are retained to a greater extent, and the food is approximately one-fourth of its original weight. A big advantage to these foods is their simplicity of preparation. Rehydrating is easier and amounts to simply adding water.

The average C Ration meal provides about 2400 calories and weighs slightly over two pounds. The LRP Ration developed during the Vietnam War, while weighing only eleven ounces, required almost a full canteen of water to reconstitute. It also provided a mere 1200 calories, and the nutrient level was somewhere on par with that of a low-calorie diet meal—not a great idea for field-combat troops. The new Meal, Ready-to-Eat, weighs only 1.3 pounds while offering more calories than the freeze-dried LRP Ration. Keep one very important factor in mind when selecting rations; they may not require water to be prepared, but your body will require it to assimilate nutrients that are water soluble.

Although it's great to think that the team could carry three meals a day, it is very unrealistic; the weight would be prohibitive. One large meal a day is more realistic, and was frequently the case in Vietnam. With the proper combination of items you can spread the meal out over the day to reduce hunger problems. A reduced diet also reduces waste and human excrement. Anti-diarrhea pills can also reduce human waste but have a few comfort and medical drawbacks.

When looking at mission duration and comparing it to ration requirements, missions very much in excess of 7 to 14 days can be hard to justify. A team could become virtually immobile due to the weight of needed supplies. When planning mission length, allow for a minimum of three pounds of weight for every day of deployment.

While a cache could be used, moving and establishing it after insertion would also increase the potential for detection, as would returning to the cache, especially more than once. If you also consider that a team's two most vulnerable times are during infiltration and exfiltration, you must also realize that attempting to resupply a team only adds to the danger. If you can resupply a team, you can also extract them and insert a fresh team. Living off the land is great in theory but not practical as a planned activity, and is not compatible with the need for stealth. Also remember that the team will normally be unable to heat their rations, which can be an important psychological factor over an extended period.

WATER

Water in most cases will need to be reserved for drinking and rations. Although there may be water sources in the AO, the team's ability to replenish their supplies without being detected may be limited. Water found in the AO may also be contaminated to the point where water purification systems are inadequate. All of these factors, plus the expected usage rate due to terrain and climate, will have a significant impact on mission load and duration.

While moving, each team member will probably consume as much as one-third cup of water per hour. The old pebble in the mouth trick can reduce water consumption by preventing "dry mouth." Drinking small amounts of water at frequent intervals will help you avoid becoming a water glutton. In field operations your body will lose as much as a gallon or more of fluid a day. When it's hot you lose fluid by sweating, and when it's very cold, there's generally little moisture in the air, so osmosis and severe winds will ship whatever fluid your body has into the surrounding dry air.

Regular and sufficient water intake will reduce the chances of a foggy head. The effects of unsatisfactory water consumption may start imperceptibly, barely fogging your mental process and eating away at your energy, but even slight vagueness can be a serious hazard during LRP operations.

Water loss also means salt loss, and salt is vital for your body. Sweating causes significant salt loss, especially in low humidity. Fail to replace lost salt and you may wind up with heat exhaustion, nausea, or muscle cramps. Carry extra salt in tablet form. However, do not take them unless your water loss has been heavy.

Even in arctic conditions, such as in Alaska, a soldier will need at least two quarts of water daily to keep from dehydrating. In desert and jungle conditions he may require four or more per day. Always use the water from canteens in or on your rucksack before using those located on your web belt. This will ensure a supply of water if you must abandon your rucksack. Collapsible canteens are a must for maintaining noise discipline; keep rigid canteens as full as possible to reduce sloshing. For a really tough and disposable canteen that packs well in the rucksack, try a two-liter plastic soft drink bottle. With a length of surgical tubing, adhesive, and sealer, you can improvise a siphon tube from a container in your ruck that allows you to sip without stopping or removing any equipment. Just be careful that you get a good seal! You can also use beef bouillon and get some added nourishment while you're at it.

When replenishing your water supply in the field, always assume that the water source is contaminated and use water purification tablets. Select your source carefully, and always take a flowing water source over a lake or pond. In winter use ice rather than snow for melting—it is more apt to be bacteria free.

PERSONAL HYGIENE AND SANITATION

Washing

For sanitation and hygiene and cleaning minor injuries, commercially available towelets are very useful. They can be stored in a Ziplock bag to prolong their life and allow reuse. They are also available in medicated form. It helps to wash your feet at least once a day if possible.

Shaving

This must be placed in the category of nice but inessential activities. If essential to ensure a good seal for protective NBC equipment, a moistened towelet can be used.

Skin Care

A Vitamin E, or PABA, odorless skin cream should be carried to treat drying and chapping skin. It is commercially available in a chap-stick type tube which provides convenience, light weight, and ease of application. PABA also acts as an excellent sun screen.

Dental Care

A slightly damp toothbrush and dental floss can provide adequate teeth cleaning. A special teeth cleaning chewing gum, available through dental supply companies, is an essential item. Special care should be taken between missions to ensure proper dental hygiene.

Waste Disposal

Heavy duty freezer-grade Ziploc bags should be carried for waste disposal. They are airtight when sealed and can be buried or carried in the rucksack for the duration of the mission.

Care of the Feet

Primary care of the feet can be accomplished by proper conditioning, ensuring a proper toenail trim is maintained, changing socks at least once daily, washing and drying feet, and ensuring that your socks and boots fit properly.

Blister avoidance is claimed by some by rubbing the inside of the socks with soap prior to road marches, while others claim applying vaseline, or moleskin, will also reduce friction and subsequent blisters. Vitamin E or PABA lotions would also be helpful in caring for the feet. Keep toenails trimmed short. When descending steep terrain, the foot will slide forward in the boot each time it strikes the ground, making the ends of your toes contact the inside of the toe of the boot. After about an hour of this, unless the toenails are short, your feet will begin to feel like you have been undergoing some kind of torture.

BOOTS AND SOCKS

A pair of boots is one of the single most important pieces of equipment for the LRP. They should fit well, and snugly. Loose-fitting boots will quickly cause blisters. The boot must be long enough so that when it is laced snugly the ends of the toes will not jam against the toe of the boot when moving downhill. This is an even greater problem when carrying a heavy load. Test the boots on a 45-degree slope, or scuff your foot forward, hard, to simulate the motion of moving downhill. The boot should be three-quarters of an inch longer than the stocking foot, give or take one-quarter inch. Always fit both boots, not just one.

They should have stiff rubber soles for traction and puncture-proof sole liners. The tread pattern on the sole should provide sure footing and not cake up with mud or pick up stones. If possible, the pattern should match the enemy's. This can be done by using captured equipment or by making special soles with a matching tread pattern. Avoid distinct, easily recognizable tread patterns that will give away the team's presence.

Speed lacing is desirable, but zipper boots are not. Except for special purposes, the uppers should not be too high or be restrictive around the calf, and should be stiff and of high quality. High boots provide no more ankle support, but do restrict the movement of the calf muscles, especially if laced tightly at the top. High boots also allow too little flex, and on very steep terrain may irritate the Achilles tendon.

Lighter weight tennis or running shoes may be desirable when the mission calls for closing with the enemy, as in raids or prisoner snatch missions. Treadless footwear is sometimes available and, although it reduces tracks, is not the greatest for negotiating slippery damp ground. An oversize pair of heavy socks or cloth wrapping can serve the same purpose when used to cover the sole of the regular combat boot.

It may be necessary to have a variety of boots for each man, one type for winter wear, one for summer, and one for wet terrain. The Vietnam-era jungle boot is excellent for constantly wet terrain due to the drain holes near the instep. However, they afford minimum ankle support, and won't keep your feet dry when needed, while a good leather boot will keep your feet dry providing you don't go wading in streams too often. All boots should be acceptable for use in mountain climbing.

Boots should be selected while wearing the correct type and quantity of socks. Boots fitted with thin socks and later worn with heavy socks can result in impaired circulation and possible frostbite in winter. Wearing heavy socks helps cushion your foot against shock, reduces friction between foot and boot and acts as a wick to absorb water away from the foot as sweat and condensation form, and provides considerable warmth.

Heavy wool socks will help keep your feet warm and dry. They provide excellent wicking action and dry from the inside out. A heavy wool sock is about the equivalent of two white athletic socks. During stationary surveillance, a sheer wool liner about as thin as a dress sock can be worn inside the heavy wool sock to reduce itching. Avoid all-nylon inner socks; they are hot and stimulate perspiration. To reduce slippage of the socks, pull them over the tops of the boots, fold down, and then tie the lace over the sock. Always take along at least one extra pair of socks, more for extremely wet AOs. Carry extra laces along with the extra socks.

In extremely wet areas, you can wear a plastic bag over your foot, then your heavy wool socks, and then another plastic bag. This will provide insulation and help to keep the foot warmer. Blisters will be unlikely to develop due to the smooth plastic against the skin. SAS teams in the Falklands found NBC protective overboots to be very effective in maintaining healthy feet. A pair would usually last four to five days.

Wear only one pair of socks at a time when considerable walking is expected. Recent studies indicate that wearing two pairs of socks will increase friction in certain areas of the foot, increasing the chance of blisters, and may also increase the chance of stress fractures when traveling on hard surfaces. Damp socks can be placed in the underarm area between the fatigue shirt and outer jacket during cold weather marches to aid in drying them. Tying them to the pack of your rucksack while moving or even at the halt will normally do for getting them dry—unless, of course, it is raining.

CLOTHING

Uniform possibilities are virtually limitless. The key issue is how to select the right items. In some cases the standard military issue item is the best, while in others you are better off with a civilian equivalent.

Uniform shirts and pants should have large cargo-style pockets. They should also have additional leg and sleeve pockets such as were found on the Vietnam-era "Tiger Stripe" fatigues.

Buttons are preferable to zippers, which tend to break easily in field use, and Velcro, which makes too much noise. The uniform should be loose and comfortable, but not to the point where it snags easily. Be cautious when selecting camouflage patterns; you may wind up standing out like a sore thumb. Regular olive drab uniforms dyed black, tiger-stripe patterns, and black fatigues work well and help you blend into the shadows, but can also make you stand out in dry grassy areas. It is desirable to have a variety of camouflage pattern uniforms available for each team member. One-piece jumpsuits are also an excellent choice in some cases. The U.S. Army's new battle dress uniforms (BDU) have the advantage of also having infrared-defeating chemicals in the fabric. One drawback to "special" uniforms is that they also identify the wearer as special, so balance in this aspect. When warmth is the primary concern, it may be desirable to look toward items made by Gore-Tex; they provide excellent warmth and insulation.

A (1" × 6") strip of luminous tape should be sewn to the underside of the uniform or coat collar for night movement. It can be folded up when needed and down when not. The back of the hat is all right, but less versatile. Suspenders are more beneficial than belts for holding up trousers. They provide improved circulation and freer use of abdominal muscles. Cloth head scarves, watch caps, and similar headgear should be used and, if properly selected, can aid in the camouflage effort. Wool watch caps are excellent in cooler weather, and not easily pulled off when moving through brush. Avoid headgear with earflaps or coats with hoods which can interfere with hearing. Camouflage head nets are also commercially available and greatly improve concealment efforts. Other clothing might include sweaters or sweatshirts as well as insulated long underwear. Extra clothing is essential for long-duration missions, especially in harsh climates. Using seven days as the maximum mission length, one extra pair of socks will normally suffice.

Uniforms should be free of insignia, wallets, rings, and other personal items; only identification tags and Geneva Convention identity cards should be carried. Do not take anything that will needlessly provide the enemy with intelligence data or personal data that can be used against a team member.

Rain suits are extremely important in wet or cold, damp climates. Lightweight camouflage rain suits can be obtained from commercial outlets. Ponchos can serve numerous functions. They can be used as improvised litters, a raft for stream and river crossings, or as a body or captured equipment bag.

Gloves, when worn for other than warmth, should be thin enough and the material rough enough, to allow ease in handling weapons. A rough-out leather glove worn on the free hand will provide protection from hot weapons, thorns, and so on. The glove on the trigger hand should have the tips of the fingers cut off just below the first joint to preserve the sense of touch for tracking and weapons use.

LRP TEAM AND INDIVIDUAL EQUIPMENT

For the LRP team, equipment is a driving factor in the development of tactical doctrine. Due to the small size of the element involved, quality equipment—in the right quantity and of the right type—can be essential for mission success.

Team equipment should be state-of-the-art, but also quite austere. You must not overload a team with too much electronic equipment, vision devices, cameras, and so on. After a certain point the added weight degrades team effectiveness beyond reason. Infrared and starlight scopes, portable ground radars, remote-reading sensors, and other electronic equipment have greatly changed the nature of battlefield surveillance. However, the team must not become overloaded or oversophisticated to the degree that it begins to hamper mission capability and mobility.

Special-equipment load weight is a crucial planning factor and should be determined based on a four-man team and then spread out among six. This way, if a member becomes a casualty, it is easier to redistribute equipment and continue the mission.

Mobility and stealth are decreased when loads become too heavy, and the soldier is too often physically worn down by midday. Fatigue affects alertness, making him more vulnerable to detection and error. Eliminate items of equipment that are not absolutely required, and keep mission duration as short as possible to reduce the ration load.

The common military mentality that calls for "canteens on the left hip, first aid pouch two inches to the right of the buckle," and so on, must be dispensed with for LRP operations. While it may be desirable to have uniformity on the parade ground, it serves little worthwhile purpose on the battlefield and fails to consider whether a soldier is left- or right-handed, his waist size, and other factors. Be flexible, allow individuality and innovation in training as well as in war.

A definitive unit SOP should outline routine individual uniforms and equipment common to most personnel and operations. Normally the SOP would include web harness, rucksacks, rain gear, canteens, and so forth, and would ensure the equipment is complete and properly prepared, including taping and tiedowns.

The SOP should also prescribe basic mission loads for specific duration or types of missions, and should consider weight, quantity, terrain, and weather. Carry two of each critical mission item, e.g., binoculars, fuze crimpers, and so on. If one becomes lost or damaged you always have a backup. SOP equipment categories should include items such as demolitions, binoculars, ropes, infrared scopes, flashlights, starlight scopes, maps, boats, compasses, wire cutters, radios, luminous tape, water, food, and so on, and be based on the expected mission duration, terrain, and area of operations.

Specific placement of equipment items should be geared toward sensitive equipment and emergency items, but should generally be left up to the team where possible. An example would be requiring each team member to carry his map, notebook and pencil, and one prepared ration in his trouser pockets. Emergency signal mirrors, communications codes, first-aid equipment, and minimum ammunition loads would be other items requiring specific SOP coverage.

When selecting LRP team and individual equipment, look closely at off-the-shelf commercial items. Commercially available specialty equipment can be a big lightweight plus for LRP use. Some equipment and survival items developed for naval use could also be useful for LRP operations. Space age, hiking, hunting, and fishing equipment all have good possibilities. Use your imagination.

The preparation and placement of equipment is extremely important for the LRP team. Use your imagination, plan, and don't just throw it all together. Take into account how critical the item is, probable and planned use, and need for quick access or access at night. The location and proper use of all equipment, routine or special, must be known to all team members. This must include emergency transmitters, morphine, blood expanders, and other items. Nothing should absolutely require the presence of any one team member.

When putting everything together, remember you must be able to carry and fire your weapon without interfering with your equipment. At the same time you do not want it banging against anything when you use it. Keep equipment on the belt to the sides as much as possible. When you remove your rucksack, you should still have ammunition, grenades, water, at least one ration, your knife, map, and compass on your person. Too much garbage hooked to the front side of your harness or web belt also winds up under you, and in the mud and dirt if you wind up in a prone position. The individual web harness should never be removed at any time during the operation.

When planning the packing and distribution of your equipment load, bear in mind that placing heavy items in the bottom of the ruck and on the belt lowers your center of gravity for better balance, while placing heavy items near the top and close to your back raises the center of gravity, placing more of the load on your shoulders. For climbing and skiing you want a low center of gravity. For walking or snowshoeing you want a high center of gravity.

Each soldier must experiment to find the most comfortable weight distribution. Excessive and constricting weight at the waist can increase fatigue in the legs, pinch nerves, and decrease circulation; suspenders are a must. Place heavy objects close to the body, pack sharp objects in the center of the ruck; place frequently needed items in outside pockets or in the top of the ruck; and keep items needed to survive on the web belt or in uniform pockets. Adjust shoulder straps to allow free movement of your arms.

A Claymore carrying bag or similar small bag with a carrying strap can be fastened to the top of the rucksack to carry binoculars, extra radio handsets, delay fuzed munitions, and other special equipment. This will aide in easy access and allow removal and separate carrying of the equipment when necessary. All survival and special equipment should be tied or secured in some manner to the uniform, web harness, or rucksack to prevent loss.

Tape all snaps, buckles, and fasteners to reduce noise and aid camouflage and securing of equipment. Velcro fasteners are noisy and should be avoided. Rubber bands made from tire inner tubes can be useful in securing equipment and camouflage. When packing equipment, place like items in separate waterproof bags, Ziploc bags, or similar bags. This keeps equipment dry and handy, and also aids in flotation of the rucksack during stream or river crossings.

Attach Velcro fasteners (the soft piece) to the reverse side of shoulder straps and web harness to reduce slipping, scratching, and scraping in the shoulder area. Use a two-inch or wider quick-release waist belt to aid in distributing the rucksack load, and to decrease load shifting when negotiating difficult terrain and obstacles.

Use the buddy system to periodically inspect equipment throughout the duration of the operation. In addition to pre-mission inspections, all equipment should be given a quick check when moving out of a halt location or after negotiating an obstacle or extremely rough terrain.

Camouflage Paint

Commercially available "Hunter's Camouflage" paint tubes should be used in lieu of military camouflage sticks. They are easier on the skin, hold up better, and are generally easier to apply and remove.

Body Armor

For short-duration combat missions where there will be minimal individual loads, consider Kevlar body armor, such as Hardcorps, made by Second Chance. However, for most operations the weight would be impractical.

Signal Mirror

In some situations, the emergency signal mirror can be useful in looking around and over objects, with appropriate consideration as to shine and camouflage.

NBC Equipment

Generally speaking, the LRP team member should not have to worry about NBC dangers. However, the possible use of CS and CN will require at least some protective equipment. The American M17A1 protective mask should provide most of the protection needed. However, the protective hood that is currently in use has one drawback; either a camouflaged hood must be placed over it, or the NBC hood itself camouflaged. The camouflaged outer hood may be the best remedy. Needless to say, the reflection of light off the lenses is also a danger. Some missions may require items such as radiacmeters (IM-93/UD or IM-174/PD); detector kits, chemical agent, VGH, AN-M15A1A; and chemical agent detector, VGH, ABC M8.

Goggles

Made of plastic and available with shaded lenses, these may be essential in areas such as deserts. Wearing them just prior to sunset with shaded lenses can hasten night-vision adjustment.

Wire Saws and Entrenching Tools

These are essential for building hides and burying waste. Carry at least one entrenching tool per team. Sharpen it prior to deployment; it can make an effective weapon. Ensure moving parts are oiled to decrease noise.

Garrotes

Each man should carry a garrote, even if its use is not planned for; it can be a useful weapon if evasion becomes necessary.

Tire Repair Kits

These are useful for repairing waterproof equipment in the field. They are also light in weight. One kit should normally be sufficient for each team.

Flashlights

Rubberized waterproof and shockproof flashlights are available and can help maintain noise discipline. Another option is to wrap a regular military flashlight in rubberized cushioned tape to reduce noise. Waterproof Tekna or similar flashlights are of excellent quality. Flashlights can be useful when trying to treat a wounded team member in the dark, and with proper filters can be used as a signaling device. Properly camouflaged penlights are excellent for field use and should be carried by each team member.

Hammock, Tent, Stretcher, and Ground Cloth

All have a useful place in the LRP team at one time or another. The best solution is to make a multipurpose item to serve all these needs. A 6' x 3' (approx.) length of camouflaged waterproof nylon cloth, sewn with wide seams along the long sides, can be effectively used as a hammock or stretcher. Grommets should be added at each corner and along each side to allow use as a tent. Use would have to be balanced with "stealth common sense," but when the ground is continuously wet, rocking, and so forth, it may be the only way to get any rest.

Camouflage Nets

Today's nets not only conceal equipment, but are also resistant to detection by radar and near infrared scanning. Made of a sandwiched construction of vinyl and stainless steel fibers, the fibers help spread out the signal so it looks more like a tree or mound of grass to radar. They include the classic leafy structure so that they look like nature to the eye, and come in three color combinations. They could prove useful in concealing hide and observation positions. They are also very lightweight and shed water. One cut to the size of a poncho would be sufficient. The U.S. Army also has an individual net, 5' x 9', that can even be used as a seine for fishing or a trap for catching game.

Map, Compass, and Land Navigation Equipment

Obviously the first order of business is a compass. The standard military compass, lensatic, 5° damped, is more than adequate, and provides luminous markings for night use. Check compasses prior to departure to ensure they are functioning properly, and preset headings whenever practical. A compass should be secured to the person or harness with a lanyard to avoid loss. An excellent "Audio" compass is available from VMI of New Jersey. It has an audio (earphone) signal for daytime and visual signal for night. You simply preset your course and it lets you know by frequency and level of ticking or flashing how far you are getting off course. A tremendous benefit for night, desert, and arctic navigation, but also useful in any type of terrain or weather.

Painting the surfaces of map sheets with shellac preserves them and allows use of china-marker pens directly on the map. Clear plastic acetate also works well, as does a commercially available product called "Stormproof" that allows use of a pencil on the map, and also does not stiffen it like shellac and acetate. The reverse side should be covered with luminous paint or tape to provide a nighttime writing slate. Fold and prepare maps for ready use prior to departing. To reduce bulk, cut out the immediate area of the AO for ready use, and keep a second full-size map for reference when needed.

Every team member should have a map, note pad, pen, and pencil located in a trouser cargo pocket and sealed in a plastic bag. "Rainnote," a really useful item, is a waterproof note pad that you can write on with an ink pen even in the rain. Combine this with an astronaut pen that will write at any angle under any conditions and you've got it made.

One pocket altimeter should be issued per team; it is a useful aid in verifying terrain heights against map sheet information and selecting aircraft landing sites.

Knives

Each team member should carry some type of knife, nothing big and fancy, just a sharp, well made and sturdy knife. The blade should be hard enough to hold a good edge, but not brittle. The blade should be five to eight inches long and have an edge on the top as well as the bottom. It should have a good non-slip grip and sturdy compact handguard. It should have a good non-glare finish, and the sheath must be sturdy and non-glare.

A good quality, commercially available survival knife should be available for each team member.

The emergency compass, saw, and other survival items in the handle are useful. They are usually available in camouflage patterns. When possible the knife should double as a wire cutter. The "Ultimate Survival Knife," sold through Super Trooper, includes just about everything you would need, including a clinometer, saw blade, wire cutter, and hollow handle containing survival items. A good quality pocket knife is essential. An excellent item that rivals even the Swiss Army knife is the "Sportsman's Pocket Mini-Tool." It's all stainless steel, tough, and has many uses. Combat or survival knives should be taped to harness straps, point up, or fastened to the calf of the leg and boot top. Keep them sharp and ready for use. Pocket knives should of course be carried in the pocket.

A rigid handle, 18-inch machete (one per team) would be useful when building hides and for other purposes, although the noise level during use is a definite problem. Precision Sports of Ithaca, New York, offers a unique device called the "Swedish Kombin Knife" with five different interchangeable blades. The total weight is only 14 ounces. Another useful, although heavier, multipurpose item is the "SOS Rescue Kit" marketed by SOS of Ridgefield, Connecticut. Weighing six pounds, it offers a crowbar, spade, axe, hammer, all-purpose saw, metal saw, knife, grapnel, screwdriver, and metal cutter.

Ropes and Climbing Equipment

A length of rope 12 to 15 feet long can be useful when securing prisoners, crossing streams, or negotiating obstacles. A nylon strap can serve the same purpose. Rather than carrying one long rope, consider carrying two short lengths per team member. If the need arises, they can be tied together for added length.

Technical climbing and LRP stealth requirements generally do not mix well. The sound of a piton being hammered into a cliff or mountain face can carry a considerable distance. Try using "chocks." They are reusable, quiet, and leave little trace of their use. They are also available in aluminum to save weight. Field-expedient ones can be made quickly using nylon line, or straps, and regular bolt nuts. Basically, you find a small crevice or similar point in the rock face, slip the nut or chock into it, attach a snap link (carabiner) into it, and attach your climbing line.

For actual mountain climbing you will want standard technical climbing line. There are many sizes and weights available. In most cases, for river crossings, obstacle negotiation, and so on, a smaller lighter rope will do fine. Ropes should be dark colors such as olive drab. Straps, cord, and twine are also useful. The following technical data will give you a general idea of the varieties available. The data will vary somewhat with manufacturer.

CLIMBING LINE

Type	Size (ft.)	Weight (oz.)	Breaking Strength (lbs.)
Kernmantle, braided fiber	3mm × 100	9	650
	4mm × 100	14	900
	5mm × 100	18	1,200
	7mm × 100	35	2,700
	9mm × 100	90	4,300
	11mm × 100	122	5,900
Continuous filament	1/4" × 100	32	1,850
	5/16" × 100	48	2,850
	3/8" × 100	64	4,000
	7/16" × 100	96	5,500
Tubular nylon webbing	1" × 12	5.52	4,000
	1/2" × 12	2.76	1,000
Solid/Flat nylon webbing	1" × 12	3.24	6,000

In kernmantle type ropes, the kern consists of 15,000 continuous fibers, each having a diameter of .050mm (.002 in), combined in three braided units, or one unit. The multiple-unit concept helps to reduce the internal friction developed during a fall and also decreases stiffness, making it easy to work with the rope, especially when tying knots.

Continuous filament line, also known as Goldline or Greenline, is made with a tighter-than-normal lay and is considerably stiffer. It retains over 90 percent of its strength when wet, and has excellent abrasion resistance. Tying a knot in a rope or length of webbing will considerably reduce its strength, with most failures occurring in the knot. The knot tightens under pressure and essentially shears the rope. Continuous filament line is generally 20 percent stronger that kernmantle; however, it also exhibits significantly more stretch under lighter loads. The natural twist of the continuous filament line creates more friction and turning force during rappelling than kernmantle line.

Nylon webbing generally softens with use and has excellent abrasion resistance. Wider widths are also available and are useful for constructing special harnesses.

There are various sizes of parachute cord available. Made of nylon and using a core and sheath construction, they range in breaking strength from 100 to 750 pounds. Generally lightweight, the smallest weighs only 2 ounces per 100 feet, while the larger weighs only 9 ounces per 100 feet.

Various software, belay seats, rappel seats, and so on are also available and are incorporated into the equipment harness in some cases. Freedom of movement and ease of use should be checked closely. Some allow very little walking when rigged, tend to tighten up, and so on. They should generally hang loose when no tension is applied but tighten up and form a seat with tension, allowing more freedom of movement. Some seats use up to three-inch nylon webbing in some places to help distribute pressure and provide more positive support.

Belay brake bars, belay plates, descending rings, nylon pulleys, and various sizes of aluminum carabiners can find a useful place in the LRP's equipment bag. Use your imagination and look carefully.

For climbing, it may be desirable to have ascenders. Among the best are the Swiss made Jumar Ascenders. It provides positive gripping and works better on wet or icy ropes than most brands. Weight is 15 ounces per pair, which could be a minor inconvenience when compared to barehanding it!

Each team should carry one 100- to 150-foot 4mm climbing line and one 100- to 150-foot length of small diameter parachute cord or nylon twine to aid in negotiating river and terrain obstacles. In addition, each patrol member should carry a twelve-foot nylon webbing strap and at least three snap links. They can be useful for negotiating obstacles, rigging for emergency extraction, and binding prisoners. If tied end to end you would have a rope approximately 72 feet long. This also serves to spread out equipment loads.

Combat Equipment Vests and Harnesses

The variety of equipment available in this area is mind-boggling at times and ranges from the standard military web belt with ammunition pouches, harness suspenders, etc., to various tactical or combat load carrying vests. The vests are suitable for just about anything and can even combine body armor, flotation capabilities, or rappelling. They are available in a variety of colors and camouflage patterns. For the LRP soldier, the combat vest offers many advantages over the standard military web harness.

One of the more versatile vests comes from Combat Equipment Sales of Palmer, Texas. You can basically design your own; the system includes rappelling harness, emergency extraction harness, and the ability to carry a wide variety of weapons magazines and special equipment. There are also military-issue survival vests, and the excellent grenade vest for carrying 40mm grenades for the M79 or M203. Nordac (Fredericksburg, VA), Vector (Lafayette, CO), Quartermaster Sales (Albuquerque, NM), Federal Ordnance (South Elmonte, CA), and Camofax (Phoenix, AZ) all make individual load carrying equipment.

One particular type is probably not the best overall solution. Choose one for team leaders, one for snipers, and so on. In the interests of noise discipline and serviceability, try to stick with snaps rather than Velcro or zippers.

Rucksacks

For the LRP, the rucksack will be one of the most critical items. In most cases you must look at carrying 75 to 85 pounds of equipment, and possibly more, per man. A good ruck on your back can make the difference between arriving at an objective warmed-up and ready for action, or arriving fatigued and ready to sleep.

Rucksack construction is fundamentally of three types: external frame, internal frame, or frameless. Each type has its own advantages and disadvantages, but it must be well made, versatile, and tough. Weight distribution is a primary concern in any design. Too much load on your shoulders can slow you down through lost energy. Adequate hip or waist support belts, chest straps, and infinite shoulder-strap adjustments are mandatory.

Size is a consideration that must be balanced against other factors. In most cases it is better to have a rucksack that is too large than one that is too small. There are three basic sizes: combat or day pack, medium or mountaineering, and large or expedition. These may be further divided into those with more than one compartment and those with just one. Compartments can be helpful for organizing the load and finding critical items. The one-pouch concept with bags inside may be all right for hiking, but give me multiple compartments for combat operations.

Accessory pockets that attach to the outside can be added as needed, and in some cases removed for wear on the web belt or harness. Don't get the ruck too wide. If the entire rucksack is wider than the wearer, it will impede negotiation of thick brush and obstacles.

Side and internal straps should allow lashing, or adjustment of the ruck's size based on actual load. This is essential for balance and load stability, and helps maintain noise discipline. Even with minimal load the weight can be held close to the back, and there is no ballooning or settling of the load. A loop between the shoulder straps is useful for hanging the rucksack from a rope ladder or climbing line, or lowering it from a helicopter, parachute harness, or cliff.

In my estimation the U.S. Army issue, large combat field pack, or large rucksack, comes closest to filling all requirements. It has its shortcomings, but when combined with a good combat vest is hard to beat. It can be worn with or without its frame and has an internal pocket to carry a field radio with ample inside room. It has three large external pockets, three small ones, a small compartment in the top flap, and points to attach first-aid kits, canteens, ammunition pouches, and similar items to the outside. It also has plenty of cargo straps to secure and adjust the load.

Medical Aid and Survival Kits

Team medical and survival kits should be extensive but compact. Items should include medications for pain, infection, etc. Whenever possible, non-prescription natural medications should be used. Medications to increase alertness, lower excretion of body fluids, and so on should be very restricted and only used in an emergency.

The tremendous variety of medical and survival items available allows the development of a kit to handle almost any situation. The composition should be varied based on the type of operation, climate, and conditions expected. The contents of the kits will vary based on the ability to conduct emergency team extraction operations and will be considerably less for counterinsurgency than for high-intensity warfare. Consult with qualified medical personnel for maximum effectiveness.

Equipment will generally be divided between team members, with specialty items carried by a designated team medic. Each member should also have an individual kit. Although most items should be consolidated into kits, many of them can, and should, be scattered within the soldier's equipment load. All items, except for some of the team kit items, should be located in uniform pockets or on the web belt and harness, and secured with a cord to prevent loss. Extra field dressings fit nicely in the bottom of some ammunition pouches and still leave room for the magazine. The following is a suggested list for LRP team individual and team kits:

SURVIVAL KIT ITEMS
(Individual)

Bouillon cubes, one bottle
Fish hooks and sinkers, six each; fishing line, nylon, 25 foot, 15 lb. test
Razor blades, single edge, three each
Safety matches, waterproof, 20 or more, and a fire starter, all weather
Saw, wire cable, one each
Sewing kit, one each
Signal flare kit
Signal mirror
Signal panel, ground, cut into six equal pieces, one piece each team member
Snare wire, small game, 25 foot
Space blanket, camouflaged (cold weather issue)

SURVIVAL KIT ITEMS
(Team)

Signal light, strobe, one per team
Transmitter, homing, emergency signal, one per team

MEDICAL KIT SUPPLIES
(Individual)

Cravat or triangular bandage, one per man
Field compress dressings, three 4" × 7", and one 7½" × 8"
Safety pins, three or four large ones
Salt and potassium tablets (take one of each), small bottle
Sodium chloride and sodium bicarbonate mixture, for burn and heat injuries

Water purification tablets, one bottle per team member

MEDICAL KIT SUPPLIES (Team)

Adhesive tape, 1" wide, one roll
Albumin blood expander unit, at least two
Ammonia inhalants, aromatic, break tube and inhale as a mild stimulant
Antibiotic, for treatment of infections and disease
Anti-diarrhea medication, one bottle (tablets)
Antiseptic, betadine, one bottle
Bacitracin and fungicidal ointment, one tube each per team
Burn dressings, 6 each, assorted sizes
Butterfly closures and waterproof adhesive bandages, assorted sizes
Copper sulfate pads, for use in covering white phosphorous burns
Detergent, disinfectant, surgical (Phisoderm), one small bottle per team
Elastic bandages, one 3", 4", and 6", can be used for splinting and wounds
Field compress dressing, 11¾" square
Ganze bandages and gauge compresses, assorted sizes
Morphine injection, 16 mg each, for severe pain, 3 to 6 surrets
Pain medication, for mild and moderately severe pain, one bottle each
Scissors, assorted, two or three pairs
Snake bite kit, one, if a snake bite danger exists
Surgical forceps, assorted sizes, five pair, and Tweezere, small, one pair
Surgical needle holder, one, medium size
Surgical scalpel, one each, with extra blades
Surgical sutures, 00 000 silk and Chromic, on cutting needles, six each
Thermometer, one each
Tourniquet, on each

Note: Carry tablets, not capsules. Capsules can melt and are easily broken.

6 Communications and Signal

INTRODUCTION

Due to the very nature of LRP operations, communications play a key role, and must be state-of-the-art. Special communications equipment and techniques must be employed due to the extreme range or depth of operations. For stability, peacetime, and counterinsurgency operations, fairly standard moderate-range frequency modulated (FM) radios such as the U.S. military AN/PRC 77 can be employed with satisfactory results. Radio-relay teams deployed by the communications platoon can easily extend the useful range of FM equipment. For mid- to high-intensity environments, single sideband (SSB) AM radios with extended range capability are a must, as are burst transmission capabilities. In all phases of planning, communications and "threat" capabilities, such as radio direction-finding, must be carefully evaluated. Although it is possible to provide aerial relay capabilities, the ability to do so hinges on the control of airspace by friendly forces, and the threat of antiaircraft fire.

Highly sophisticated, even solar-powered, communications equipment is constantly changing. New equipment must be continuously evaluated as it comes onto the market, and every advantage taken in weight savings, range, and transmission security. Low-density supply requirements will also allow the use of off-the-shelf commercial items in many instances. No likely source should be overlooked.

Technical and tactical communications considerations should include:

Distance range. Will vary with changes in operating frequency, location, antenna, terrain, method of emission, and power output.

Frequency range. Base station ranges must be compared with team radio ranges, supporting aviation and fire support ranges, and so on.

Inter-operability with other systems. Includes distance range, frequency range, type of emission, and power output. Communications equipment must allow full internal and external communications, with all supporting and controlling elements.

Dependability. Team systems must require minimum field maintenance and be capable of withstanding rough handling and reliable in all types of climate.

Weight. An obvious but necessary consideration that must be balanced with the other criteria. Increased dependability may result in increased weight, but may be a necessary trade-off. Power source and output must be evaluated at this point as they pertain to weight and mission duration.

Type of emission (voice, continuous-wave, and burst). Obviously, all radios must be able to communicate using the same method of emission. Systems that allow multiple means are desirable.

Security of transmissions. Burst and scrambled transmissions should be used whenever possible.

A detailed study of the proposed operational areas must be made early enough to allow the timely acquisition of suitable communications equipment. Particular attention must be paid to weather and atmosphere conditions, terrain, expected operational intensity, projected support available, and similar factors. It will frequently be necessary to make trade-offs in equipment weight, operating ranges, and power source requirements to obtain the most suitable equipment. Dependability must be a key factor, along with skip zones, radio wave propagation, and antenna performance.

Communications in Arctic Regions

Ionospheric disturbances, known as ionospheric storms, have a definite effect on sky-wave propagation in polar regions, causing excessive static, fading, or complete blackout of radio communications. Magnetic storms or auroral activity can cause complete failure of radio communications for varying periods of time. Some frequencies may be blocked out for minutes, hours, days, or even weeks, and the frequencies available will not always permit operators to shift to an unaffected one. This is primarily caused by increased ionization of the atmosphere or changes in the density and/or height on the ionosphere. It is advisable to use widely separated primary and alternate frequencies to reduce this problem area. Low-frequency systems (100 to 500 KC) provide the best medium for long-distance, point-to-point communications, because of their use of ground-wave transmissions. Very high frequency circuits (30 to 300 MC) are better for shorter distances up to 80 km.

Winterization and handling of equipment is critical, as cables, handsets, and other components become brittle due to the cold. The equipment must be strong enough to withstand high ice and wind loading, as well as great temperature variations. Blowing snow may cause shorts and grounds, disabling the equipment. Batteries will be depleted due to the cold, but in some cases can be reactivated by warming them, either with the body or by other means. Extreme changes in operating temperatures will frequently cause condensation to form inside the radio, which will be subject to freezing when the radio is not in use. Radio handsets require protective covers, if for no other reason than to protect them from the moisture in the operator's breath. Mechanical malfunctions will become more frequent, as latches, seals, and other components become brittle from the cold.

Communications in Jungle Areas

Communications are seriously limited in operating distances due to dense jungle growth. The operating ranges of short-range tactical radios will vary from 10 to 60 percent of normal. Additional care during maintenance must be taken because of damage resulting from heat, moisture, fungi, and insects. The relatively high humidity will cause condensation to form inside the equipment. This is especially true when the temperature of the equipment becomes lower than the surrounding air. To minimize this problem, sets may be kept turned on for the duration of a mission. However, this method must be balanced against expected battery life.

Antennas must be sited as clear of the jungle growth as possible when planning long-range communications. Dense jungle growth will interfere with waves, at times making them impossible. These problems will be worse during the rainy season, with damp vegetation absorbing much of the radio signal.

To increase communications distances, site the equipment on the side of a clearing away from the station you are trying to contact. The clearing should be at least 100 meters wide when possible. Locate the radio in the top of a tall tree temporarily to increase range. It is also possible to mount the antenna in the top of a tree and connect it to the radio with a length of communications wire.

Communications in Desert Areas

Desert terrain provides poor electrical grounds, and unless corrective actions are taken, operating ranges will be greatly reduced. At frequencies ranging from one to twenty MC, the best range can be obtained when antennas are located near subterranean water or oases. Whenever possible, antennas should be equipped with counterpoises. Simple whip antennas will suffer a one-fifth to one-third loss in normal operating range.

Dust, dirt, and sand will create serious maintenance problems, but these can be reduced through the use of dust covers or bags. Sets must be frequently cleaned to avoid excessive damage from grit.

Communications in Mountainous Areas

Communications in mountainous areas are difficult due to terrain masking and extreme and rapid changes in weather and temperature, which often interfere with continuous communications, and may require frequent drying of components. Weather problems encountered in arctic operations will also hold true for mountain operations, especially in extreme cold. Whenever possible, use line-of-sight paths down valleys, between mountains, and so on. Locate relay sites on high peaks to increase ranges, or utilize airborne relays.

Radio Direction Finding (RDF)

RDF is a real threat to both the communications teams and the LRP teams, and must be considered when selecting equipment, establishing reporting procedures, and planning for the mission. At the same time, the LRP unit should have the capability of conducting RDF operations. A LRP unit could conduct RDF operations to locate and eliminate enemy clandestine radio teams in counterinsurgency or stability operations. Lightweight portable direction finders should be available for both LRP and mobile communications team use. It may also be desirable to have LRP teams equipped with monitoring equipment capable of receiving enemy radio traffic from battalion and lower level nets; a system capable of operating as a frequency scanner would be most useful.

Communications SOP, Radio Frequency Allocation and Assignment

Each LRP unit must establish a detailed communications SOP covering such details as maintenance responsibilities and procedures, net operations, communications platoon organization and mission, and emergency procedures. Communications logs must be established and maintained at all times for daily review by the force commander. The log should provide sufficient detail to allow the commander and his staff to quickly assess the situation and status of each deployed team.

LRP force frequencies must be established separately from other units, and must include numerous alternate and primary frequencies, while the use of airborne and ground-based relay sites will increase the number of frequencies required.

Normally all deployed teams will operate on the same frequency for routine traffic. However, when more than eight teams are deployed, more than one frequency should be utilized; i.e., eight or less teams deployed use one frequency, nine or more use two, twelve or more use three, and so on. When a team is in contact with the enemy, all other teams should be automatically switched to an alternate frequency to clear the net for support of the engaged team. Contingency plans for jamming must be established to ensure continuous communications with deployed teams. Wide separation of operational primary and alternate frequencies can aid in this effort.

Spare codes and resupply codes are essential for reducing transmission times and insuring clarity.

Examples of Spare Codes

Target Description

Spare 1 (UCZ), troops in the open
Spare 2 (OUD), troops dng in
Spare 3 (VDP), armor

Target Marking

Spare 6 (FPG), A homing beacon will be placed in the target area on freq. UHF 131.1, deliver ordnance on the signal.

MOBILE COMMUNICATIONS TEAMS

Mobile communications teams must be able to be deployed to remote locations deep in enemy controlled or infested areas or to establish air or seaborne radio relays. For this reason, their equipment must be carefully selected. Items such as portable generators may be useful in rear areas, but are definitely out for remote deployments. State-of-the-art solar-powered equipment could be useful, as would hand-cranked generators and special battery packs. Considering the variety of potential missions, multiple sets of equipment are a must to allow mission-tailoring of the team.

Equipment for mobile teams should include portable radio direction finders, communications equipment capable of monitoring low-level enemy radio traffic and battalion and lower radio nets, long-range secure and short-burst transmission capabilities, the team must be mobile and capable of implementing electronic countermeasures in support of LRP team operations.

Base teams should be co-located with tactical operations centers when possible for rapid response, coordination, and so on. However, in the mid- to high-intensity warfare environment, co-location is less desirable due to the enemy's ability to use RDF equipment to locate and target communications centers. Security of deployed communications teams will normally be provided by the supported command except in the case of deep deployments.

An effective commo team must be familiar with LRP operations, and whenever possible should have had a previous operational team assignment. Its ability to anticipate the team's needs as a situation develops can be a life-saver. It has the ability to speed calls for support by bringing those supporting elements up on the net prior to the team's actual call for assistance. Saving even a few seconds can mean the difference between victory or defeat.

Communications platoon personnel must be selected based on their level of expertise in field and long-distance communications techniques. They must be adept at planning and evaluating communications support requirements and capabilities. Flexibility is essential, and various missions may require different communications equipment.

LRP TEAM COMMUNICATIONS

One aspect of LRP operations that requires considerable change and adjustment from the norm is the assignment of radios to other than the team leader and assistant team leader. With a 4- to 6-man team, you cannot waste manpower by making someone a radio operator who must stick with the team leader. Regardless of rank, the team leader and assistant team leader must be tasked to carry the team radios. As a prior team leader myself, I would not have it any other way—it makes the radio immediately available when you need it.

Internal LRP team communications can be accomplished through the use of short-range squad radios. Commercial brands are usually the most efficient and lightweight. The types chosen must suit the expected purpose. However, within the LRP team itself, the primary means of communication should be visual observation of each other.

Silent Inter-Team Signaling

All signals used within the team must be done with minimum movement and noise, and must not jeopardize security. A thin nylon line or length of wire may be strung between members when necessary to aid communications. Signals should be kept simple and frequently practiced. Signals, when combined, should be able to clearly convey short messages. The examples shown in the accompanying illustrations would suffice for most needs.

Emergency call signs and frequency can be taped to radio handsets for ready use by any team member. This works best using a luminous tape or background. Do not remove spare batteries from their plastic storage bags prior to use, as to do so will result in some drain. The plastic bags provide excellent protection for radio handsets, maps, and other sensitive equipment. When discarding old batteries, destroy them completely and bury them, or carry them back in with you. If batteries become dead or weak, it is sometimes possible at least to partially recharge them by sleeping with them next to your body or placing them in the sun for a few hours.

To limit the enemy RDF threat, do not transmit until absolutely necessary, keep terrain between your position and possible enemy RDF positions, and move immediately after transmitting whenever possible.

Radios should be equipped with whisper-mikes or headphones to reduce noise and aid in stealth. A whisper-mike is a microphone in a nose/mouth cup that absorbs sound. The operator can talk into it in low tones without being heard by someone only a few feet away.

Challenge and passwords for use within the team, and for passage of friendly lines or linkup operations, must be established. As a minimum, a challenge and password must be established for use during evasion operations.

Emergency Procedures

A duress code must be established as part of the mission emergency operations plan. It could either be a verbal code to be given during normal radio transmissions, or a specific series and sequence of "breaking squelch" with the radio handset—rather than speaking into the handset, you simply depress the push-to-talk switch to pass the signal. A duress code allows the team to let you know they are no longer able to communicate freely due to immediate danger or capture.

Emergency search and rescue communications equipment that utilizes homing signals is a must for LRP operations. At least one per team should be issued. However, the equipment must be used with extreme caution—if the friendlies can locate you with it, so can the bad guys.

Emergency signal panels are useful in marking your position for air support or extraction. Cut one panel into six small ones for use by each team member. They are quicker to put out and retrieve in this manner. Simply lay it out beside you while in a prone position. Under the right conditions it is possible to spot a signal panel from as far away as five miles, although the average is around 3.5 miles.

Although of less use due to the deep penetration aspect of LRP operations, pyrotechnic signals should be established for emergency-action procedures such as loss of communications. Normally these signals consist of firing a flare or similar device at a prearranged time and/or location. Miniature and full-size smoke grenades and strobe lights should also be issued for marking team positions and emergency signaling. Twelve-gauge signal guns are useful not only for emergency signaling, but also for use as an incendiary device and illuminating flare; they last about six seconds. Smoke signals can be seen from as far away as twelve miles, with an average of eight miles. Strobe lights have been sighted from as far away as 20 miles, with an average of 3.5 miles. Flares and star shells have been detected at ranges of up to 35 miles, with an average of 25 miles and, when used in daylight, have about 10 percent of the nighttime range. Use any of them with considerable caution. Emergency signal mirrors offer better team security when signaling is required. However, they can be detected from as far away as 45 miles, and from as high as 16,000 feet, although the average is about ten miles.

Team members must also be familiar with emergency air-to-ground signals. Special signals can also be developed for covert communications with air and seaborne relay stations to further limit communications. However, the aircraft or naval vessel in most cases should not acknowledge the signal visually, but should transmit a short radio acknowledgment instead to avoid compromise of the team.

Field-Expedient Measures

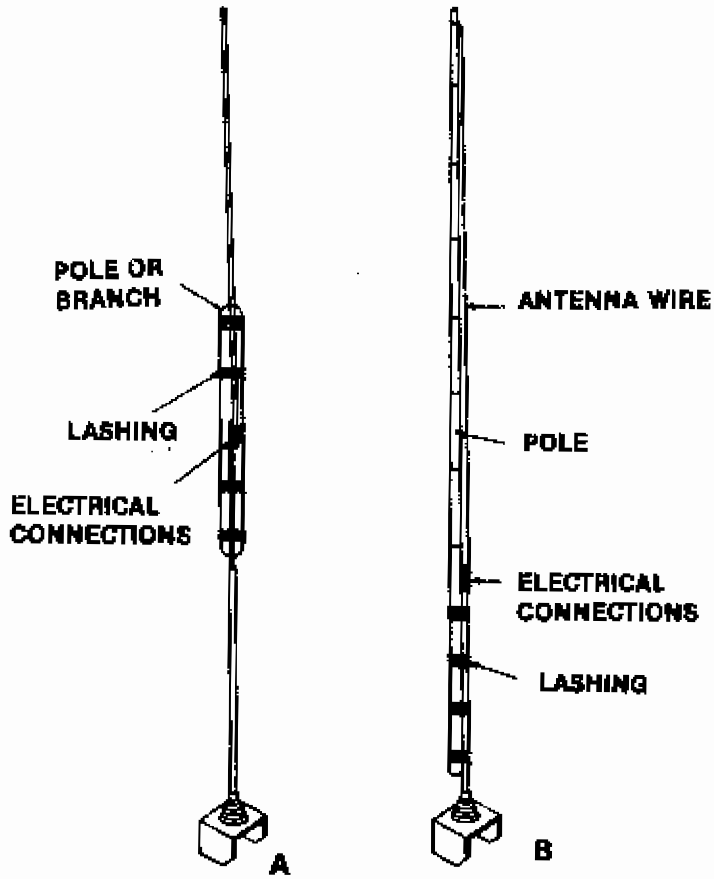
LRP team members must be able to erect field-expedient antennas when necessary and must be familiar with factors which will affect radio transmission capabilities. To a limited degree they must also be capable of making minor field repairs on their communications equipment, particularly antennas.

Tools required are few. The U.S. Army tool kit is widely available. The only additional items the team would need to carry would be some WD-1 communications wire, a roll of electrical insulating tape, and nylon twine.

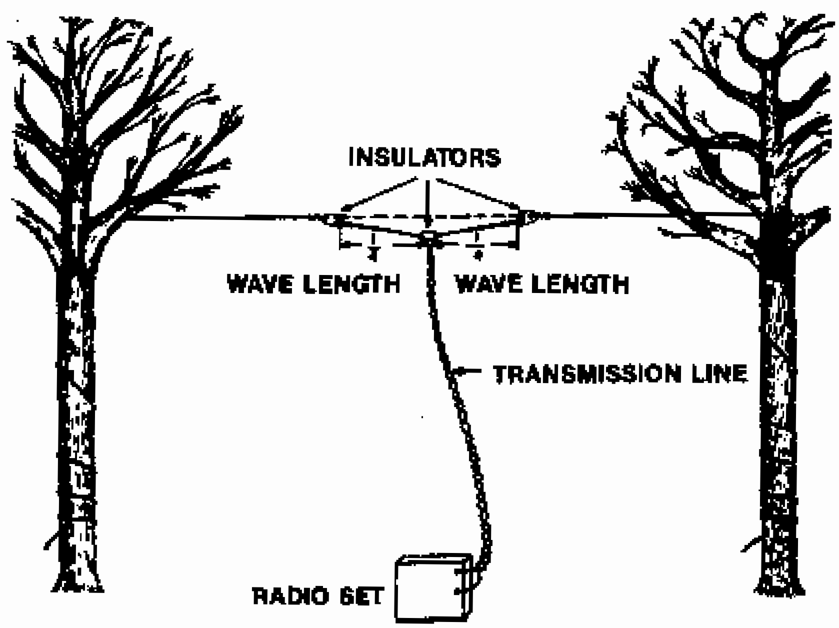
Field-expedient antennas may be made from copper or aluminum core wire; however, in an emergency, use any type of wire that is available. Even a Claymore mine firing wire can be used. The length of the antenna is important. An emergency antenna must be at least as long as the one it replaces.

Antennas supported by trees can usually survive heavy windstorms. To keep the antenna taut and prevent it from breaking or stretching as the trees sway, attach a piece of old tire inner tube to one end of the antenna or pass a rope through a pulley or eye hook, and attach one end of the rope to the end of the antenna and the other to a weight.

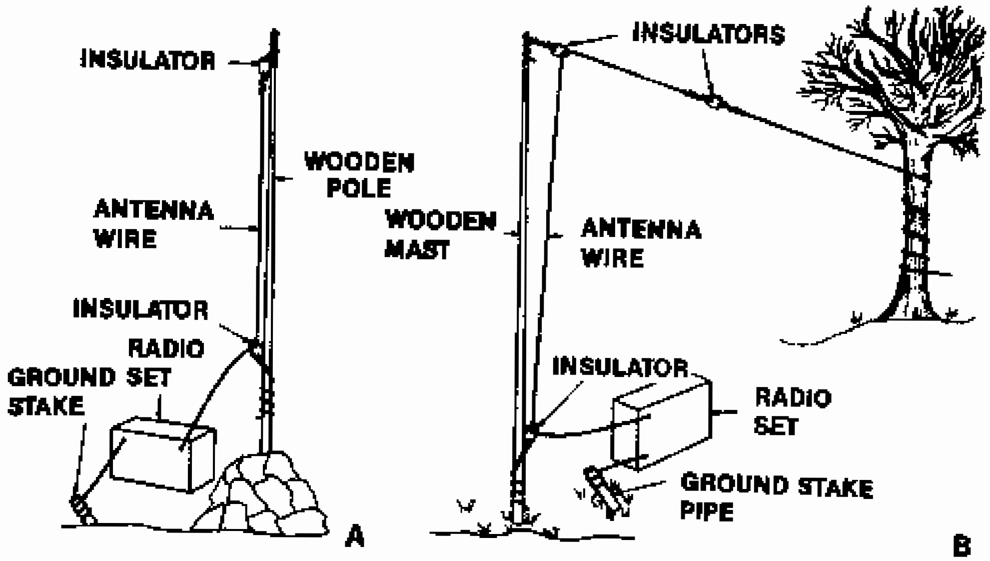
There is a wide variety of field-expedient antennas possible. Examples of the more common ones, and field repair methods, are shown in the accompanying illustrations. Details on actual construction are available in a wide variety of military and non-military publications.



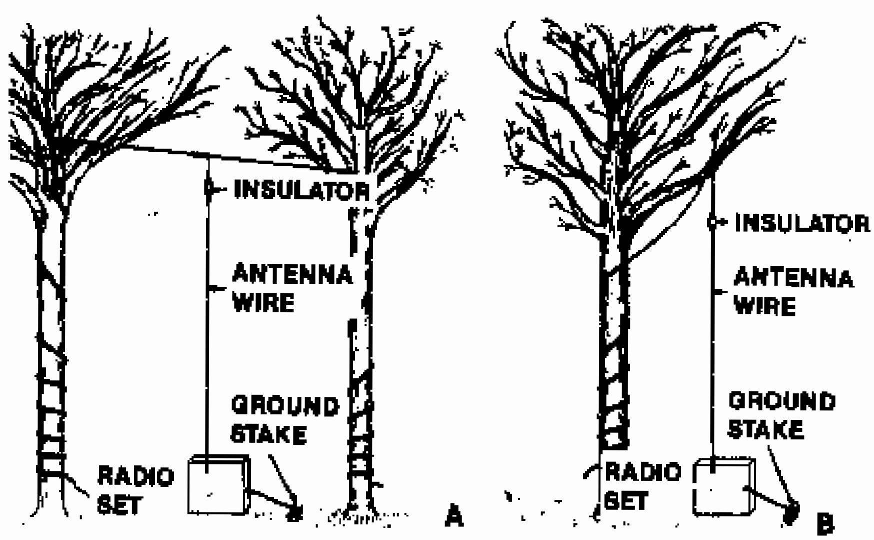
Emergency repair of broken whip antenna.



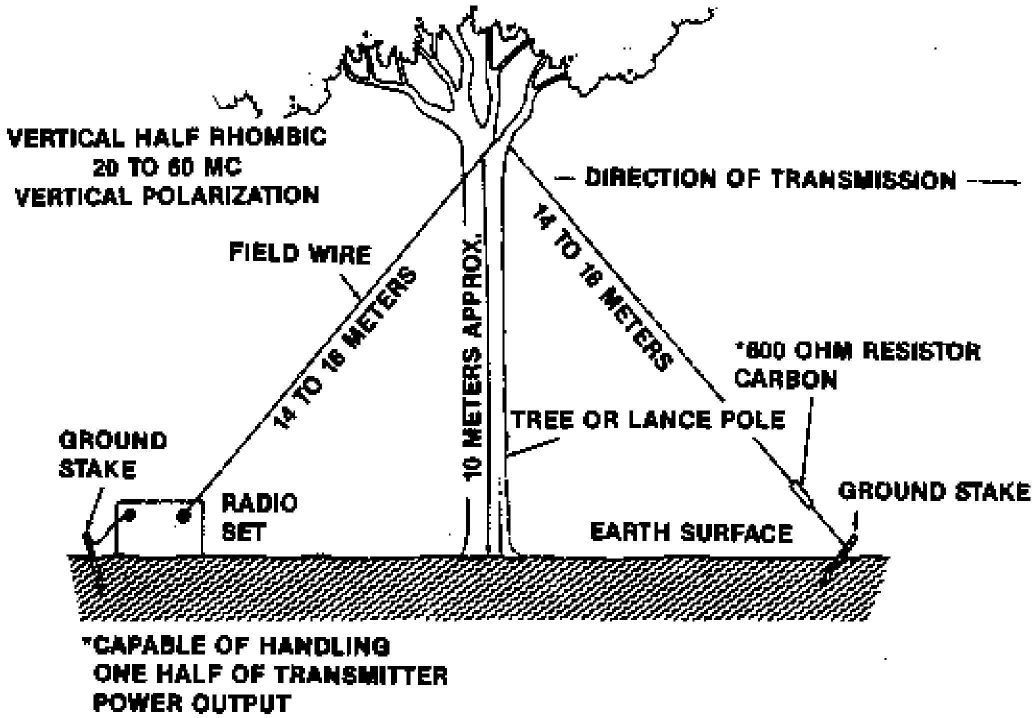
Improvised center-fed half-wave antenna.



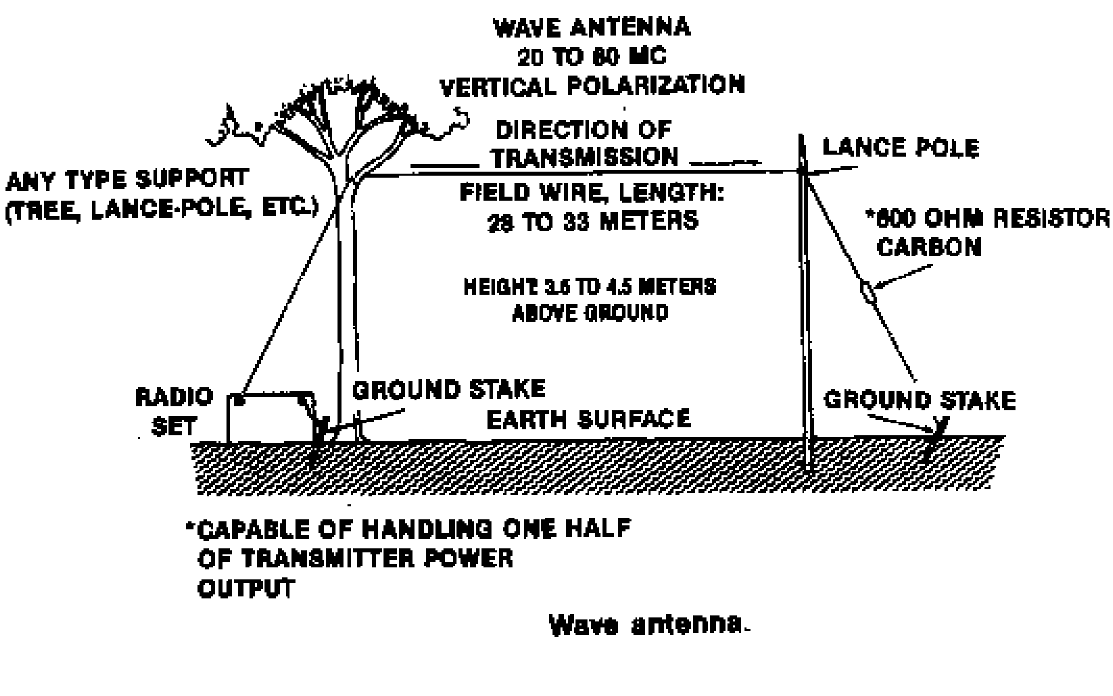
Field substitutes for vertical wire antennas.



Additional means of supporting vertical wire antennas.



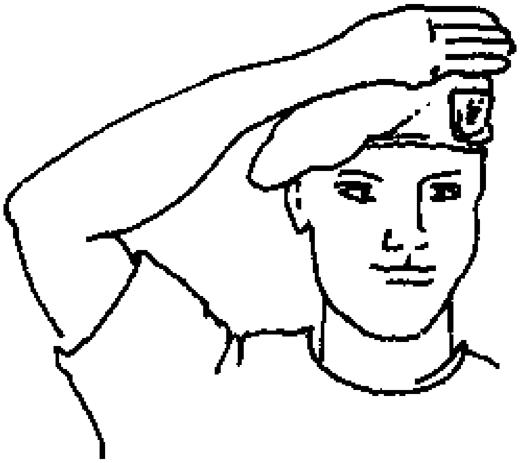
Half-rhombic antenna.



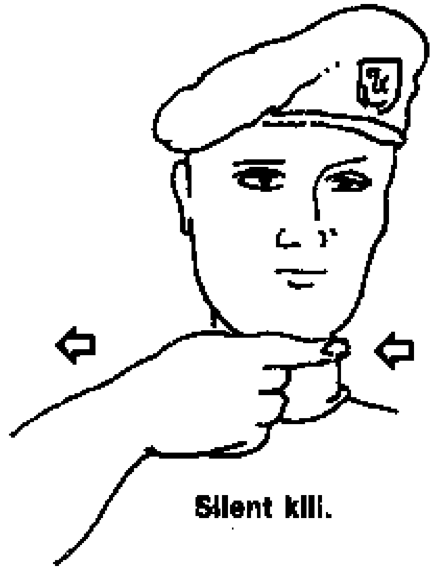
Wave antenna.

SILENT SIGNALS

Silence.

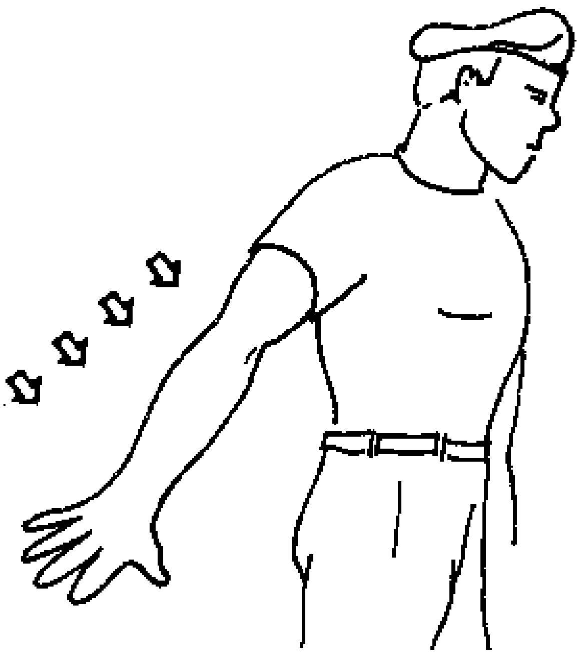


Cover me.

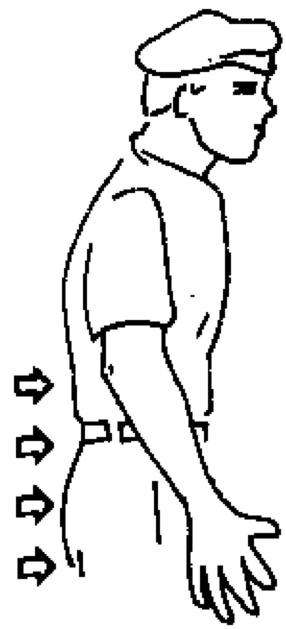


Silent kill.

Ambush—get ready, set up, etc.



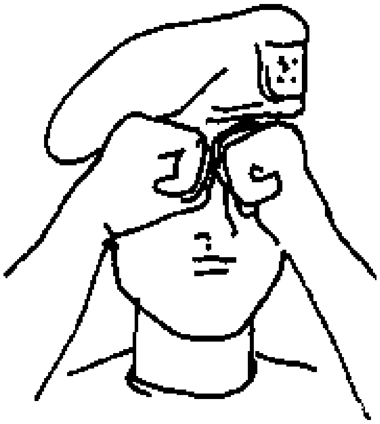
Down and freeze.



Move out.

Radio check.

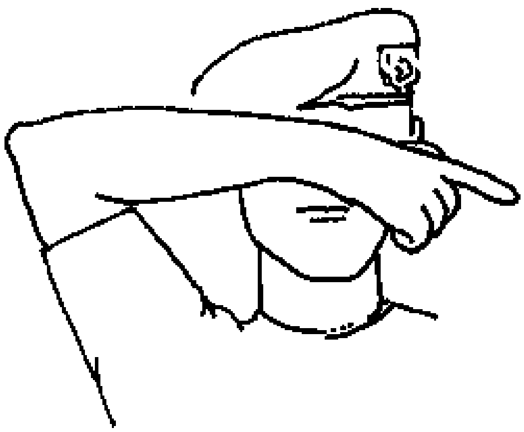
House ahead.



Recon—observe.

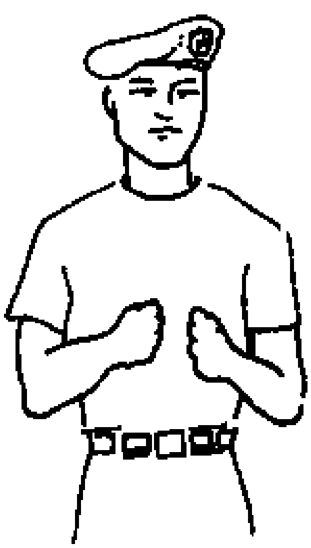
Village ahead.

Listen.



Hide—concealment.

Make camp.



Rest break.

Get ready.

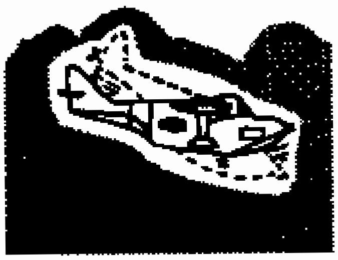
I am ready. Are you ready?

Standard aircraft acknowledgment.

MESSAGE RECEIVED AND UNDERSTOOD

Aircraft will indicate that ground signals have been seen and understood by—

***Day or moonlight:* Rocking from side to side.**

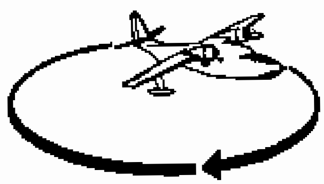


AFFIRMATIVE

NEGATIVE

MESSAGE RECEIVED AND *NOT* UNDERSTOOD

Aircraft will indicate that ground signals have been seen but *not* understood by—



***Day or moonlight:* Making a complete right hand circle.**

7 Weapons, Demolitions and Munitions

WEAPONS

Selecting weapons for the LRP force has a number of major differences from arming a regular unit. First, you arm the team, not the individual, and the number of weapons will normally not be equal to the number of personnel. In general, LRP force weapons fall into three categories: individual weapons directly issued and assigned to team members, special-purpose weapons assigned to specific individuals or the team leader, and unit special-purpose weapons assigned to the unit but available for issue to any team in the unit.

When selecting weapons, the first requirement is absolute reliability. Second must be a combination of lightweight and potent firepower. The M16 rifle appears to be universally favored by special operations forces for its dimensions and weight, although one or two forces may eventually adopt the Steyr AUG. The significant point about weapons choice is not that they lean to one particular weapon, but that they switch weapons to suit the task at hand. Submachine guns are frequently used in counterinsurgency operations due to their compact size, heavy bullet, and rapid rate of fire. The Heckler & Koch MP5 and its variants, the familiar Uzi, the Sterling L34 silenced model, and the American Ingram are all frequent choices.

Standard issue and many of the special-purpose weapons must be selected based on their ability to be used as contact breaker or counter-ambush weapons. Handheld light antitank weapons such as the M72 LAW, grenade launchers, shotguns, and automatic weapons can all be useful for this purpose.

Individual Standard Issue Weapons

Each team member should be armed with a lightweight 5.56mm assault rifle or carbine. Selection criteria should be: lightweight, compact, standard caliber, capable of being equipped with a noise suppressor, and capable of full-automatic fire. In most cases, these should be fairly standard issue weapons such as the XM177E2/CAR 15 or M16A2. Some may question selecting a member of the M16 family, but there are few weapons as easy to maintain, as light, as easy to handle, and as accurate.

Special-Purpose Team and Unit Weapons

These weapons would either be maintained by individual teams, by the platoon, or for general issue by the unit. They are strictly mission oriented, and should be selected based on the tasks to be performed.

Pistols. A silenced 9mm auto pistol, or similar pistol, allows silent removal of sentries with reduced risk of detection. A minimum of one per team should be available. Pistols are a field in which personal taste seems to figure in more than in any other; a man who intends to be proficient with a pistol ought to be able to use the weapon of his choice, providing that in so doing he does not create ammunition supply problems. The .45 Colt M1911A1 is still a favorite because of its well-known power. 9mm Parabellum automatics continue to be popular choices, as do .357 Magnum revolvers.

Light machine guns. An increasing variety of

5.56mm light machine guns have come into use in the last few years, most of which are readily adaptable to the LRP environment. The U.S. Army M249 would be my first choice, for its availability with a folding stock and either belt or M16 magazine feed. Principle use would be for strike missions, where its added firepower would more than compensate for its added weight. It should be possible to equip it with a noise suppressor. At least one per team should be available, with additional weapons available at unit level.

Medium machine guns. Useful when more firepower is desirable, but prohibitive due to weight. The M60 in 7.62mm is an excellent choice. The newer M60E3 is a lighter weight version that offers some advantages over the basic M60. The M60 barrel can be successfully cut down, eliminating the bipod and front sight, for a close-in assault weapon. The medium machine gun should generally be a unit level issue weapon.

Grenade launchers. Probably the best is the U.S. M203, a combination 40mm grenade launcher and M16 5.56mm assault rifle. The M203 should be a team issue weapon, one per team.

Sniper rifles. Two excellent combat-proven choices are the U.S. Army M21 7.62mm semiautomatic, and the U.S.M.C. M40 7.62mm bolt action. Both can be equipped with a noise suppressor for added effectiveness. My personal choice is the M21 because of its higher rate of fire. A rather exotic weapon that could find a home in the LRP force is one of the .50 caliber sniper rifles. The M-82 "Barrett Light Fifty" would be the better choice due to its lighter weight and eleven-round box magazine. For really long-range kills, it is hard to beat. A little ingenuity should allow use of a noise suppressor. The M21 should be issued one per team, to the designated sniper, with an M-82 issued one per platoon. An additional weapon for the sniper should be an accurized M16, with scope and noise suppressor, to be issued on an individual sniper basis.

Shotguns. Only four models fill the bill for the LRP team. They are, in order of desirability, the Atchisson full-automatic 12-gauge combat shotgun, the H&K CAWS, the High Standard Model 10A Bullpup, and the Mossberg Model 500 Bullpup. In the hands of a properly trained user the first two would be a devastating contact breaker or ambush weapon, and their magazine feed and full-automatic capability give them definite superiority. The High Standard and Mossberg would be suitable substitutes due to their compact size. At least one per team should be issued, with additional weapons available at unit level.

Submachine guns. The Uzi, Ingram MAC-10 or 11, and Heckler & Koch MP-5 are excellent weapons for strike and reconnaissance operations. Unless single-shot accuracy is desirable, my preference would be the lighter MAC-11. For accuracy it would be between the MP-5 and Uzi. A good route to go would be to have MAC-11s available one per team, with the Uzi and MP-5 available at unit level.

Special weapons. Lightweight antitank weapons, rocket launchers, and light mortars can be useful weapons for the LRP force. They can prove useful during strike missions and for breaking contact, and should be available as unit level issue.

Weapons silancers and sound suppressors. In most cases a suppressor only dissipates the sound to about that of a .22 caliber, while at the same time making the location of the shooter hard to detect. A silenced weapon uses small-caliber subsonic ammunition that results in truly "silent" fire. Except for a specially silenced pistol, most LRP weapons would fall in the "suppressed" category. Suppressors should be considered a must and incorporated whenever possible. They are capable of considerably increasing the lethality and security of the LRP team.

Ammunition

Although standard cartridges are acceptable for most missions, a wide variety of types should be available for special needs. HEAT, HE, CS, and canister rounds should be available for grenade launchers, while armor-piercing, tracer, incendiary, and match grade ammunition must be available for other weapons. Special loads can include duplex and triplex rounds, exploding tip cartridges, depleted uranium, and so on. Navy, Marine Corps, and IACP tests have shown that the most effective commercial shotgun load is #4 buckshot. A flechette round has been developed for penetrating jungle foliage which contains 20 to 40 steel darts that are stable in flight but tend to "fishhook" in odd directions upon entering the human body.

A high percentage mix of tracer ammunition should be issued within the team. Although it causes quicker barrel burnout, the psychological effect on the enemy may be well worth it. It gets the enemy's heads down, and makes it easier for the team to break contact and commence evasion efforts or gain fire superiority.

It is good practice to use all tracer rounds for the magazine in your weapon. If taken under fire it can provide immediate marking of the enemy's position. During insertion or extraction by helicopter it serves to aid in directing immediate air support response.

The last three rounds in each magazine should be tracer to alert the firer and the rest of the team that the last rounds are being fired. In a full magazine of tracers make the last three ball ammo for the same purpose. Alternating rounds, with every third one a tracer, will help guide fire onto the target or mark it for supporting fire. Of course, tracers also have the drawback of identifying at least your general position.

Each team member should carry no less than nine, and no more than seventeen, 20- or 30-round magazines. Being deep behind enemy lines is an excellent deterrent against needless contact with the enemy. Twenty-round magazines are generally preferred over 30- or 40-round ones due to their size. The more compact 20-round magazines are easier to keep out of the way and fit pouches that the larger magazines will not. If using 20-round magazines in a 30-round pouch, you can place survival and first-aid items in the bottom to take up the extra room.

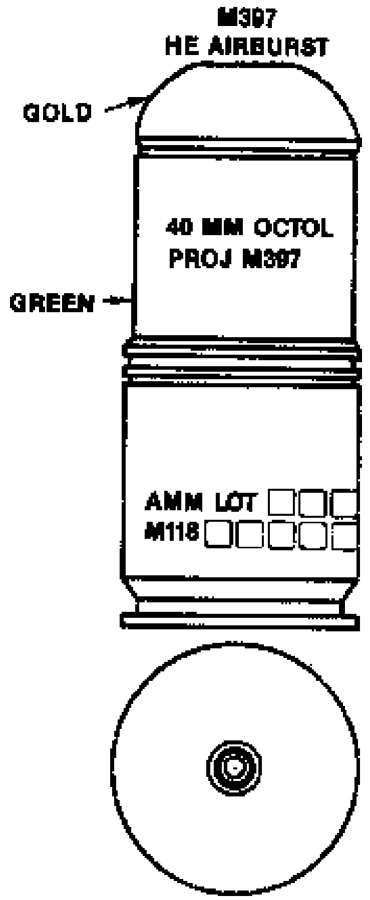
General Weapons Combat Field Tips

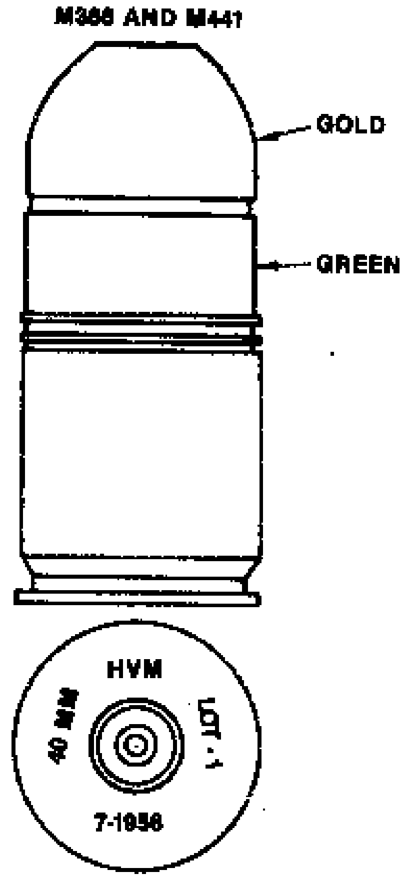
The following general tips can go a long way in making sure weapons are functional when needed.

1. Clean, inspect, and test-fire weapons, in that order, prior to deployment. Do not disassemble weapons after test-firing to clean them. Run a patch down the bore and wipe them down. Disassembly only brings functioning into question again, and the small amount of carbon from test firing will not endanger functioning. Weapon zeros should be reconfirmed as a minimum during test firing. This need not be done formally; just make sure you can hit what you aim at!
2. Inspect and clean all magazines and check loading and functioning. Test-fit each one in your weapon to ensure they seat properly. Always put one or two rounds less in a magazine than what it is designed to hold, especially if they are becoming old and worn. This may prevent a weak spring from causing a misfire.
3. Always carry at least one complete weapons cleaning kit per team. Although it is not usually necessary to clean all the weapons each day, the equipment must be available if needed. The cleaning rod is also essential for extracting rounds that hang in the chamber and cannot be removed any other way. Carry a small vial or tube of lubricating oil for your weapon, and oil the selector switch (or safety) daily, and work it back and forth a few times, especially during damp weather. This will prevent a stuck or frozen selector. Check weapons sights periodically to ensure they are clear, properly adjusted, and ready for use. Never take for granted that your weapon is clean and functioning; check it daily and clean it if necessary.
4. Tape the muzzle of each weapon with a non-reflective cloth tape to keep out dirt and water. Leave the lower portion of the flash suppressor slits open, (about 1/8th-inch is sufficient) to allow ventilation. Replace the round in the chamber of your weapon each morning, quietly, to avoid the buildup of condensation. Tape all sling swivels, removable handguards, and other possible noise makers with non-reflective cloth tape.
5. Removing or folding down trigger guards is asking for trouble—vines and other brush can quickly interfere with the trigger.
6. Some type of sling is essential for all weapons, and becomes indispensable when it becomes necessary to climb rope ladders, negotiate obstacles, cross rivers, and so on.
7. Always carry weapons on safe, unless contact is imminent. Weapons are always carried at the ready. Your rifle should follow your eyes, and point in the direction you are looking.
8. Be cautious when firing weapons from helicopters during extraction. Once the pickup aircraft lifts off, gunships may pass below to cover the extraction. As a general rule, the team should not fire weapons after the aircraft is above treetop level.
9. Do not worry about retrieving your first expended magazine during contact; it will only slow you down. Brass catchers should be used when it is desirable to avoid leaving evidence.
10. Do not tape magazines together. It will weaken your magazine catch, and may result in a misfire when you need it the least. You also stand the chance of fouling the extra magazine and making it useless. Place magazines in their

pouches upside down and pointed away from the body. This will help keep dirt and water out, or will decrease the chance of being injured by your own round if it is hit by enemy fire. Make a cloth-tape pull tab for the bottom of each magazine for fast removal and to help secure the removable base.

11. Older submachine gun ammunition pouches make excellent carrying pouches for ready-use, belted machine gun ammunition, explosive charges, and other special munitions.
12. A rucksack makes an excellent temporary aiming rest for automatic weapons and light machine guns. It provides better traverse capability than a bipod and can make an excellent aiming stake at night.

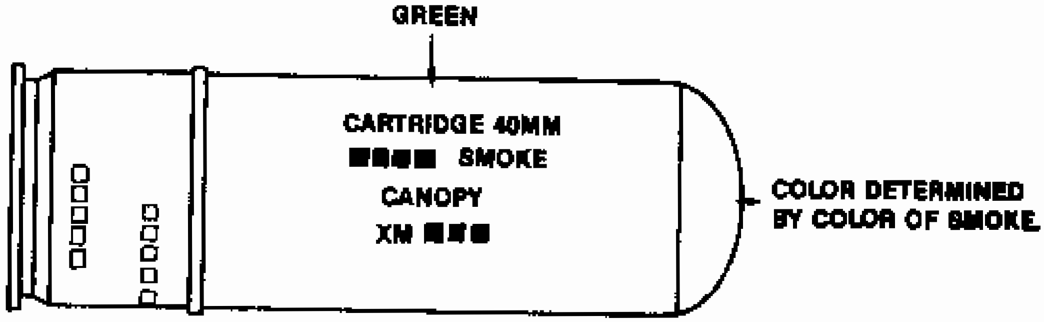




M397	
TYPE OF FILLING	HE
MAXIMUM RANGE..............	400 METERS
AIRBURST	2 METER
EFFECTIVE CASUALTY RADIUS...	5 METERS

M386	
TYPE OF FILLING	HE
MAXIMUM RANGE..............	400 METERS
EFFECTIVE CASUALTY RADIUS...	5 METERS
ARMING DISTANCE.............	14 TO 28 METERS
M441	
ARMING DISTANCE.............	2 TO 3 METERS

40-mm HE cartridge M397, M386, and M441.



TYPE OF FILLING	SMOKE
BURST HEIGHT	350 FEET
BURN TIME	60-90 SECONDS

40-mm smoke canopy cartridge XM678, XM679, XM680, XM681, and XM682.

MODEL NO.	SMOKE COLOR
XM678	YELLOW
XM679	GREEN
XM680	WHITE
XM681	VIOLET
XM682	RED

DEMOLITIONS AND SPECIAL MUNITIONS

Generally speaking, the primary use of demolitions and special munitions by LRP teams will fall into one of the following categories: ambush or contact breaker, ambush or strike weapon, target marking, and signaling. Items selected should lend themselves to multiple uses to reduce mission load weights and increase overall effectiveness.

Claymore Mine

By far the most versatile and useful item for the LRP team will be the M18A1 Claymore mine. It can be employed to break contact, initiate an ambush, or even destroy equipment. Depending on its objective, a team could carry anywhere from one to four per team member. Employed as a demolition ambush, if properly sighted, it can successfully be the sole ambush weapon. In the right terrain it can easily kill from a range of over 100 meters.

Claymores should be carried in lieu of C4, unless a special mission need exists for pure demolition blocks. The Claymore can clear a landing zone in an emergency, destroy a team or enemy equipment, and generally accomplish the same functions as a 2.5 lb. block of C4.

Claymores should be placed so that the frontal blast of the mine flanks the team to provide greater overall coverage. This also protects the team against the old ploy of turning the Claymore around on you.

The positioning should never automatically give away the team's position. If emplaced to your flank, firing across your front with the firing wire zigzagging back to your position can at least temporarily deceive the enemy as to your location. If the enemy tries to follow the firing wire, it should also go across your front before turning back in—aiding in detection of the enemy. Firing wires should be pulled tight and tied to a small bush or sapling. If the line is disturbed, it will alert the team. If possible, always emplace them where they can be observed by the team but concealed from the enemy. Be cautious when placing them next to a tree, as the force of the explosion may topple it onto your position. The firing wire and firing device can be left behind for some of the Claymores when they will be linked with detonating cord.

Demolitions Equipment

In addition to C4, other demolitions items useful for LRP operations include M700 time fuse, dark green in color; non-electric and electric blasting caps; priming adapters, M1A4; demolition charge adhesive; waterproof sealing compound; M2 cap crimpers; detonating cord; ten cap blasting machine; and firing wire. In many instances, the firing device and firing wire provided with the Claymore mine will suffice for most routine LRP demolitions.

Detonating cord. A variety of types are available; those available in olive drab should be used whenever possible. The most powerful detonating cord, Type I Class H, contains 14.5 pounds of PETN per 1,000 feet, and weighs a total of 29.5 pounds per 1,000 feet, with a breaking strength of 110 pounds.

Electric blasting caps. Military caps are normally instantaneous; civilian caps can be acquired with delays ranging from 0.025 to 12 seconds for use in delay-fused munitions.

M10 universal explosive destructor is a high-explosive charge useful for turning bombs and unexploded artillery shells into booby traps or for destroying them in place. It is an excellent sabotage weapon containing tetryl pellets.

M19 explosive destructor, filled with PBX booster pellets, can be used in a similar manner to the M10 for making field-expedient demolitions charges.

M1A1 pressure, M3 pull-release, and M5 pressure-release firing devices can all be useful for ambushes, booby traps, sabotage, and other purposes.

M1 concussion detonator is capable of detonating multiple charges by a single charge without detonating cord. It can also make a field-expedient depth charge, since water pressure alone will activate it at 25 or more feet deep. Used in Claymore mines, one is capable of being detonated by another Claymore located within ten feet. When employed underwater at a depth of eight feet, it can be activated by a charge of at least 2.5 lbs. from as far away as 150 feet.

M1A2 15-second delay and M2A1 8-second delay percussion detonators can be installed in Claymores, grenades, and other munitions to provide a delay fused munition, and operate similarly to a standard grenade fuse.

M1 delay firing device uses a corrosive chemical to detonate an explosive from one minute up to twenty-three days after ignition. Makes an excellent booby trap and sabotage weapon. The time variables are affected by temperature as shown in the accompanying table.

Rocket Launchers

Although of limited use for a LRP team except on special combat missions, one lightweight anti-tank weapon such as the U.S. M72 LAW can be very effective for disorienting the enemy during night contact. The tremendous flash and noise are very helpful. You don't need a target, just fire the thing off in the general direction of the enemy; it gets the head down quickly! For some special missions the M202 flame rocket launcher may also be useful; however, its bulk and weight of 26.6 pounds would severely limit its usefulness.

Grenades

When preparing grenades for operations, tape rings and spoons with paper tape. There are few things as embarrassing, or upsetting, as trying to pull the pin and finding your three wraps of cloth tape don't want to tear! Bend the pins flat first (against each other, not the grenade), and then run tape through the ring and around the top of the detonator. Flat black, olive drab, and green paints can be used to camouflage grenades—a "Willy Pete" stands out and makes an excellent target!

Be careful where you place grenades. The best place is on the rucksack or at your waist. If on the rucksack they can be reached by other team members, just reach forward and take one off the next guy's ruck and throw it. Grenades on the upper portion of the harness require you to roll to your side to reach them, interfere with weapon use, and are a real nuisance when you hit the ground in a hurry. Minimal smoke grenades should be carried; using "mini-smokes" saves the weight for CS, frags, and WP. Check all grenades daily to ensure fuzes are secure, rings in place, and so on.

AN/M14, TH 3 thermite grenades, although useful for destruction of equipment, are extremely heavy when compared to more versatile Claymores, frags, and C4, all of which can certainly be used to destroy almost anything.

M34 white phosphorous (WP) grenades are excellent for their psychological effect and can also be used to start fires. They can be doubly effective when used in conjunction with CS. If the weather has been extremely dry, be cautious of possible fire hazards, especially in ambush positions. Also be very alert to wind direction—WP is not something you want blowing back onto your position. Be cautious when using WP for marking your position; it is standard procedure to mark targets with WP for engagement by tactical air support. Ensure the team is fully knowledgeable of such local field SOPs.

Fragmentation grenades, such as the VM-40 (mini), M26, M33 (baseball), and M67 (baseball-impact), are all useful weapons for the LRP team, and can be used as booby traps, delay-fused munitions, and so on.

ABC-M25A2 and ABC-M7A2 CS/CN riot control grenades are extremely useful in breaking contact and creating confusion. The M25A2 is a bursting grenade for quickly dispersing the gas, while the M7A2 operates on the same principle as a standard smoke grenade. The M25A2 is also considerably lighter; both have their use for the LRP team.

AN-M8 and M18 smoke hand grenades, primarily used for target and position marking, can also have limited use during contact breaking. Available in white (M8), and red, yellow, violet, and green (M18), they are heavy and in most cases can be replaced by survival kit "mini-smokes."

Special-purpose low lethality anti-terrorist munitions, although intended for antiterrorist SWAT operations, can also have their place in LRP strike operations. Normally employed indoors, they can be used in "snatch" missions and for breaking contact. Although they do not normally inflict casualties, they can confuse and disorient the enemy.

Delay fused demolitions and munitions (fragmentation grenades, Claymore mines, white phosphorous grenades, etc.) can be a superb contact breaker using 15- to 30-second delay fuses, with delays of up to 120 seconds possible. They help to disorient and delay pursuers and cause casualties. CS grenades are also useful for that purpose, while CS crystals are useful against tracker dogs. Simple, easily emplaced booby traps can be beneficial if sufficient time is available for emplacement. Command-detonated munitions using transmitting/receiving devices provide better timing and control. Try scattering four or five grenades with different delay periods for a successful, and confusing, delay effect. Delayed munitions can be deployed to the projected enemy flank, front, and rear for variety of effect. A delayed Claymore placed to the enemy's rear flank can cause confusion as to your location and intentions. Each team member should carry at least two delay-fused munitions ready for use.

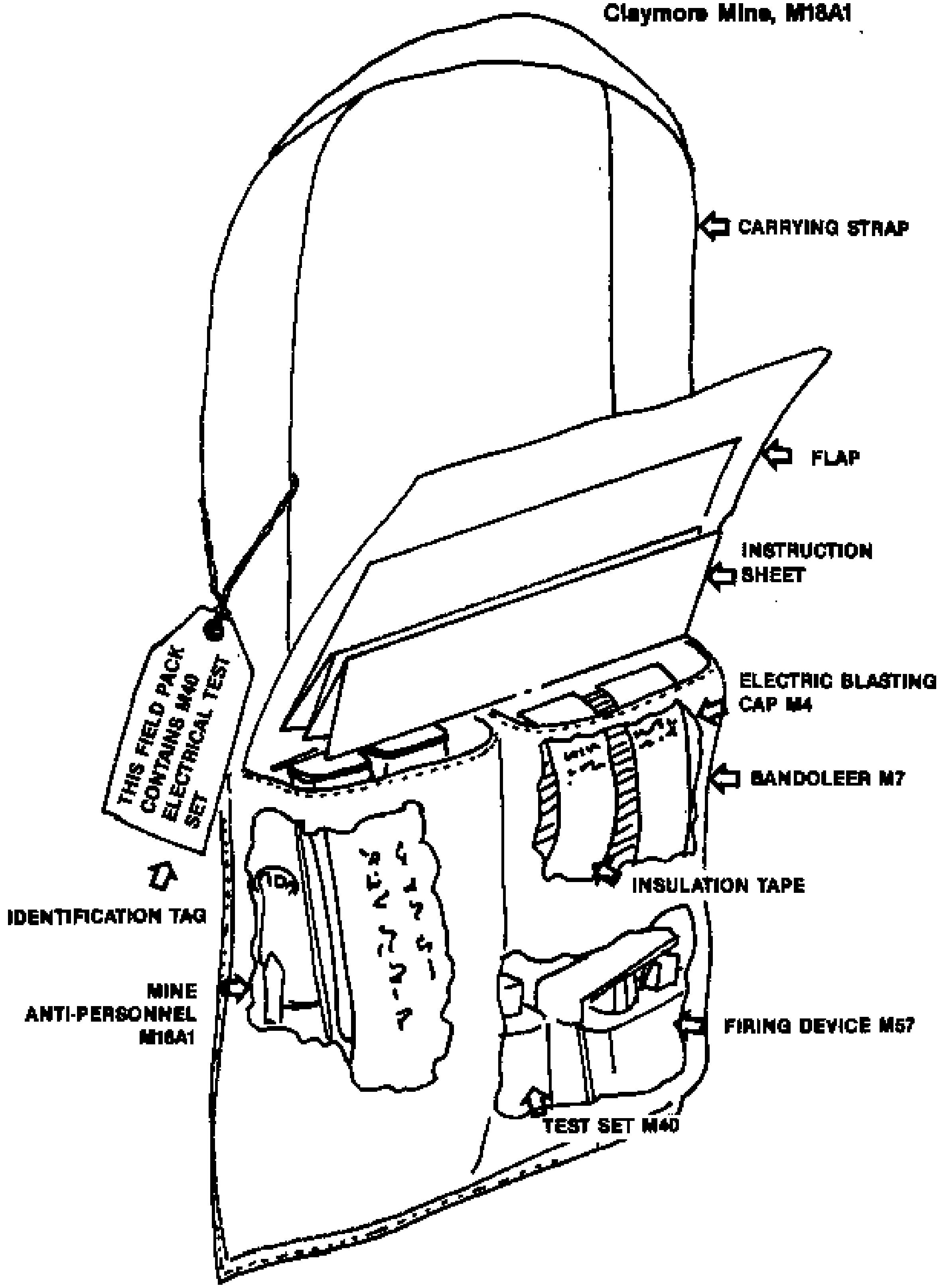
Emplacement of Demolitions

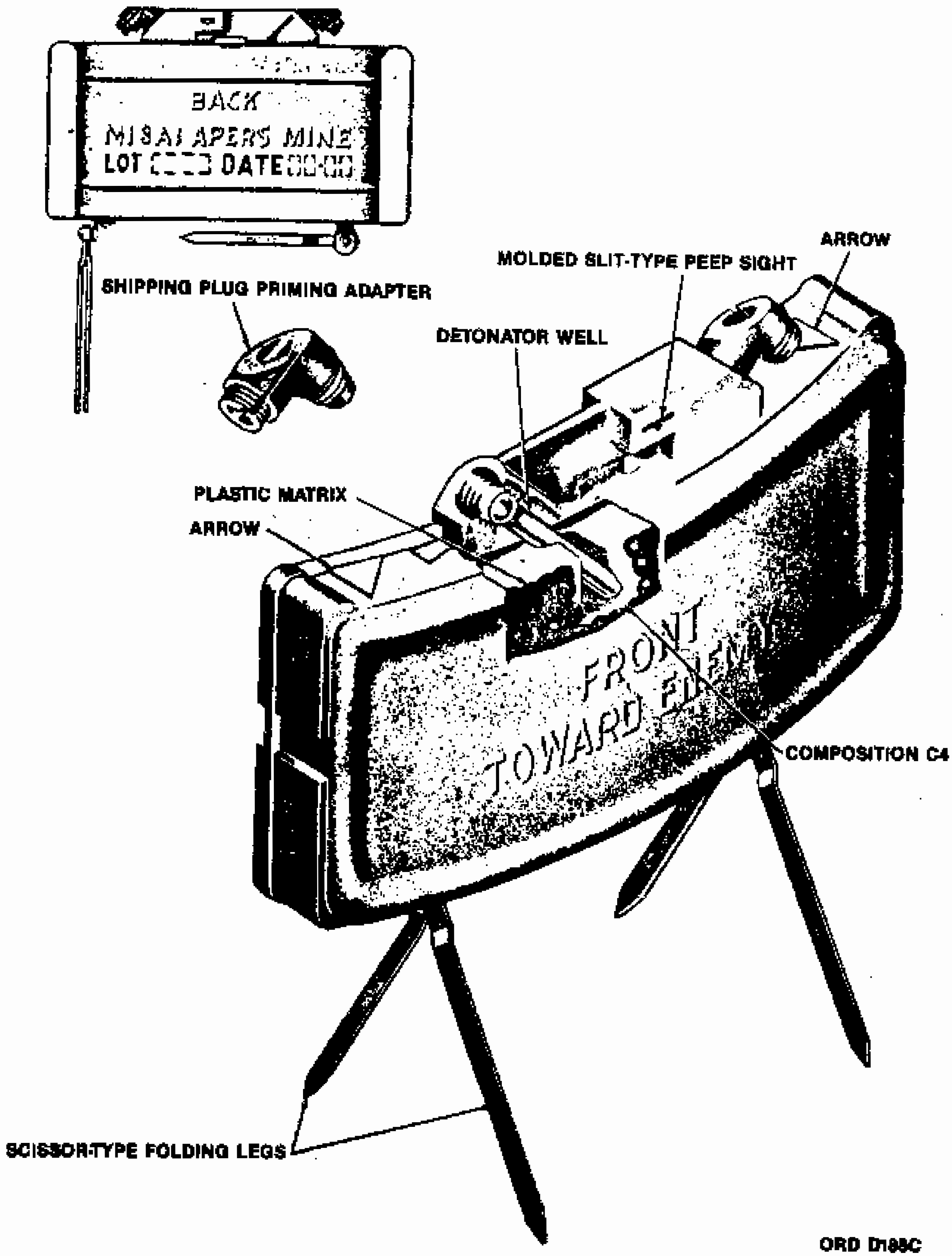
Claymores and other explosives/munitions should be emplaced one at a time, and by two men. One emplaces the munition while the other provides security. When selecting an ambush or defensive position and emplacing explosives and special-purpose munitions, always look for weak points such as ditches and depressions where the enemy can seek cover. Placing doubled up detonating cord in the bottom and wired to an electrical firing device can deny their use and do considerable damage to the enemy.

Obstacle Clearance

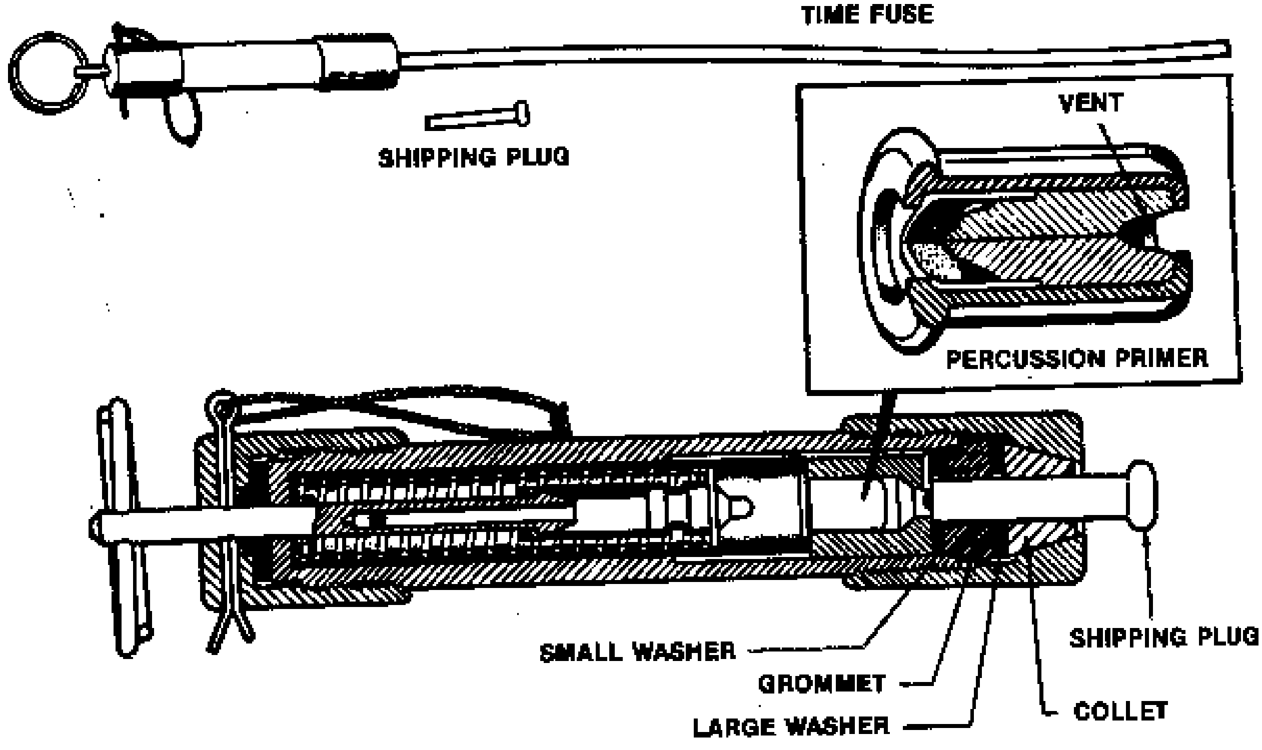
Should it become necessary to negotiate an enemy minefield and probing is out of the question because you are being pursued, string out a length of det cord as far as you can, and detonate it. To get it strung out, you can always fasten one end to a grenade for weight and throw it. When the det cord detonates, it will clear a pathway approximately eight inches wide that can then be carefully negotiated. Due to the noise factor, this should only be done as a last resort, but it does work.

Claymore Mine, M18A1

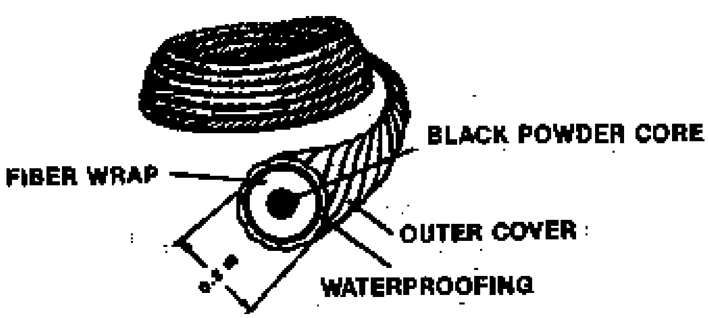




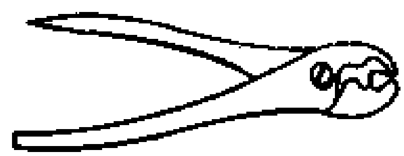
Antipersonnel mine M18A1.



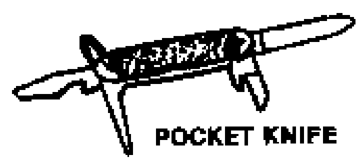
M60 weatherproof fuse igniter.



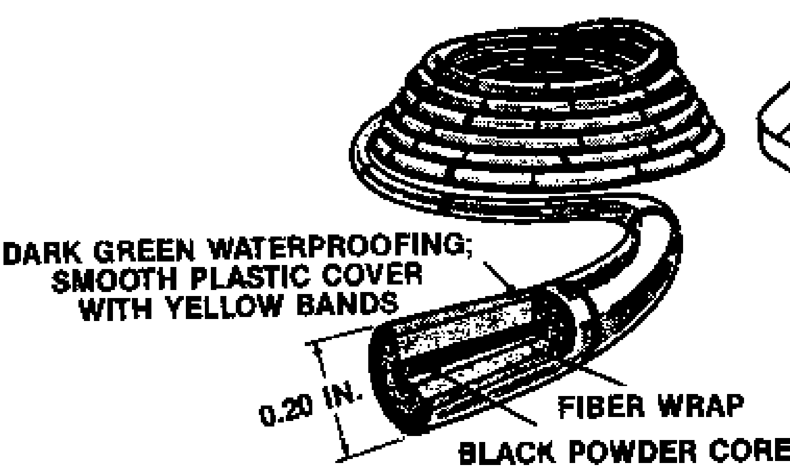
Safety fuse.



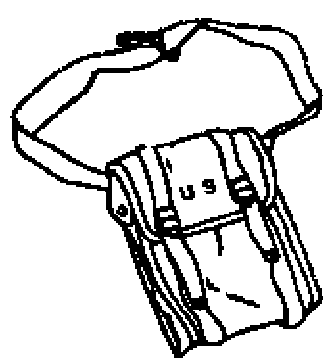
CAP CRIMPERS



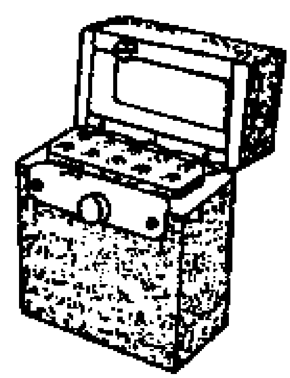
POCKET KNIFE



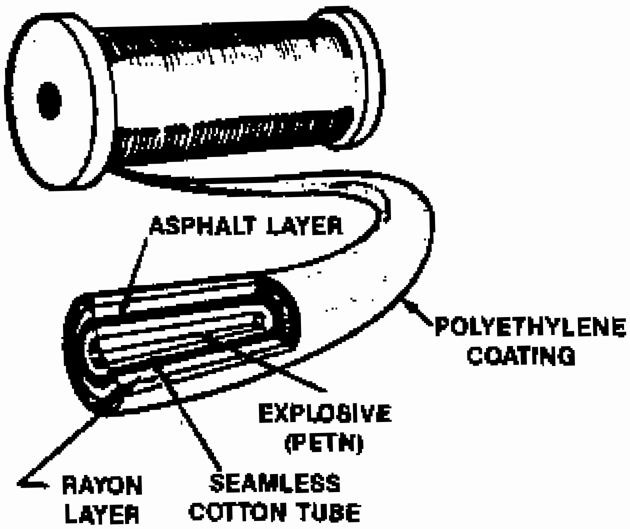
Time fuse M700

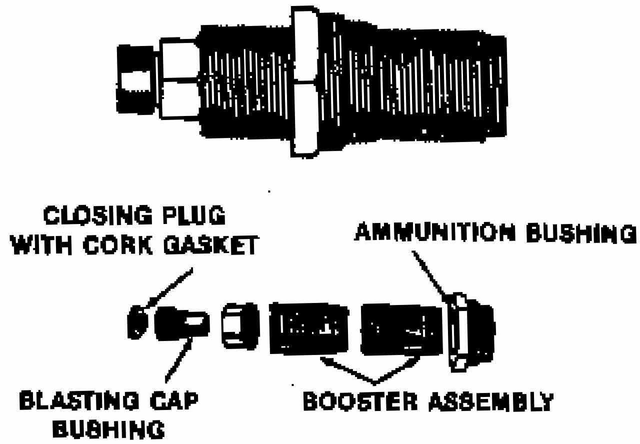


CARRYING BAG



CAP BOX



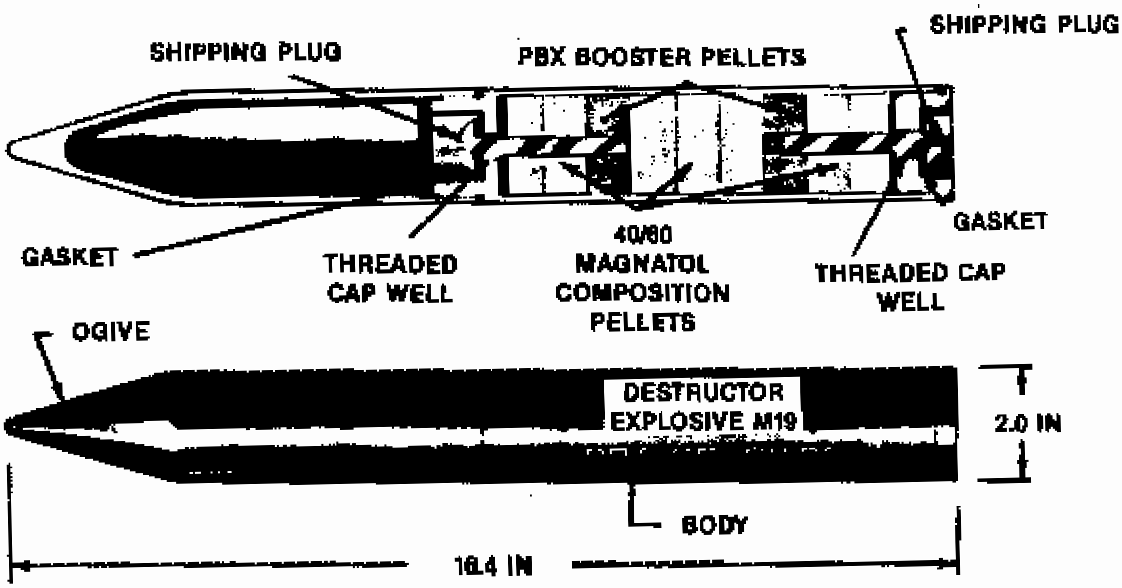


M10 universal explosive destructor.

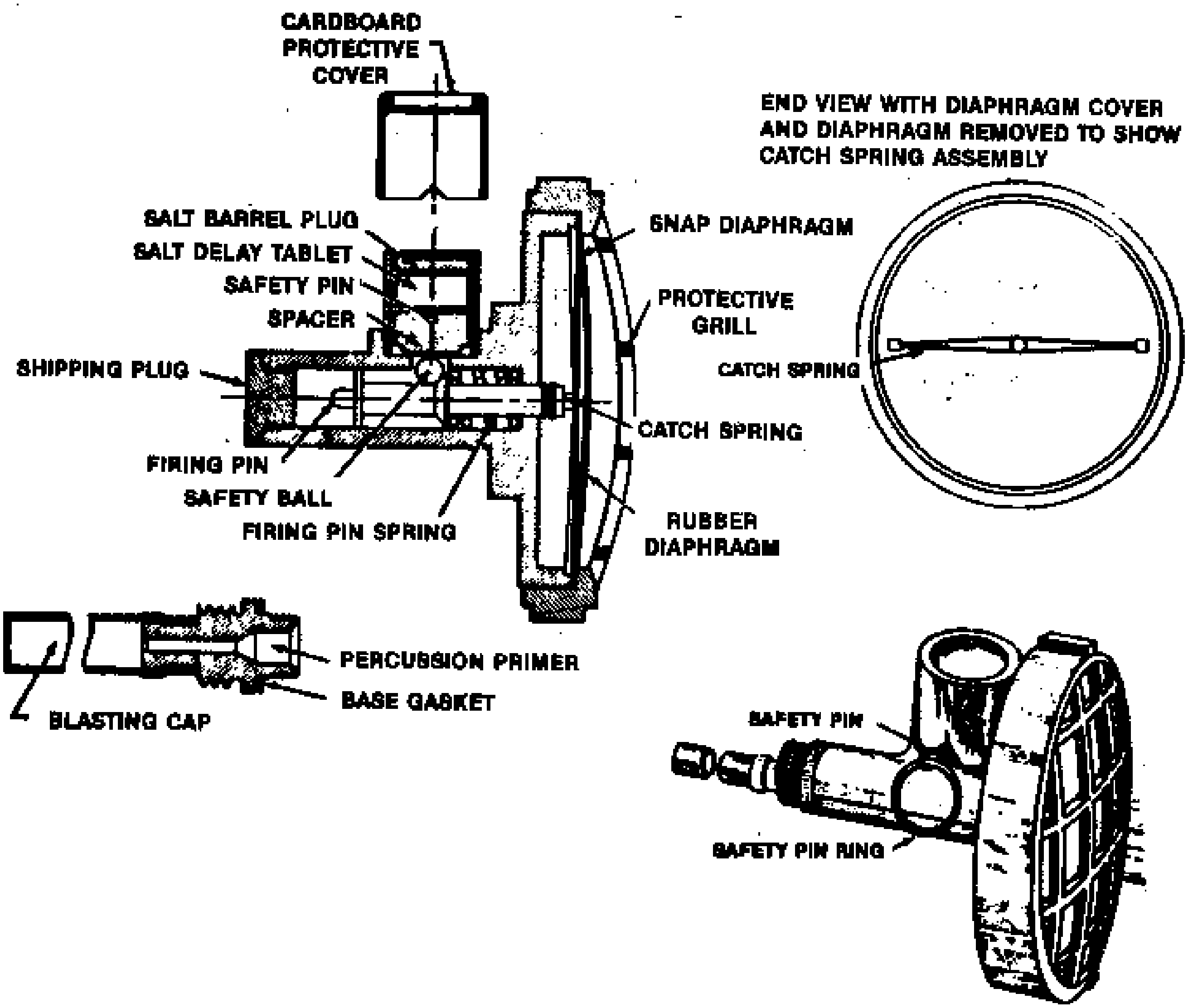
DETONATING CORD DATA

Type	Class	Minimum weight of explosive core (per 1,000 ft)	Nominal diameter (in)	Maximum weight of finished cord per 1,000 ft	Minimum breaking strength (lbs)
I	a	5 pounds PETN	0.175	14.0	60
I	b	6 pounds PETN	0.216	19.0	175
*I	c	6.4 pounds PETN	0.200	18.0	175
I	d	7 pounds PETN	0.200	19.0	110
I	e	7 pounds PETN	0.235	22.0	190
I	f	12.5 pounds PETN	0.245	26.0	75
I	g	12.5 pounds PETN	0.270	33.0	190
I	h	14.5 pounds PETN	0.235	29.5	110
I	j	6.4 pounds PETN	0.200	18.0	150
II	a	7 pounds RDX	0.216	19.0	175
II	b	8.5 pounds RDX	0.255	22.0	190
III	—	All type III det. cord is inert loaded with a PVC filler.			

*This detonating cord (Type I, class c) has been agreed upon as "standard" within the American-British-Canadian-Australian Standardization Program.



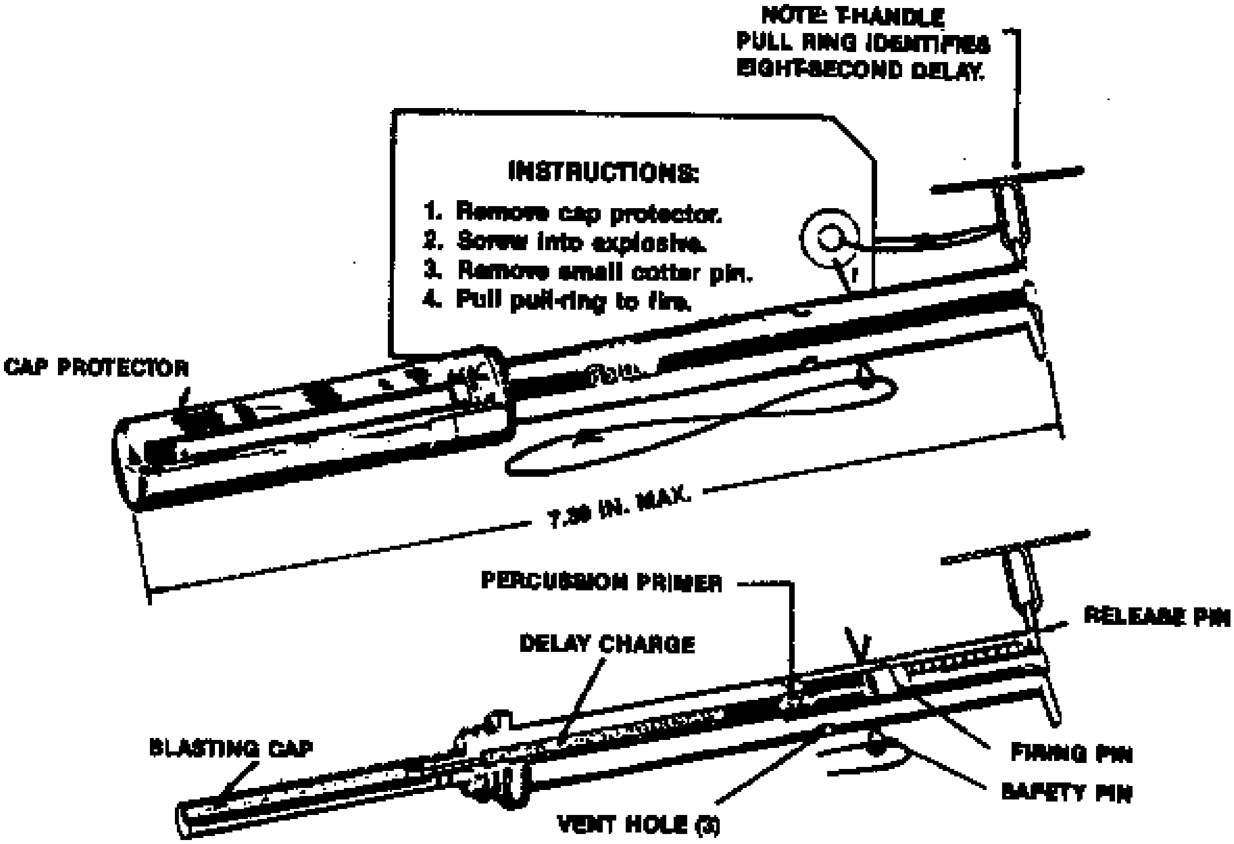
M19 explosive destructor



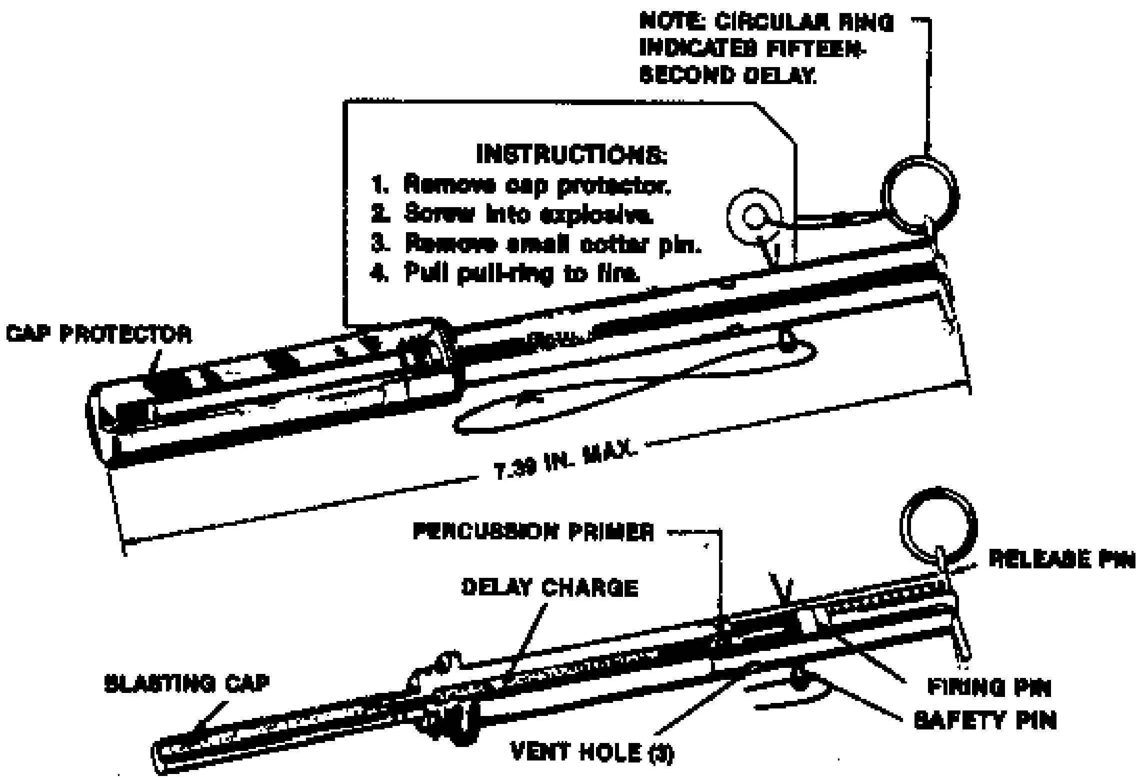
OPERATING RANGE OF CONCUSSION DETONATORS

Weight of initiating charge (lbs)	In Water		In Air	
	Depth of water (ft)	Recommended range (ft)	Recommended range (ft)	
			*p = 99%	*p = 99.9%
0.5	2	10	—	—
0.5	4	50	—	—
0.5	6	80	—	—
0.5	8	80	—	—
2.5	—	—	12.5	10.8
2.5	2	20	—	—
2.5	4	80	—	—
2.5	6	90	—	—
2.5	8	160	—	—
5.0	—	—	14.1	11.5
10.0	—	—	18.8	15.7
15.0	—	—	21.5	18.0
20.0	—	—	25.2	21.2
20.0	2	20	—	—
20.0	4	80	—	—
20.0	6	180	—	—
20.0	8	260	—	—

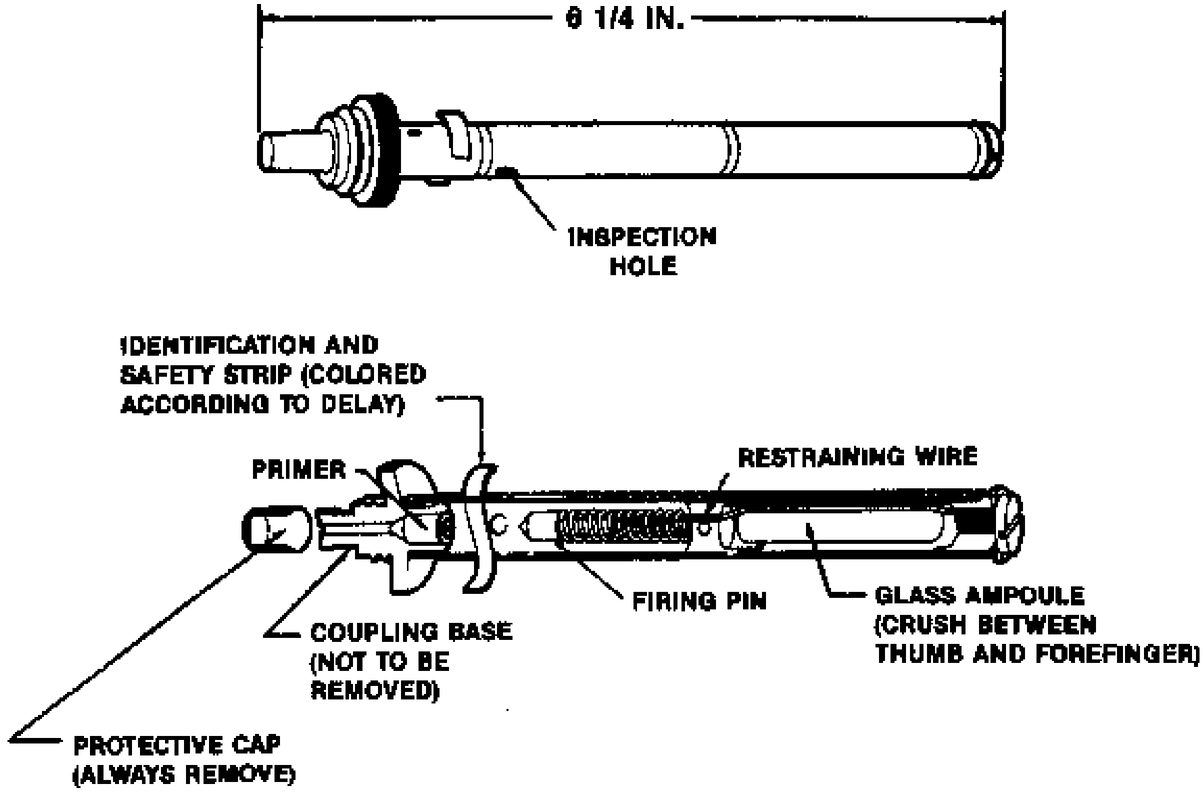
*p = Probability that detonator at indicated distance will be caused to function by initiating charge.



M2A1 8-second delay percussion detonator.



M1A2 15-second delay percussion detonator.



M1 delay firing device.

CHARACTERISTICS OF THE M1 DELAY FIRING DEVICE

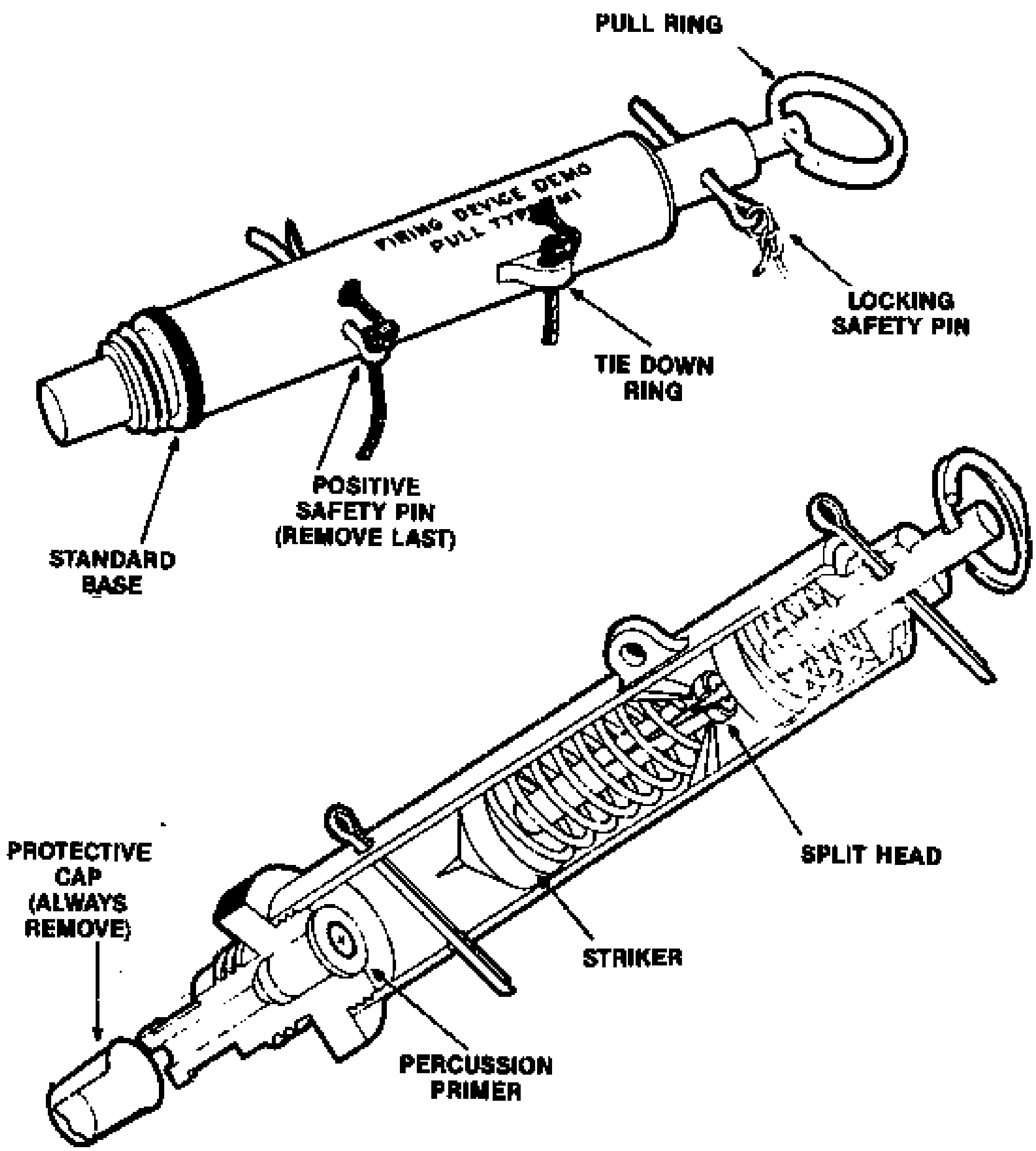
Case	Color	Dimensions		Internal action	Delay
		Diameter	Length		
Copper and brass	Natural metal	7/16 in.	6¼ in.	Mechanical with corrosive chemical release.	1 min. to 23 days, identified by color of safety strip.

Safety	Packaging
Colored metal strip inserted in slot above percussion cap.	10 units—2 red, 3 white, 3 green, 1 yellow, and 1 blue—and a time delay table packed in paperboard carton, 10 cartons in fiberboard box, and 5 boxes in wooden box.

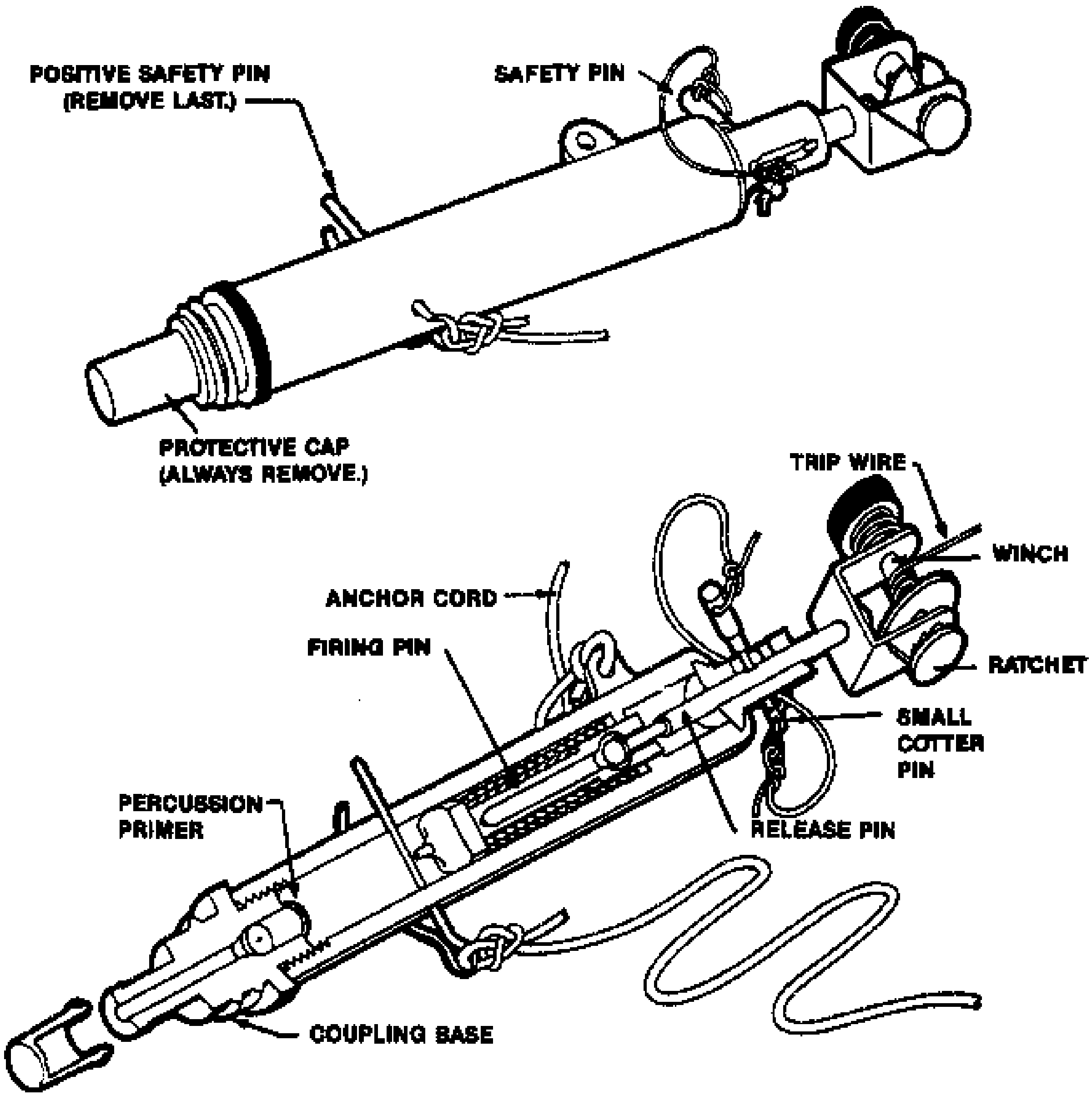
TIME DELAY VS. TEMPERATURE EFFECTS FOR THE M1 DELAY FIRING DEVICE

Temp (deg F)	Black		Red		White		Green		Yellow		Blue		Temp (deg C)
	OM	ST	OM	ST	OM	ST	OM	ST	OM	ST	OM	ST	
−25			8.5 hr	3.3 hr	3 da	1.3 da							−32
0	8 hr	2.5 hr	45 min	20 min	17.5 hr	8 hr	2.6 da	1.2 da	8.5 da	3.8 da	23 da	10 da	−18
+25	36 min	16 min	25 min	11 min	5.5 hr	2.5 hr	17 hr	8 hr	2.0 hr	20 hr	5.0 da	2.2 da	−4
50	15 min	7 min	17 min	8 min	2 hr	55 min	6 hr	2.7 hr	14 hr	6.0 hr	1.3 da	14 hr	+10
75	9 min	4 min	15 min	7 min	1 hr	27 min	2.5 hr	70 min	5.5 hr	2.5 hr	11.5 hr	5 hr	24
100	5 min	2.0 min	8 min	3.5 min	32 min	14 min	70 min	30 min	2.5 hr	65 min	5.2 hr	2.3 hr	38
125	4 min	1.5 min	5 min	2 min	20 min	9 min	35 min	15 min	80 min	36 min	2.5 hr	1.1 hr	52
150	3 min	1 min	4 min	1.5 min	15 min	6 min	20 min	9 min	46 min	21 min	80 min	36 min	66

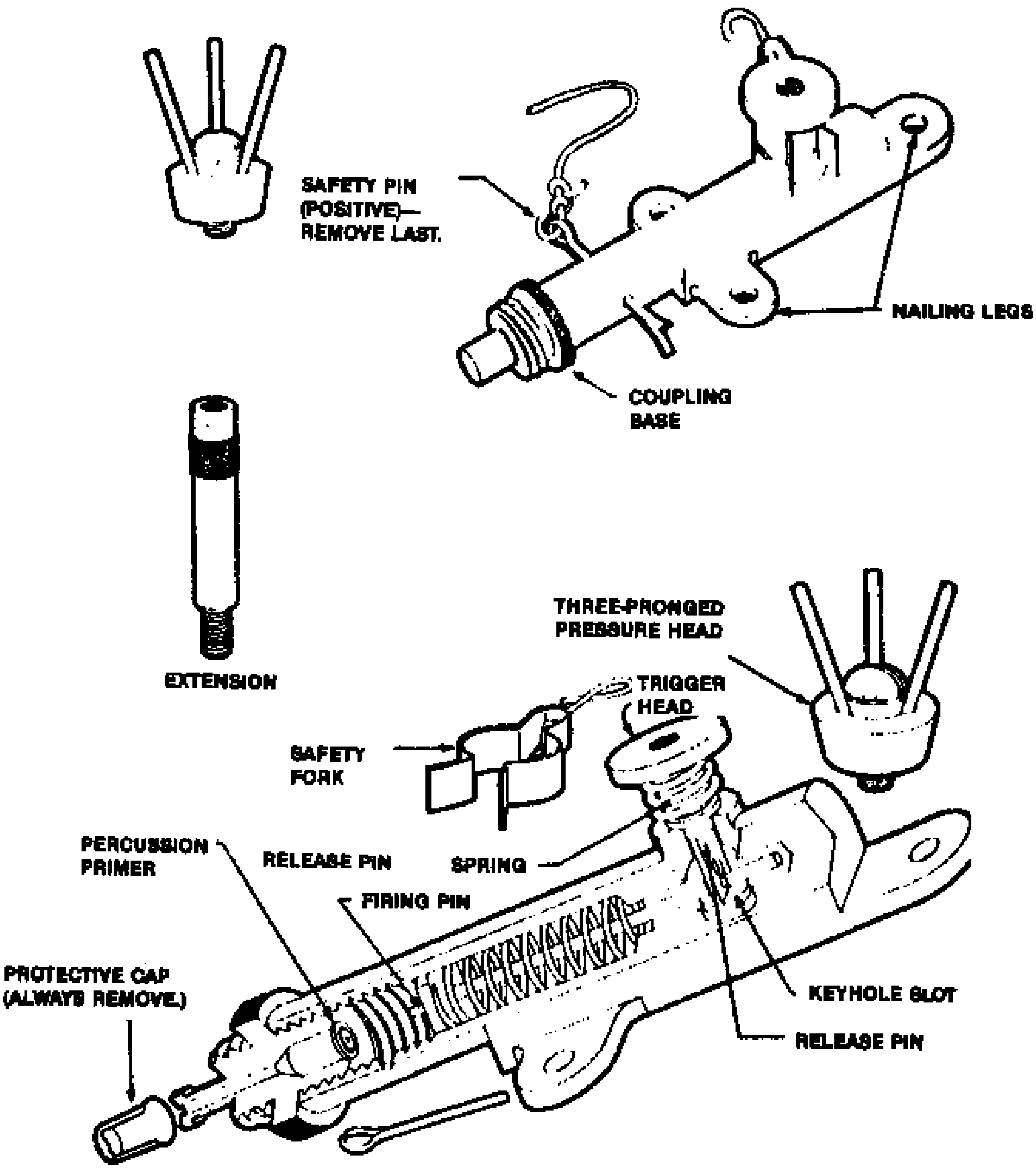
OM—Most likely delay if two devices are used in the same charge. If only a single device is used, this value should be increased approximately 15 percent.
ST—Reasonable safe time. Delays of less than this value should not occur more than one in a thousand.



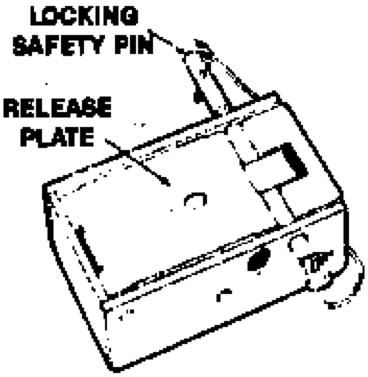
M1 pull firing device.

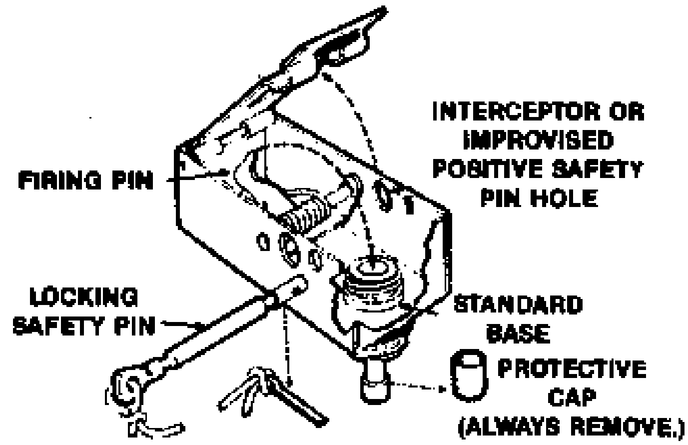


M3 pull-release firing device.



M1A1 pressure firing device.



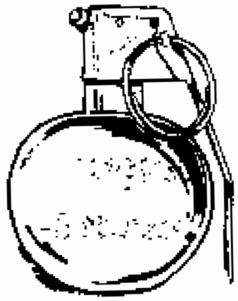


M5 pressure-release firing device.

CHARACTERISTICS OF FIRING DEVICES

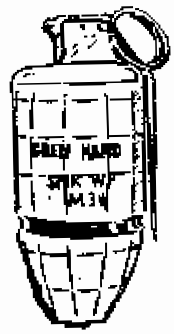
Device	Case	Color	Dimensions (Inches) Diameter		Dimensions (Inches) Length	Internal action	Operating pressure (lbs)
M1A1	Metal	OD	5/8		2 3/4	Spring-driven striker with trigger pin and keyhole slot release.	20 or more
M1	Metal	OD	9/16		3 5/16	Mechanical with split-head striker release.	3 to 5 pull on trip wire.
M3	Metal	OD	9/16		4	Mechanical with spreading striker head release.	Direct pull of 6 to 10 and/or tension release.
M5	Metal	OD	1¾ length	15/16 width	11/16 height	Mechanical with hinged plate release.	Removal of restraining weight—5 or more.

Device	Safeties	Accessories	Packaging
M1A1	Safety fork and positive safety pin.	3-pronged pressure head and extension rod.	Five units, with percussion caps packed in cardboard carton. Fifty cartons shipped in wooden box.
M1	Locking and positive safety pins.		Five units complete with percussion caps and two 80-ft spools of trip wire are packed in chipboard container. Forty chipboard containers are packed in wooden box.
M3	Locking and positive safety pins.		Five units with two 80-ft spools of trip wire in carton, and 5 cartons packed in wooden box.
M5	Locking safety pin and hole for improvised positive safety pin.		Four firing devices complete and four plywood pressure boards in paper carton. Five cartons are packaged in fiber board box and ten of these in wooden box.



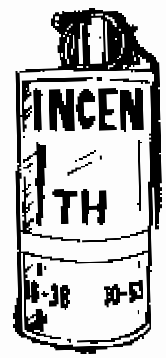
M33, fragmentation hand grenade.
Color/markings: OD with single yellow band and printing.

ABC-M25A2, CS riot control hand grenade.
Color/markings: gray, red band(s) and red printing.

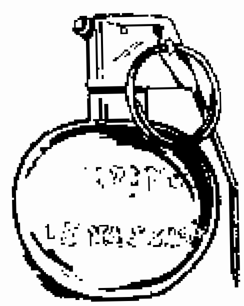


M34, WP smoke hand grenade **(standard color and markings). Color/markings: light green, yellow band, red printing. Old markings: light gray, yellow band, yellow printing.**

AN-M8, HC Smoke hand grenade.
Color/markings: light green, black printing, white top. Note that the M18 Colored Smoke looks the same but the top is the same color as the smoke.



AN/M14, TH 3 incendiary hand grenade.
Color/markings: light red with black printing. Old markings: gray with purple band and purple printing.



M67, fragmentation hand grenade.
Color/markings: same as M33. Note: M68 looks the same but has red safety lever with word "IMPACT" on it.

8 Air, Naval and Artillery Fire Support Operations

INTRODUCTION

LRP operations will frequently entail air, naval, and artillery fire support, either independently or in combination. The LRP force and teams must be familiar with the capabilities, limitations, methods of control, and characteristics of all supporting systems and the methods of effective employment. These operations are the principle multiplier in LRP strike capabilities. When properly planned and utilized they give a deployed team the capability to engage and destroy a considerably larger enemy force. At the same time, the deployed LRP team will frequently become the commander's forward ranging eyes and ears of his long-range weapons systems.

FIRE-CONTROL MEASURES

Due to the deep penetration nature of LRP operations, extensive use of planned fire-control measures is essential to ensure adequate coordination and safeguard the team in its operational area. They are titled to indicate the establishing headquarters and the effective date and time group, and are classified as either permissive or restrictive. These fire-control measures facilitate operations by setting forth rules and guidelines for use of support fires for selected areas for given periods of time. They are essential for clearing areas for team deployment, infiltration, and exfiltration. Proper use eliminates interference with other fire support meaus or disruption of other operations.

Permissive Fire-Control Measures

Such measures are indicated on maps and overlays in black. Permissive measures mean that fire into an area or across a line need not be further coordinated, so long as they remain within the zone of the establishing headquarters.

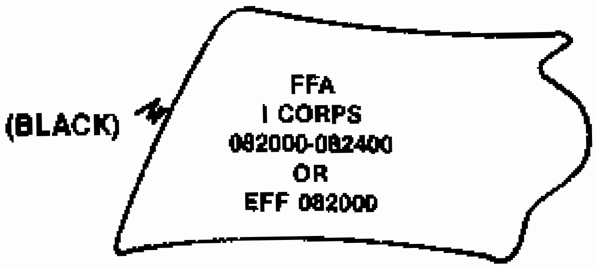
Coordinated fire line (CFL) is a line beyond which conventional surface fire support means may fire any time within the zone of the establishing headquarters without additional coordination. Purpose: to expedite engagement of targets beyond the CFL.

Coordinated fire line.

Fire support coordination line (FSCL) is a line beyond which all targets may be attacked by any weapons system, including aircraft, without endangering troops or requiring additional coordination with the establishing headquarters. Normally established on terrain identifiable from the air. Purpose: to expedite engagement of targets beyond the CFL.

Fire support coordination line.

Free fire area (FFA) is an area into which any weapons system may fire without additional coordination with the establishing headquarters. Normally established on terrain identifiable from the air. Purpose: to expedite fires, and to facilitate the jettisoning of CAS munitions if the aircraft is unable to expend them on target.

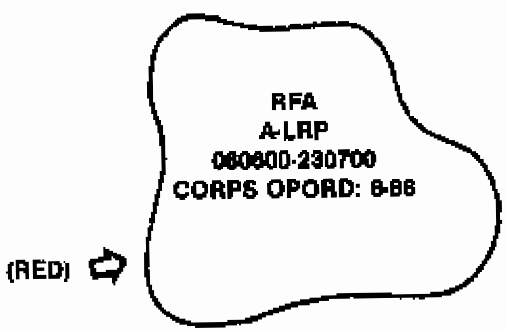


Free fire area.

Restrictive Fire-Control Measures

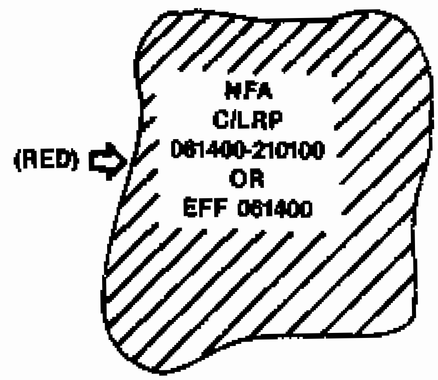
These measures are indicated on maps and overlays in red. Restrictive measures mean that fire into an area or across a line must be coordinated with the establishing headquarters on a case-by-case basis. LRP team operational areas would normally include all four.

Restrictive fire area (RFA) is an area in which specific restrictions are imposed, and into which fires that exceed those restrictions will not be delivered without coordination with the establishing headquarters. Purpose: to regulate fires into an area according to stated restrictions. LRP use: to identify the LRP force operational area, which will also contain no fire areas to indicate team locations.



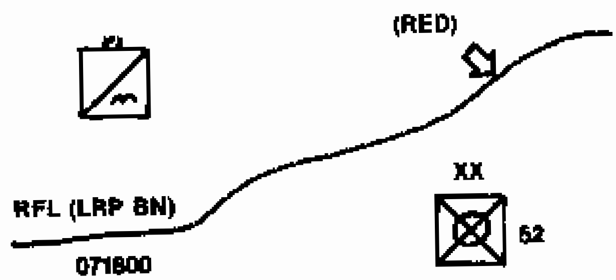
Restrictive fire area.

No fire area (NFA) is an area in which no fire or effects of fire will be allowed without the specific temporary approval of the establishing headquarters. Purpose: to prohibit all fires, or their effects, into an area without prior clearance. LRP use: to specifically identify the LRP team operational area upon deployment of a team.



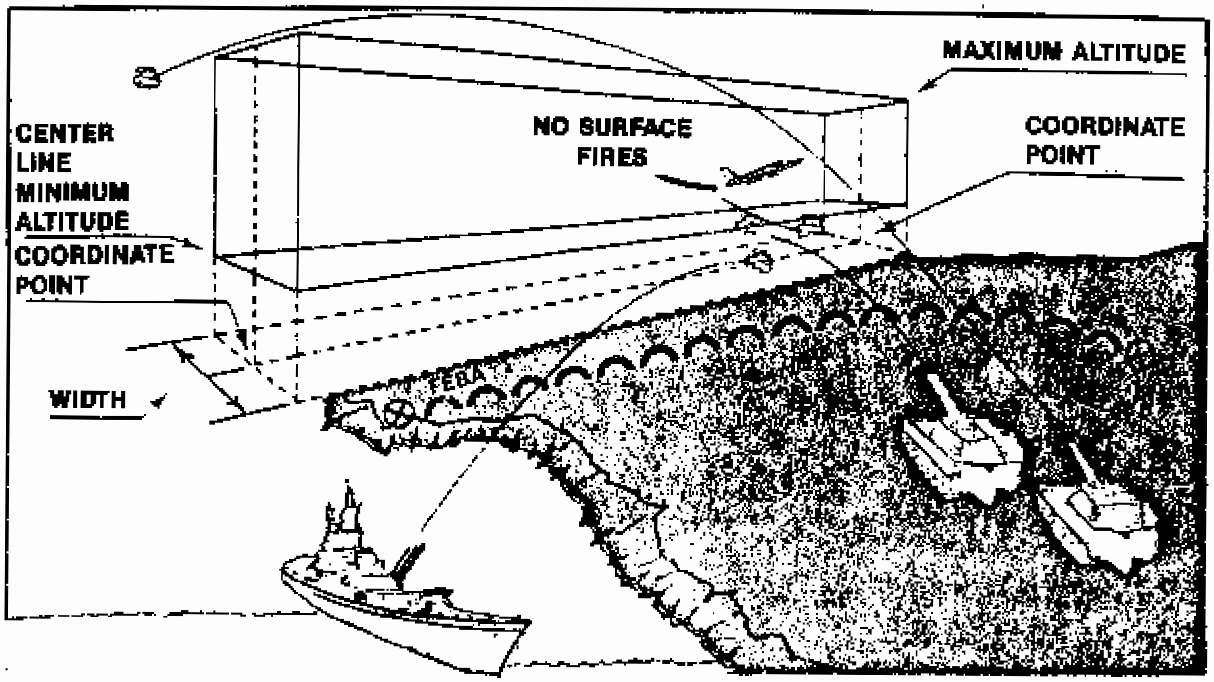
No fire area.

Restrictive fire line (RFL) is a line established between converging friendly forces that prohibits fire or effects from fires across the line without coordinating with the affected force. Purpose: to prevent interference between converging forces. LRP use: located between the forward line of friendly forces and the LRP force operational area when linkup with friendly forces is expected or planned.

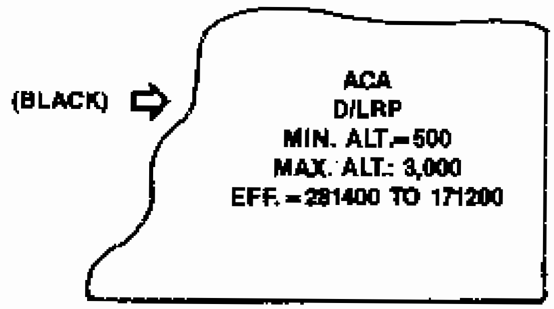


Restrictive fire line.

Airspace coordination area (ACA) is a block of airspace in which friendly aircraft is reasonably safe from friendly surface fire. It may occasionally be a formal three-dimensional box in the sky, but more frequently it will be informal; i.e., keep the FA north of Green River and the CAS south. Purpose: to aid in coordinating employment of air and surface fire-support systems in the battle area. LRP use: in conjunction with air corridors and other control measures, the ACA aids in the coordination of air- and ground-support assets to achieve the maximum degree of efficiency.



Airspace coordination area.



TARGET TERMS AND TECHNIQUES

Targets are generally classified as either planned or targets of opportunity. They are further classified as personnel, material, or terrain. For LRP operations, maximum utilization of planned or prearranged targets is desired, as it will enhance overall effectiveness, and serve to decrease time on target when fire missions become necessary.

Individually planned targets may be further subdivided into scheduled or on-call targets.

A scheduled target is a planned target on which fire is to be delivered in accordance with a time sequence. This time sequence may be related to any time reference; however, once this reference has been established, the fire will be delivered as planned unless canceled.

An on-call target is a planned target to be fired on request rather than in accordance with a time schedule. The purpose of an on-call target is to reduce the reaction time to initiate fire for a target of opportunity. The use of on-call target plots greatly reduces the time to adjust fire onto the target by adjusting from a known point. The degree of prearrangement will also influence the reaction time from request to execution—the greater the degree of prearrangement, the shorter the reaction time.

Target symbols used during preparation of overlays and maps will serve to further identify and classify planned targets. Each target is numbered by the supporting artillery unit based on a system of identification letters and numbers representing the unit to be supported and the observer. The ending number, or numbers, will normally be related to the specific target. For example, in the number XA201, X = 30th Corps, A = 3rd LRP Company, 2 = LRP Team 2B, and 01 = target number.

During mission planning it is advisable to sequence the target numbers in logical order, starting with any located at the infiltration point, and on through to the exfiltration point, evasion route, and so on. Targets can, of course, be added after infiltration into the operational area as needed.

Generally for LRP operations preplanned targets will only fall into three categories: harassing and interdiction, registration, and suppression fires. In many cases, each target will actually encompass all three categories, depending upon when it is fired.

Harassing and interdiction (H&I) fires are delivered on selected terrain, or suspected or confirmed enemy positions. Suitable targets for H&I fires would include road junctions, bridges, stream and river crossing sites, defiles, supply installations, command posts, assembly areas, and so on. For LRP operations, they will be fired either on-call, or by time schedule, or both. Although these fires are generally unobserved, during a LRP mission they can become effective observed reconnaissance by fire targets. Target-location data should be adjusted after actual firing to bring the fire in with pinpoint accuracy. However, care must be taken to ensure the adjustment is not obvious and gives away the team's presence. H&I fire can be used to mask team movement and actual fire adjustment, and generally keep the enemy off balance. A good fire plan for a LRP force operational area would include routine H&I fire covering the entire area to assist in masking other fires.

Registration fires allow the preadjustment of fires to be used later for H&I or suppression fires. They may either be fired once for correction of firing data, or used as a preplotted firing point to be adjusted when actually needed. An example of registration fires would be near LZs, rally points, ambush locations, and so on.

Suppression fires are brought to bear on an actual enemy location to destroy or impede his forces. Immediate response is generally considered more important than accuracy. These fires may be either preplanned or immediate.

Target planning and utilization could follow the sequence below, and in support of the targets shown in the accompanying illustration:

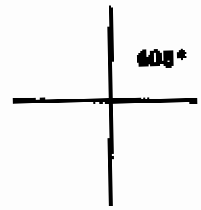
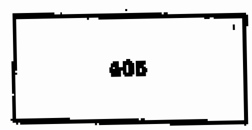
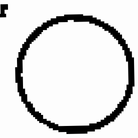
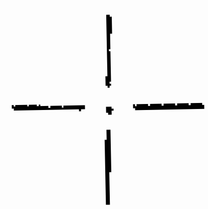
Five days prior to infiltration: Target registration points are established during the map and terrain study of the AO. They are further refined as LZs, PZs, routes, rally points, and so forth are established.

Visual flight reconnaissance: Target registration points would be further revised on information obtained during the VFR.

Three days prior to infiltration: Selected target registrations would be further designated for H&I fire to begin immediately.

During mission execution: H&I fires would continue, target data adjusted, and suppression fires employed as needed.

TARGET SYMBOLS

Type of Target	Symbol	Discussion
Conventional		**A cross is used. It may be canted if several targets are in close proximity to each other or when the symbol might be confused as a grid intersection. The intersection of the lines represents the center of the target. The target list, discussed later, describes the nature of the target and other pertinent information. (This symbology applies to targets planned for conventional ammunition.)** ***Target number.**
Linear		**This symbol is for those targets that are long and narrow (e.g., roads and trenchlines). Coordinates shown on the target list are for the center point. The target list will also show the length and attitude.**
Rectangular		**These targets have both length and width. Coordinates shown on the target list are for the center point. The length and width shown on the target list represents the overall length and width of the target.**
Circular		**This symbol represents an area type target. Coordinates shown on the target list are for the center point. The radius of the target is also included on the target list.**
Special		**This symbol is used for nuclear targets. The upper right quadrant has the target number. The lower right quadrant contains the weapon type and yield. The lower left quadrant contains the delivery unit and TOT. The upper left quadrant contains the HOB or HOB option.**

Note. **For FA planning. If the dimensions of the target exceed the width of an open sheaf or a depth of 250 meters, consideration should be given to creating multiple targets and including them in a group.**

EXAMPLE—PREPLANNED MISSION FIRE SUPPORT

TARGET LIST, MISSION SUPPORT PLAN
LRP Tm 28, OPORD 2-67

Ln No.	Target No.	Description	Location
1	XA201	Hilltop, wooded, conventional	02459360
2	XA202	Road, rail, & stream junction, cir 200m dia	01529365
3	XA203	Road & Rail Junction, open, cir 525m dia	03109345
4	XA204	Town, rectangular 450m × 1000m	04509345
5	XA205	Hilltop, open, conventional	02609480
6	XA206	Roadcut, rectangular 150m × 500m	03509460
7	XA207	Road Junction, circular 250m diameter	04209645
8	XA208	Road Junction, conventional	00819650

Reference: Map, Series V791, Sheet 1477 IV, Edition 5-DMATC TENINO, 1:50,000
Remarks: Equal sheaf dispersion over given target area

H&I LIST, MISSION SUPPORT PLAN
LRP Tm 28, OPORD 2-67

Ln No.	Target No.	Rounds	TOT
1	XA201	2, HE	23 hour intervals
2	XA203	5, HE, VT	9 hour intervals
3	XA208	4, HE	11 hour intervals
4	XA206	5, HE, VT	14 hour intervals
5	XA207	3, HE, VT	8 hour intervals
6	XA204	9, HE/WP	13 hour intervals
7	XA202	2, HE, VT	4 hour intervals
8	XA205	2, HE	20 hour intervals

Reference: Map, Series V791, Sheet 1477 IV, Edition 5-DMATC TENINO, 1:50,000
Remarks: All fires will be timed using H-48, and be discontinued upon order. Fire to be adjusted after each round starting at H+12.

SUPPRESSION LIST, MISSION SUPPORT PLAN
LRP Tm 28, OPORD 2-67

Ln No.	Target No.	Rounds
1	XA202	12, HE & 5, WP
2	XA203	35, HE & 10, WP
3	XA204	40, HE & 10, WP
4	XA206	30, HE & 5, WP
5	XA207	12, HE & 5, WP
6	XA208	12, HE & 5, WP

Reference: Map, Series V791, Sheet 1477 IV, Edition 5-DMATC TENINO, 1:50,000
Remarks: Fires to be commenced on-call, refire on command. Equal sheaf dispersion over given target area for all targets. Fusing will be based on nature of observed target.

NAVAL GUNFIRE SUPPORT

Naval gunfire is generally capable of a considerably higher rate of fire, with a flatter trajectory. The deflection pattern is narrow and long in range. Very close supporting fires can be delivered when the gun-target (GT) line is parallel to the observer's position. This pattern also permits effective coverage of roads and runways when the GT is parallel to the long axis of the target. However, the dispersion pattern also creates certain limitations, in that the flat trajectory results in a large range probable error, with the direction of fire. Generally, for close-in support, the ship must seek a firing position that is parallel to the friendly troops' position.

Sea (hydrography) conditions, weather, visibility, and fixing of the ship's position will affect the accuracy and ability of naval vessels to provide supporting fires. Bad weather could temporarily force the ship out to sea, and thus out of supporting range. Changes to the GT, caused by movement of the ship, if it is required to fire while underway, may also temporarily cease fire support at an inopportune time, depending upon the range involved and the closeness of fire to the team's position.

A general knowledge of the support ship's characteristics, including size, armament, magazine capacities, and fire-control systems, is necessary for naval gunfire planning. The size and physical dimensions of the ship affect its ability to maneuver and its ammunition capacity. The proportion of the ship's armament usable for fire-support operations must be considered during planning.

Close coordination and providing a naval liaison must be effected if naval fire support is to be used effectively, and communications capabilities must be carefully checked to ensure compatibility. In some cases it will be necessary to relay fire missions through the LRP force operations center unless the vessel or team is provided with additional communications equipment to effect compatibility.

INDIRECT FIRE WEAPONS DATA

Weapon	*Maximum Range	Minimum Range	Ammunition
60 mm Mortar	1,771m	45m	HE
	1,448m	34m	WP
	998m	375m	Illum
81 mm Mortar	4,595m	70m	HE & WP
	2,950m	100m	Illum
4.2 inch (107 mm) Mortar	5,650m	920m	HE, WP, & HC
	5,490m	400m	Illum
	5,650m	1,540m	CHEM (CS)
105 mm Howitzer M101A1(T)	11,000m	na	HE/ICM/HEP/WP/CHEM BE/SMK/APER/ILL
M102(T)	11,500m	na	same as above
XM204(T)	14,700m	na	same as above
155 mm Howitzer M114A1(T)	14,600m****	na	HE/ILL/NUC/CHEM/WP ICM/RAP/HC/BE/SMK
M109(SP)	14,600m****	na	same as above
M109A1(SP)	18,100m****	na	same as above
M198(T)	18,100m****	na	same as above
8-inch Howitzer M110(SP)	16,800m	na	HE/HE-SPOTTING/NUC CHEM/ICM
M110A1(SP)	20,600m****	na	same as above +RAP
175 mm Howitzer M107(SP)	32,700m	na	HE
General Support Rocket System (GSRS)	30km	unkn	HE/CHEM
Pershing 1A Missile	740km	185km	Nuclear
Lance	110km	8km	Nuclear
	65km	5km	Non-nuclear
Honest John	38km	5km	Nuclear
5-inch/38, Naval Gun	15,000m**	na	***COM/HC/IL/AAC/WP
5-inch/54, Naval Gun	22,500m**	na	***COM/HC/ILL/AAC/WP
6-inch/47, Naval Gun	21,000m**	na	***AP/HC/AAC
8-inch/55, Naval Gun	26,000m**	na	***AP/HC/AAC
8-inch/MCLWG, Naval Gun	27,000m**	na	***AP/HC/AAC

*Does not include improved munitions and weapons in all cases.
**Reflects maximum effective range; the actual maximum range is generally 2,000 to 3,000 meters further.
***Naval ammunition and its artillery equivalent:

Naval	*Artillery*
HC, High Capacity	HE, High Explosive
COM, Common	HEAT, High Explosive Anti-Tank
AP, Armor Piercing	HEAT, High Explosive Anti-Tank
ACC, Antiaircraft	HE, High Explosive

****Maximum range 30 km with RAP (Rocket Assisted Projectile)

FINAL PROTECTIVE FIRES

81 mm	100m(W) 50m(D)
4.2 inch	100m(W) 50m(D)
105 mm	200m(W)
155 mm	300m(W)

BARRAGES AND CONCENTRATIONS

Weapon	Barrage	Concentration
81 mm Mortar	100 (meters) × 100	100 (m diameter)
4.2 inch Mortar	150 × 200	150
105 mm Howitzer	150 × 200	200

FIRE REQUEST

1. Identification
2. Warning (fire mission)
3. Target location and direction
4. Target description
5. Type of adjustment
6. Method of engagement (Danger Close: 600m Arty, 400m Mortar)
7. Method of Control:
   a. Adjust fire
   b. At my command
   c. Fire for effect
8. Type of ammunition
9. Fuse action

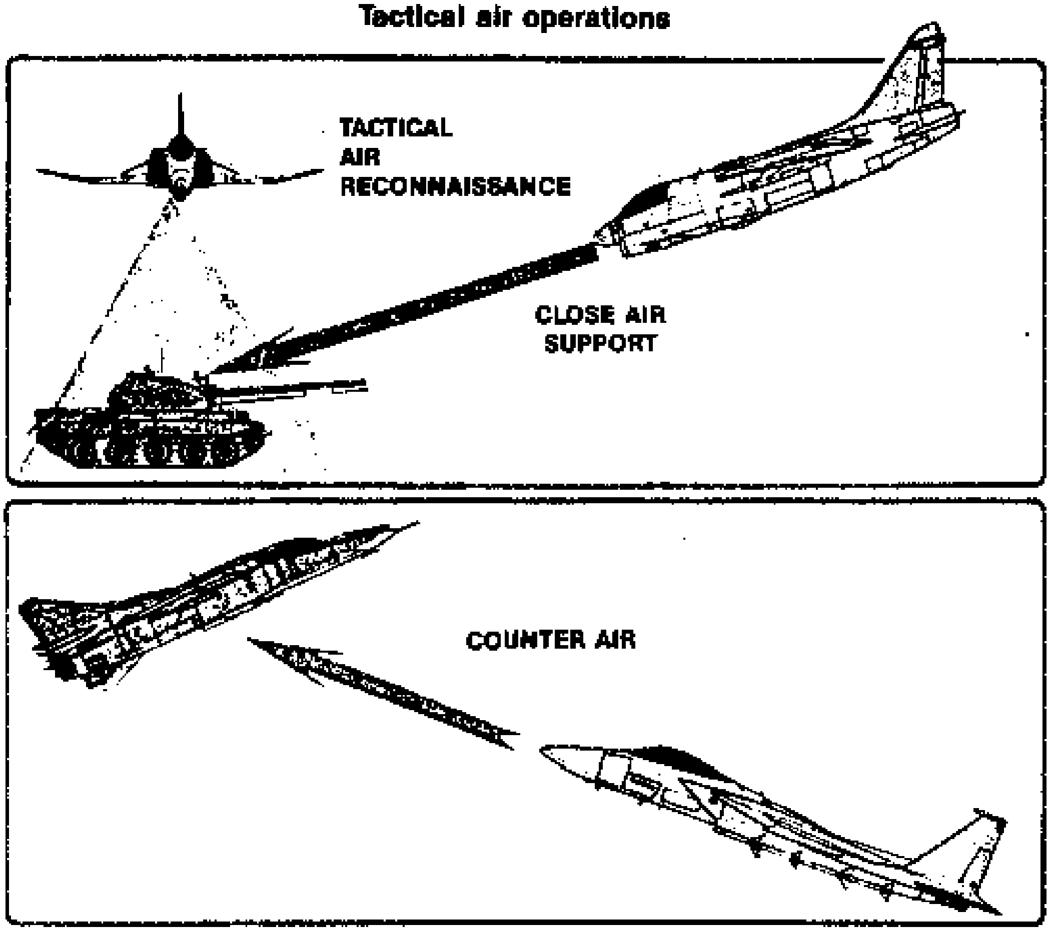
AIR-SUPPORT OPERATIONS

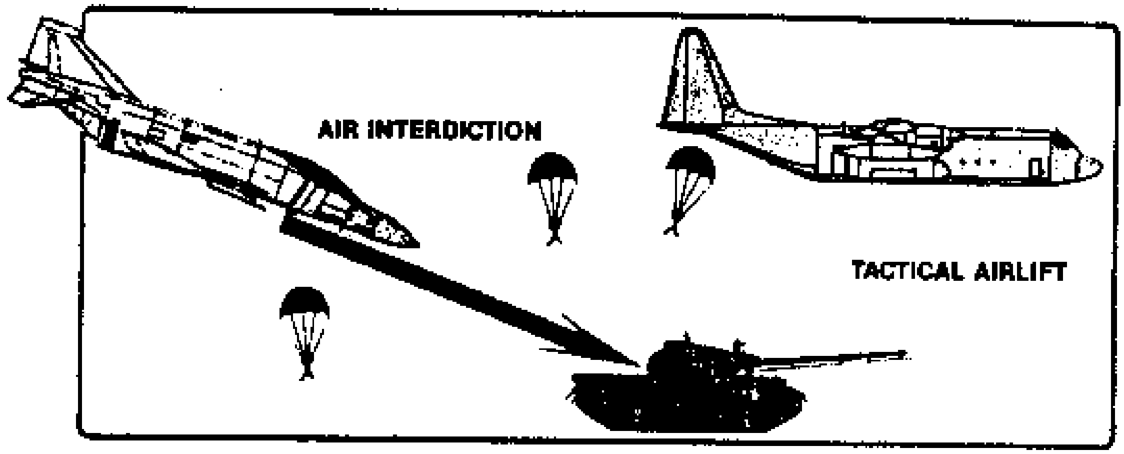
Requirements for LRP air support include reconnaissance , target acquisition, fire support, resupply, evacuation of wounded, team insertion and extraction, and reinforcement with reaction teams and reserve forces.

The aviation unit or element providing support should normally be placed under the operational control of the LRP force, or as a minimum the supported unit headquarters. The supporting aviation units require a high degree of training, with specialization in special operations, particularly night operations.

Airspace restrictions such as airspace coordination areas, flight corridors, and altitude restrictions must be evaluated to ensure maximum effectiveness of air-support assets, and require coordination with supporting ground fire weapons. Aviation control measures such as flight routes, flight corridors, and orbit points may be used to enhance fire support coordination. Artillery trajectory limitations as they relate to aircraft altitudes must be clearly coordinated during mission planning. Fire support plans, air and artillery, must be coordinated with infiltration and exfiltration flight plans. Passage points may be used as ceasefire

Tactical air operations





points, and so on.

Method of support, or target engagement, will be determined by system response time, weapon capabilities and limitations, target characteristics and desired effect of the engagement (harassment or destruction), length of target engagement time required, enemy and friendly situation, ability to observe the target, and ordnance availability. Portable emergency homing signal devices should be used to facilitate air support for the LRP teams.

Tactical air reconnaissance missions may be conducted to support operational planning or deployed teams, or as a result of intelligence acquired during a LRP mission. Missions may be conducted to obtain information on terrain; weather, and the disposition, composition, movement, installations, lines of communications, and electronic and communications emissions of enemy forces.

Counterair operations. It may become necessary for counterair operations to be conducted in support of LRP infiltration and exfiltration operations in order to maintain air superiority over an air, sea, or ground corridor. Counterair operations include those conducted against enemy air defense positions.

Close air support missions (CAS) are air actions against hostile targets in close proximity to friendly forces; each mission would normally require detailed integration with the fire and maneuver of friendly forces. Missions conducted within five kilometers of friendly troops (other than LRP teams) will normally require the presence of a forward air controller (FAC).

Air interdiction missions differ from CAS missions in that they are conducted to destroy, neutralize, and delay the enemy's military potential before it can be brought to bear effectively against friendly forces (other than LRP teams) that detailed integration of each air mission with the fire and maneuver of friendly forces is not required.

Tactical airlift missions will be frequently used during LRP infiltration and exfiltration operations, and resupply missions when required. Air support requirements are covered in detail in Chapter 9, Insertion, Extraction and Resupply.

AIR CAVALRY AND ATTACK HELICOPTER OPERATIONS

Air cavalry units, as organized and employed by the U.S. Army, can be extremely effective partners of the LRP force throughout the spectrum of warfare. When teamed together during counterinsurgency operations, they have the capability of operating as a potent hunter-killer team. Air cavalry operations can also mask the presence of a LRP team, thereby aiding in the deception effort. A considerable variety of force structuring is possible by combining aeroscout, aerorifle, and aeroweapons elements. Each air cavalry troop consists of three platoons with the following capabilities:

Aeroscout platoon, equipped with light observation helicopters, can quickly follow up on LRP sightings and observations, provide pre-mission operational area visual reconnaissance and, in conjunction with the other air cavalry platoons, support infiltration and exfiltration operations, and LRP strike missions.

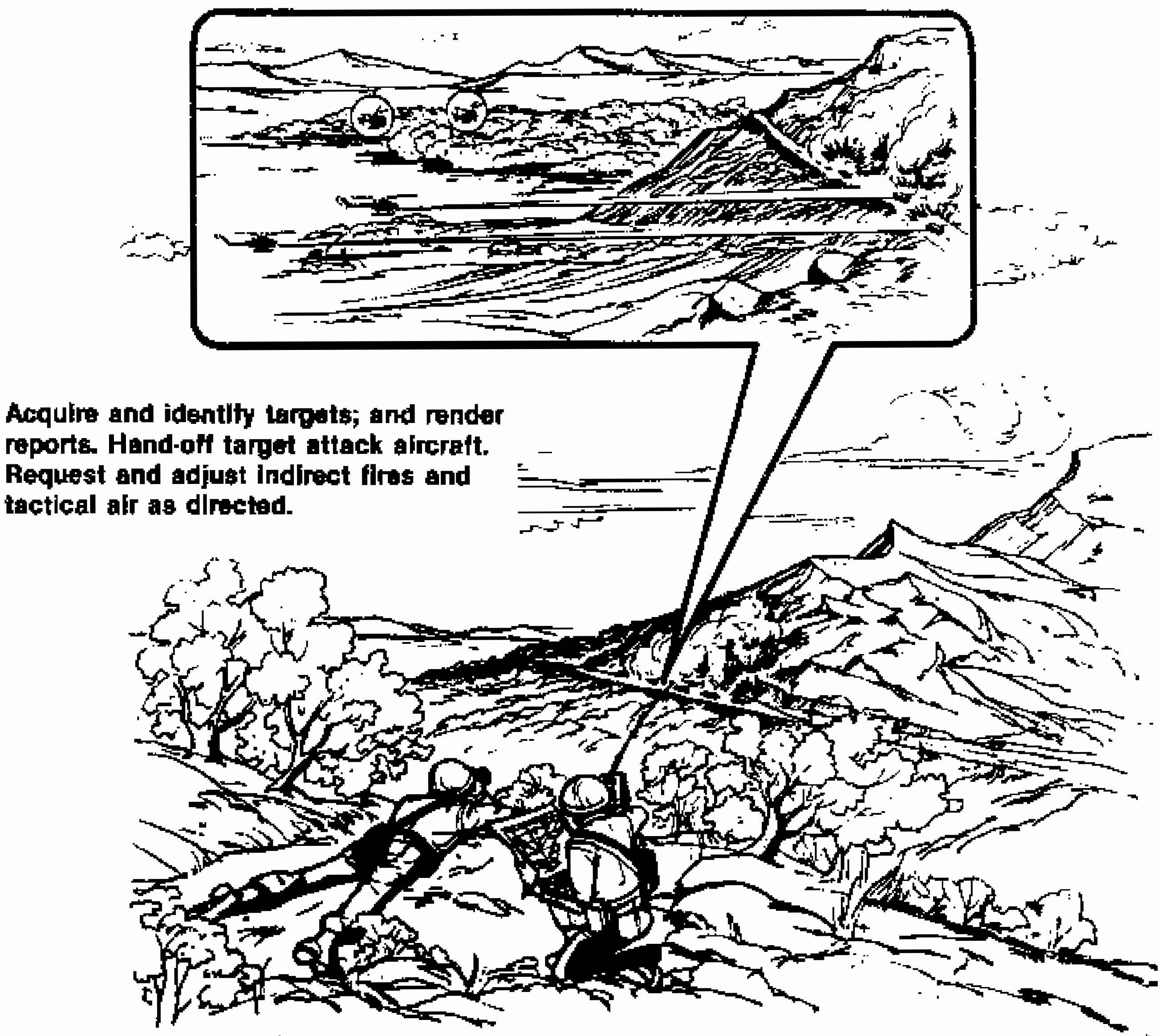
Aerorifle platoon, equipped with medium lift utility helicopters, can provide an immediate reaction/response force of platoon size for following up on LRP sightings, observations, and contacts. They can provide reinforcement capability and assist in emergency extraction operations if necessary. Teamed together with a LRP team, they can conduct strike missions.

Aeroweapons platoon, or "gun platoon," is equipped with attack and aeroweapons helicopters capable of carrying a wide variety of automatic weapons, rockets, and grenade launchers. They have considerable target loitering capability and can provide a high volume of accurate and direct aerial fire. They can be used to engage targets, support insertion and extraction operations, and provide emergency fire support for teams in contact.

Conducting joint operations over a large operational area results in extremely rapid team support from aircraft already in reconnaissance and support operations. A scenario detailing an Air cavalry-LRP hunter-killer operation is outlined in Chapter 15.

LRP team members must be thoroughly familiar with the methods of operation and tactics of the air cavalry force to achieve maximum effectiveness. The same holds true for the air cavalry force. Methods of air cavalry and attack helicopter unit operations include low-level, contour, and nap-of-the-earth flying, and traveling, overwatch, and bounding overwatch movement techniques.

The air cavalry combat brigade's (ACCB) attack helicopter battalions can also be effectively teamed with a LRP force; however, they lack the aerorifle platoon. The attack helicopter companies are organized with one aeroscout platoon and three attack helicopter platoons. They have considerably more firepower than the air cavalry troop and can be organized into scout/attack teams to support hunter-killer missions. LRP personnel or an infantry platoon can substitute for the aerorifle platoon. However, use of LRP personnel in place of the aerorifle platoon should be done as a last resort.

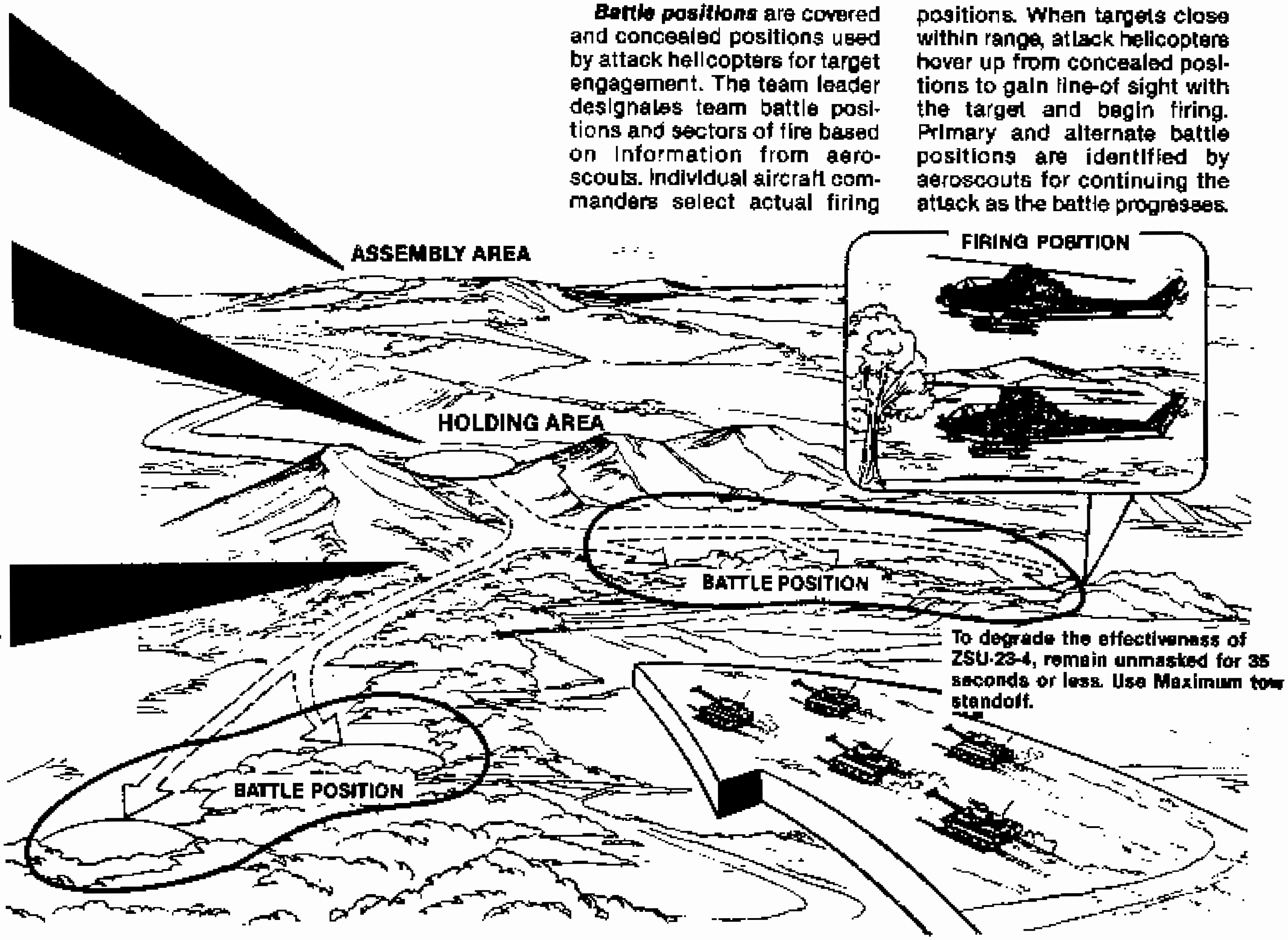


Assembly area is where the unit or element assembles in preparation for future actions, where orders are issued, maintenance can be accomplished and the unit can be re-supplied with Class I, III and V. The assembly area should be located out of range of enemy medium artillery and be large enough to disperse the unit.

Holding areas are sites located between assembly areas and attack positions that may be occupied for short periods while aeroscouts coordinate attack helicopter movement into attack positions. They should provide good cover and concealment. Aircraft may hover or land, but will not shut down. In the event attack helicopters are required to wait longer than a few minutes, they should return to the assembly area.

Attack routes are used to move from holding areas to attack positions. In selecting attack routes, the major consideration is to avoid detection by the enemy, insuring surprise in the initial attack. Good attack routes will take advantage of cover and concealment and use prominent terrain features to assist navigation. Properly used, vegetation and folds in the terrain can reduce the noise signature of helicopters and the possibility of detection by enemy radar.

Battle positions are covered and concealed positions used by attack helicopters for target engagement. The team leader designates team battle positions and sectors of fire based on information from aeroscouts. Individual aircraft commanders select actual firing positions. When targets close within range, attack helicopters hover up from concealed positions to gain line-of sight with the target and begin firing. Primary and alternate battle positions are identified by aeroscouts for continuing the attack as the battle progresses.



Two scout helicopters may be used for reconnaissance when enemy contact is not likely. Such teams serve to maximize the reconnaissance effort and conserve the operational readiness of aeroweapons aircraft.

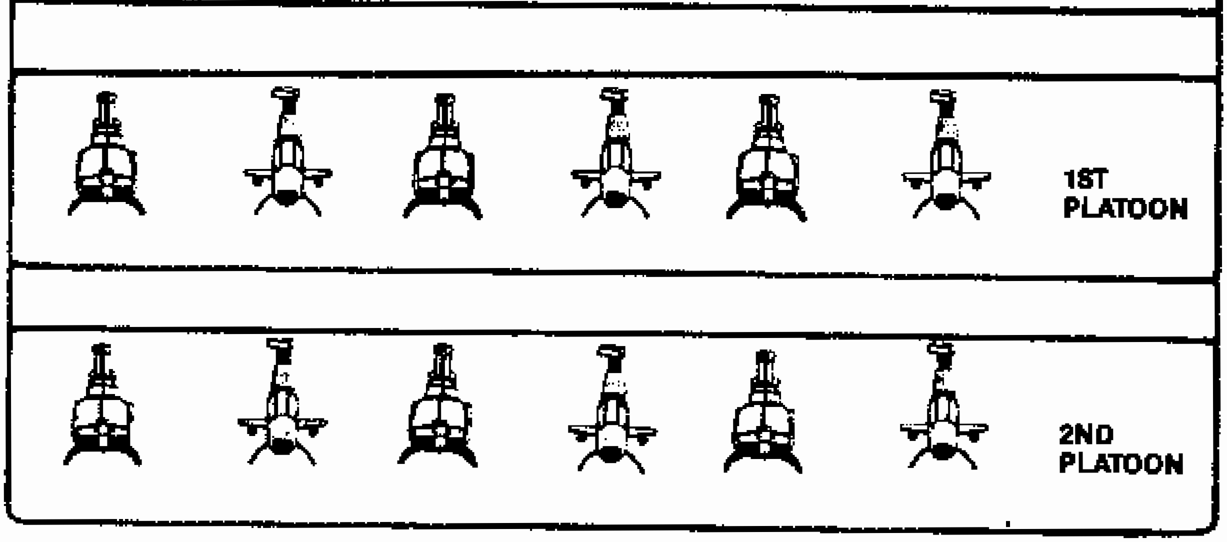
One scout helicopter and one aeroweapons helicopter may be used when contact is possible or expected. This organization permits fielding the greater number of teams for reconnaissance and surveillance missions.

■ Other teams may be formed by different combinations and numbers of aircraft depending on mission. For example:

Two aeroweapons helicopters and one scout helicopter may be used when contact is expected or gained.

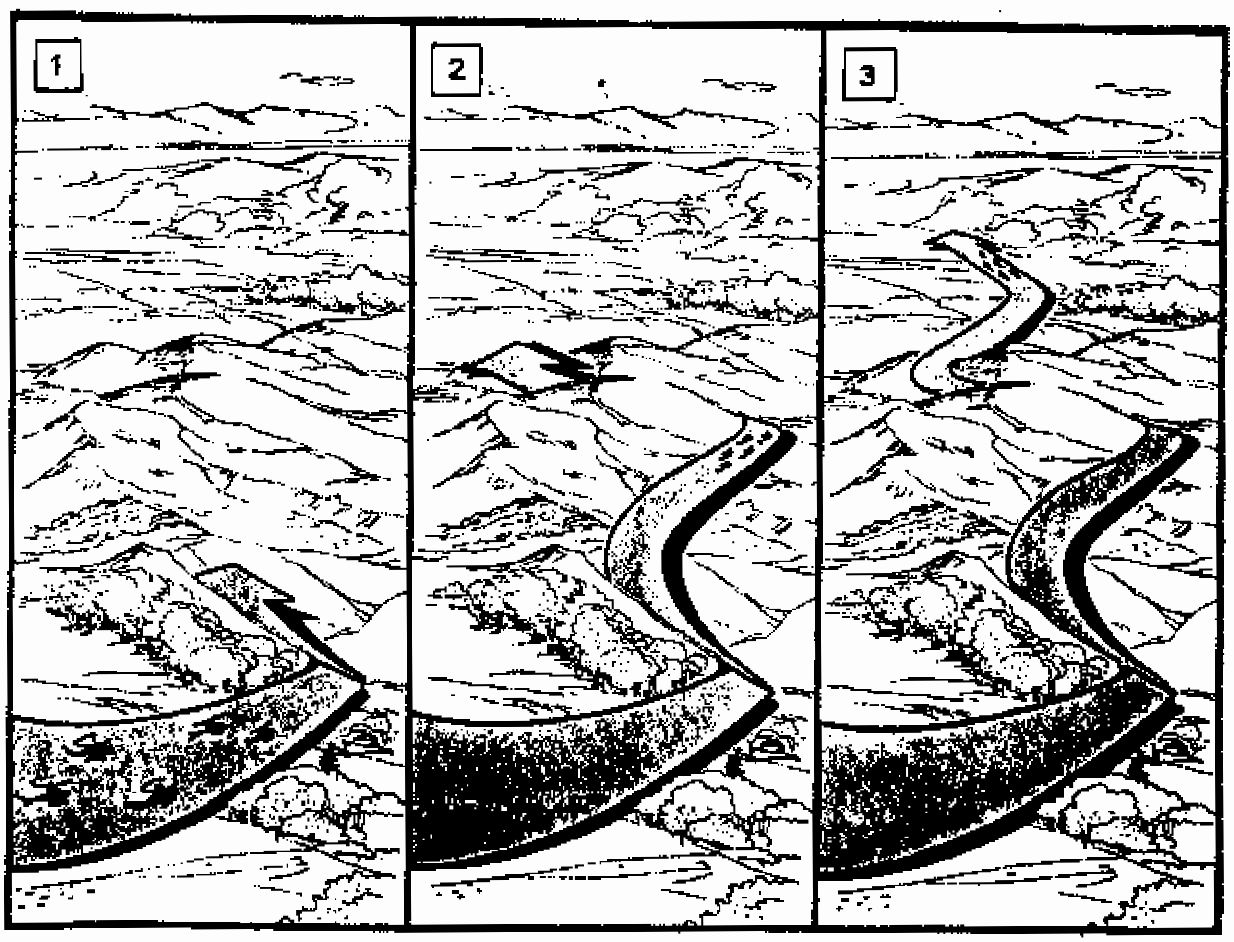
A scout helicopter, aeroweapons helicopter, and aerorifle squad provide the capability to immediately put troops on the ground to reconnoiter, establish OPs or secure critical points.

Provisional platoons of aeroscouts and aeroweapons may be formed. The aerorifle platoon may also be included in this organization or left as a separate platoon.



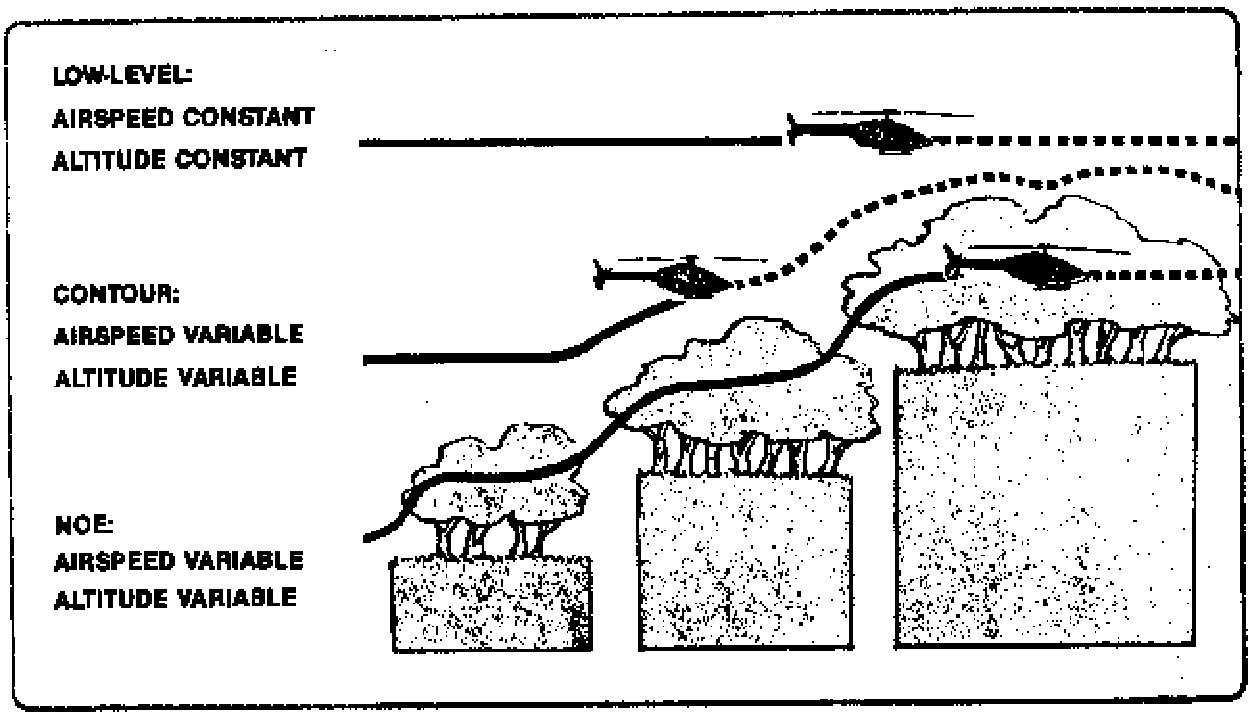
MOVEMENT TECHNIQUES

Traveling. The team moves at a constant speed, using low-level or contour flight. Within the team, aircraft are as dispersed as visual contact and terrain permit. This technique is used for rapid movement when enemy contact is not likely.



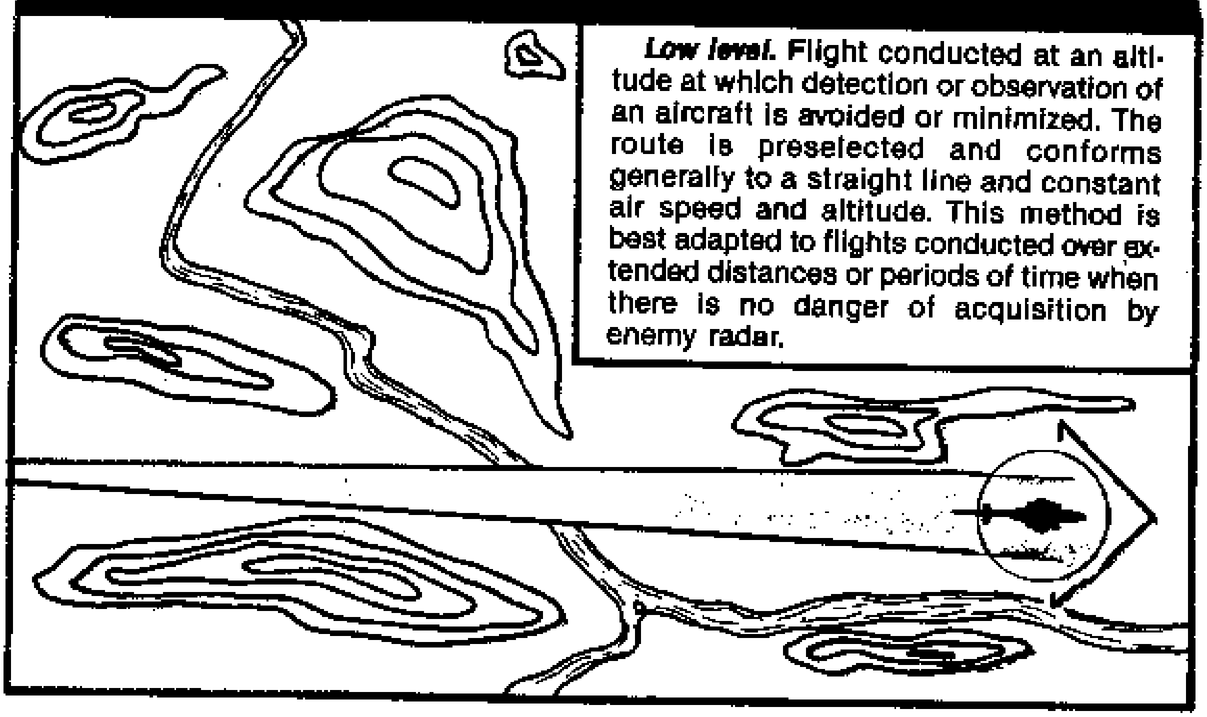
Air cavalry. Air cavalry moves to gain contact using terrain and the same movement techniques as ground cavalry. Air cavalry is organized for combat into teams consisting of varying mixes of aircraft, depending on the mission and situation. Two factors differentiate aircraft from ground vehicles: *speed of movement* must be recognized and controlled, and *travel in the vertical plane* allows the aircraft to be silhouetted much more often than ground vehicles. Air cavalry teams adjust their air speed and altitude to the likelihood of making contact with the enemy. The greater the enemy threat, the more need for security; thus, the flight is slower and lower. Security is achieved by using terrain flying and the same movement techniques as ground cavalry—traveling, traveling overwatch, and bounding overwatch.

Terrain flying. Terrain flying is the tactic of using the terrain, vegetation, and man-made objects to improve survivability by degrading the enemy's ability to visually, optically, or electronically detect or locate the aircraft. It involves a constant awareness of the capabilities and position of enemy weapons and detection means in relation to available masking terrain features and flight route. Flight is conducted close to the earth's surface and includes low-level, contour, and NOE flight based on enemy capability to acquire and engage the aircraft. Air crews must be able to analyze their mission and situation and use the level of flight best suited to accomplish their mission.



TAKE ADVANTAGE OF ALL TERRAIN FEATURES

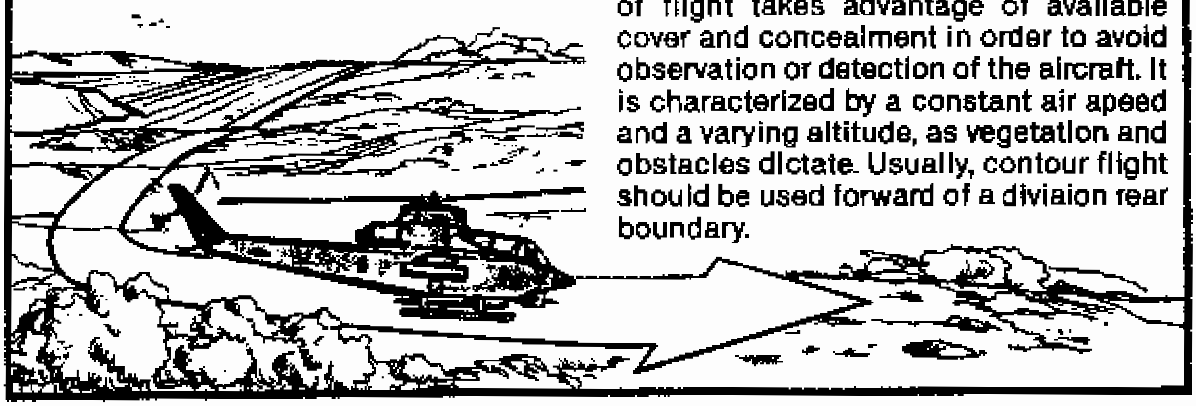
LOW LEVEL FLIGHT



Low level. Flight conducted at an altitude at which detection or observation of an aircraft is avoided or minimized. The route is preselected and conforms generally to a straight line and constant air speed and altitude. This method is best adapted to flights conducted over extended distances or periods of time when there is no danger of acquisition by enemy radar.

CONTOUR FLIGHT

Contour. Flight at low altitude conforming to the contours of the earth. This type of flight takes advantage of available cover and concealment in order to avoid observation or detection of the aircraft. It is characterized by a constant air speed and a varying altitude, as vegetation and obstacles dictate. Usually, contour flight should be used forward of a division rear boundary.

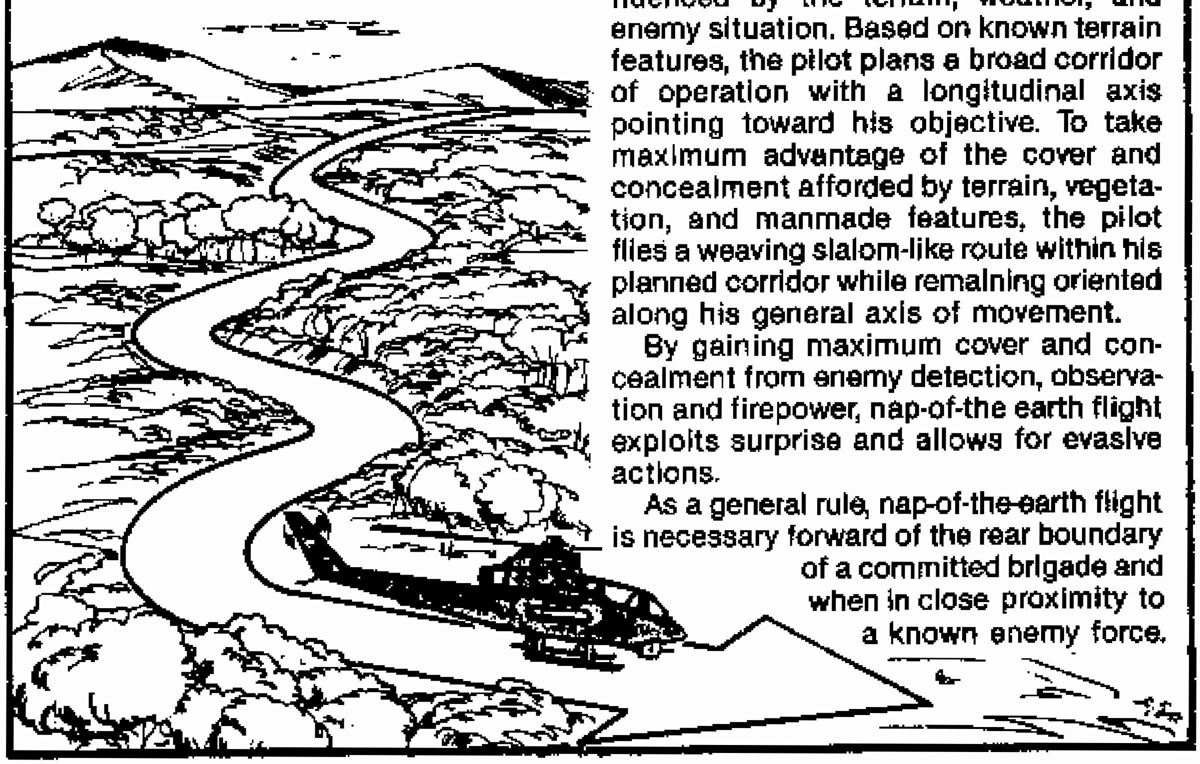


NOE FLIGHT

NOE. Flight as close to the earth's surface as vegetation or obstacles will permit. Air speed and altitude vary as influenced by the terrain, weather, and enemy situation. Based on known terrain features, the pilot plans a broad corridor of operation with a longitudinal axis pointing toward his objective. To take maximum advantage of the cover and concealment afforded by terrain, vegetation, and manmade features, the pilot flies a weaving slalom-like route within his planned corridor while remaining oriented along his general axis of movement.

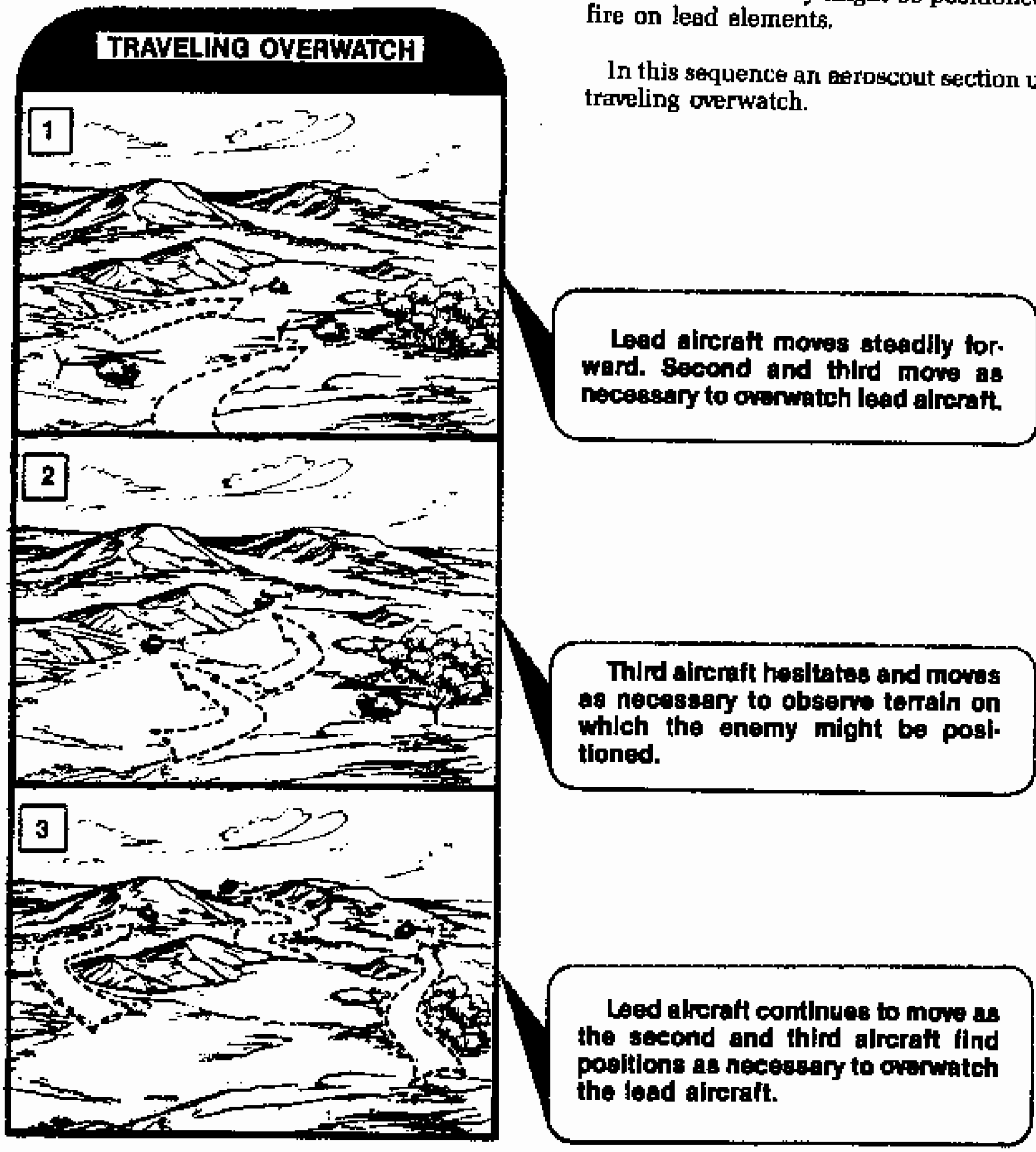
By gaining maximum cover and concealment from enemy detection, observation and firepower, nap-of-the earth flight exploits surprise and allows for evasive actions.

As a general rule, nap-of-the-earth flight is necessary forward of the rear boundary of a committed brigade and when in close proximity to a known enemy force.



Traveling Overwatch. Use traveling overwatch when enemy contact is ***possible***, precautionary measures are justified, but speed is desirable. Lead elements of a team, or aeroscout section or attack helicopter platoon move at a constant rate. Trail elements move as necessary to (1) provide visual overwatch of the lead elements, and (2) observe terrain on which the enemy might be positioned to fire on lead elements.

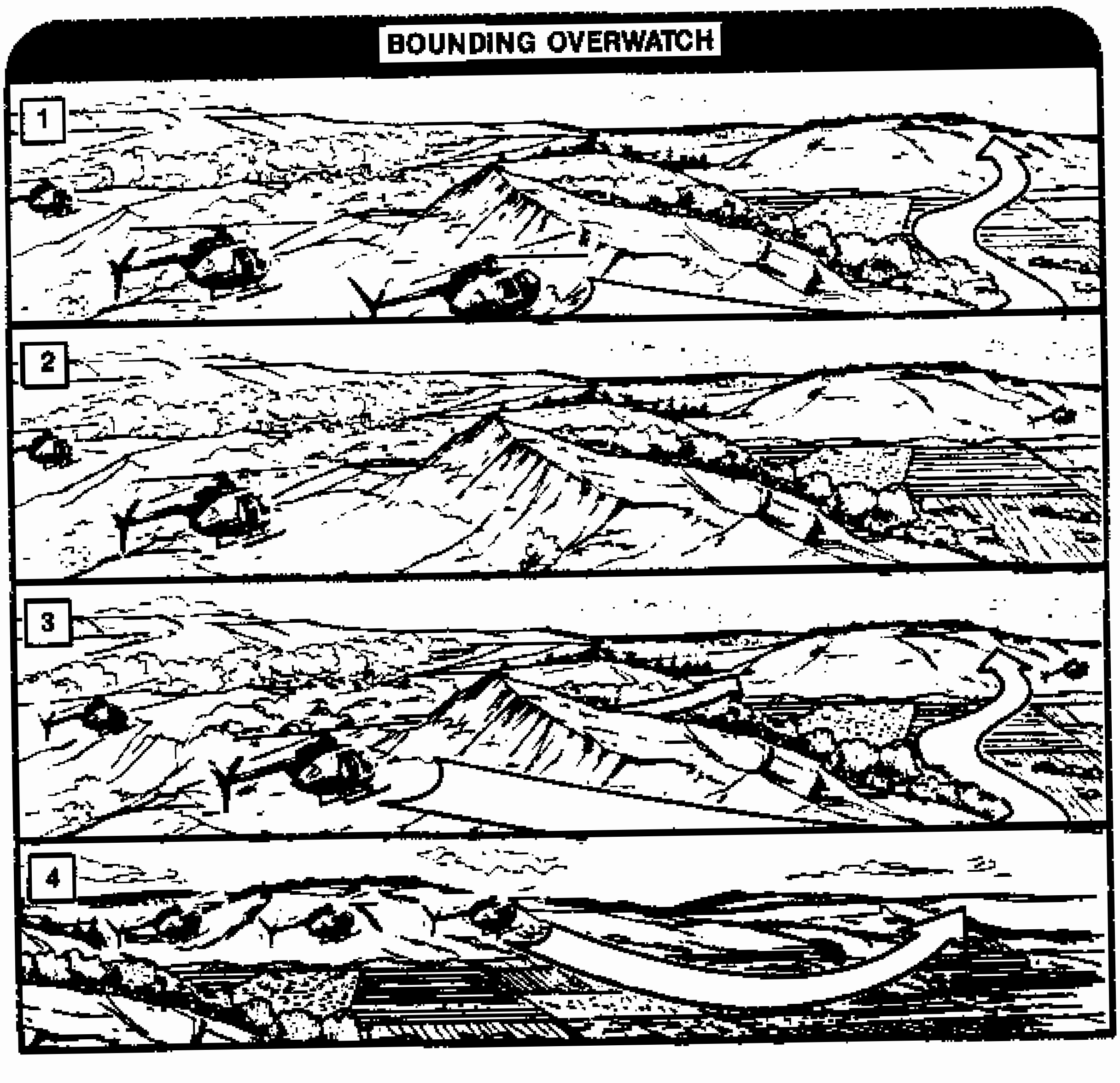
In this sequence an aeroscout section uses traveling overwatch.



Bounding Overwatch. Use bounding overwatch when enemy contact is **expected.** Overwatch elements cover progress of bounding elements from a covered, concealed overwatch position offering observation and fields of fire against potential enemy positions. Attack helicopter teams do not always operate where attack helicopters can provide immediate fire support. However, each element, the aeroscout section and the attack helicopter platoon can use this technique.

The following sequences describe aeroscouts by themselves and an attack helicopter team employing bounding overwatch.

Aeroscouts. Bounding elements move to positions to take up the overwatch mission—unless contact is made en route. Bounding elements should find the enemy. The length of the bound is determined by terrain and intervisibility.



AIR-STRIKE CAPABILITIES

CAS and air interdiction missions are capable of placing accurate massive air strikes on target with typical combat loads ranging from three to seven tons. Air strikes will either be planned or immediate, with control of the strike exercised through the LRP team or a forward air controller (FAC). Tactical air assets can provide close-in air support at high speed and from long range, with a variety of weapons against a broad range of targets. Every target on the battlefield is vulnerable to tactical air firepower, with close air support being particularly effective against hard and mobile targets.

In mountainous areas, delayed fusing can cause massive slides onto enemy positions and can be used to effectively block avenues of approach. Precision-guided weapons can be effectively used to destroy or seal off enemy cave positions. In jungle areas, heavy bombs (2,000 to 3,000 pounds) can be used to clear jungle canopies for observing target areas and creating landing zones for helicopters.

Air Support Weapons Systems

An immense variety of weapons and ordnance is available and can be delivered by a wide variety of aircraft. Capabilities may include general-purpose bombs, laser-guided bombs, cluster bomb units, rockets, cannons, and electro-optically guided missiles. Attack helicopters also offer close air-support capabilities and can be armed with a wide variety of weapons to provide close-in direct fire support, which may include machine guns, automatic cannons from 20 to 30mm, high-velocity grenade launchers, and a variety of rockets. With modern guidance systems and weapons delivery techniques, first-round hit probabilities are high. Strafing, for example, can be employed 25 meters or less from protected troops. Some of the more common, or sophisticated, types are covered here for general information.

Minigun: 7.62mm machine gun, common to attack helicopters; rate of fire 2,000 to 4,000 rounds per minute. Rounds include ball, armor piercing, and tracer.

M-61 Vulcan: 20mm cannon, common to U.S. fighter aircraft; rate of fire: 6,000 rounds per minute. Rounds include HEI, API, and AP.

GAU-8 cannon: 30mm cannon, exclusive to U.S. A-10 aircraft; rate of fire: 4,200 rounds per minute. Rounds include HE, API, and AP.

Grenade launcher: 40mm, exclusive to attack helicopters; rate of fire: 400 rounds per minute. Rounds include HE and HEAT.

Rockets: 2.75 inch, 10 pound or 17 pound warhead, and Navy 5-inch Zuni; all but the Zuni are common to all strike aircraft including helicopters; can be fired in pairs or by salvo. Warheads include HE, HEAT, Flechette, and WP.

Cluster bomb units: A CBU consists of a container or dispenser loaded with bomblets which may be dropped from both low- and high-angle flight. There are many different types and combinations of dispensers and bomblets. Depending on the type and quantity delivered, they are effective against personnel, light material, and armor.

General-purpose bombs: Bombs are available in sizes of 500, 750, 1,000, 2,000, and 3,000 pounds. Some older models will range from 50 to 10,000 pounds and can still be found in use throughout the world. They are available with a wide variety of fusing and delivery capabilities. The explosive content will range from 35 to 60 percent of the total bomb weight.

Firebombs: Commonly referred to as napalm, firebombs are thin-skinned metal tanks filled with thickened fuel (napalm) and equipped with white phosphorus or electrical igniters. Napalm has the consistency of honey, clings to the target, and burns for up to 15 minutes. Such can be employed against point and area targets depending upon the height, angle, and speed of delivery, and whether or not the container is finned or unfinned. The angle and speed of the drop may be adjusted to impart a flamethrower effect to the bomb. Firebombs in the following sizes are usually available:

FIREBOMBS

Size (lbs)	Capacity (gals)	Expected Burn Pattern (meters)
750	100-110	122 × 23
500	65-75	61 × 24
250	38	53 × 28

Incendiary bombs are clusters of small bomblets that contain thermite, magnesium, or an oil and metal incendiary mixture. The cluster opens at a predetermined altitude to spread the bomblets over the target area to start a number of individual fires. The size and weight of the bomblets affect their ability to penetrate a target and determine what type of cluster is selected to attack a specified target.

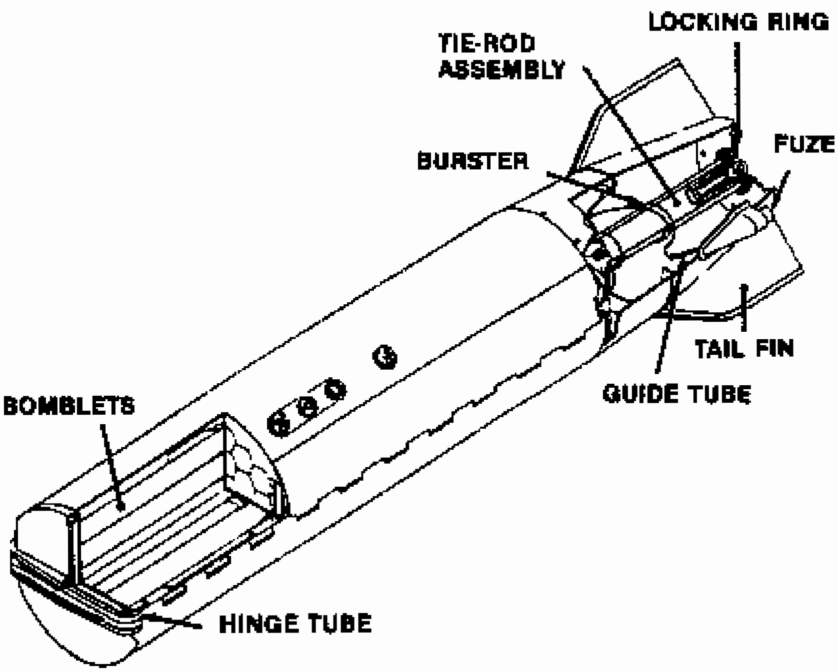
Guided weapons. Guided weapons are classified generally as bombs and missiles, and are further classified by guidance systems. Since bombs have no propulsion system they are normally used from closer ranges than missiles. The U.S. Air Force Maverick missile inventory is currently being upgraded with improved electro-optical, laser, and imaging infrared guidance systems that can provide around-the-clock pinpoint fire capability from a single weapon.

• *Optical tracked, wire guided.* The best example of this type would be the helicopter mounted TOW missile, with a range in excess of 3,000 meters.

• *Laser guidance.* The bomb or missile is guided to a point illuminated, or designated, by a laser beam. The designater can be on the aircraft, on another aircraft, or on the ground. The laser beam must spotlight the target early enough for acquisition of the target by the guidance system to allow flightpath corrections, and stay on target until impact. The Hellfire is a helicopter mounted laser guided missile that can engage tanks and other targets out to a range of almost nine kilometers.

• *Electro-optical guidance.* A television camera in the nose of the weapon guides it to a point of dark-light contrast on the target. It is limited to daylight and reasonably good weather, but has the advantage of "fire and forget." Examples of TV-guided weapons would be the Maverick missile and Walleye bomb.

• *Antiradiation missiles.* Antiradiation missiles (ARM) home in on the energy emitted by enemy radars and are used for radar suppression. Examples are the Shrike and Standard ARM.



M74-type incendiary bombs, 57 10-pound bomblets in M35 cluster.

9 Insertion, Extraction and Resupply

INTRODUCTION

Entry or exit from the operational area may be accomplished by air, ground, or water, or any combination thereof, and will always have secrecy as the primary consideration. Air infiltration is usually the most practical and rapid means. Teams can be transported to, and inserted within, any geographical area in the world. Water infiltration includes the use of surface or undersea craft. The most secure means is by undersea craft, while surface craft are more efficient. Under most circumstances, land infiltration is the least desirable means and is usually limited to short distances. Exfiltration is the extraction or evacuation of personnel, documents, or equipment from an operation area by air, land, or water.

While writing this chapter I recalled some of my own insertions and extractions during my time in Vietnam. Some I recalled rather fondly, while others. . .Well, judge for yourself. The following are not recommended methods:

We were running a mission for a commander who insisted in no uncertain terms that we walk in since the weather would not allow helicopter insertion. In certain situations that would have been all right; however, as it worked out it was pretty dumb. We were located at fire support base Hardtimes (a fitting name, as it turned out), which was a long way from being an isolated outpost. It was situated in a broad river valley dotted with villages and rice paddies. The river itself (naturally our AO was on the opposite side) was about 50 meters across, swift flowing, and deep enough to lose a tank in.

Well, orders were orders, so we headed out. Oh yes, he wouldn't let us wait for nightfall either; we moved out at around 0900 hours. The first obstacle was the river. We stripped—to the laughs of the local wash ladies—and proceeded to swim across. Normally we would have kept our uniforms on and employed a certain degree of stealth, but since we had an audience of about thirty villagers we decided it probably didn't matter. After making it across the river, we headed out across the open rice paddies, which stretched out for about 500 meters. The local traffic of villagers planting rice was really inspiring to us. Once we made the jungle, we spent the next five days playing hard to find.

Either we were extremely lucky, the NVA/VC were not interested in four idiots wandering around out in the open, or the bad guys had better things to do, because we wound up having a totally uneventful mission. At least until our sightseeing trip back. You guessed it; we had to return during daylight hours too, which was probably just as well—at least we weren't fired on from a perimeter that had been probed three times while we were out.

On another occasion we had the misfortune of being dropped smack in the middle of a 200 × 500 meter field of grass. They were supposed to drop us on the edge, which turned out to be elephant grass about fifteen feet tall. Even that wouldn't have been so bad if the bird hadn't hovered just above the top of the grass and had we known how tall the grass was. We had a rather jolting entry to our AO and spent the next three hours struggling to get off the LZ. Our hands, faces, and forearms were cut up something terrible, but at least we didn't have any uninvited company, and, in fact, had a fairly successful mission. Grass height was always a major area of interest for me after that exciting drop into beautiful Vietnam!

As fate would have it, someone apparently decided to experiment with short airborne drops *without parachutes*, because on another mission we had to jump with full equipment from 20 feet up! The aircraft couldn't get any lower, and the supported commander was mucking about in a command ship insisting that we jump, so jump we did. Why no one was injured I will never understand, but we definitely had some sore spots for weeks to come. Of course what really made it had was that the LZ, if you could call it that, was covered with tree stumps and rubbish from an air strike. It was not an LZ the enemy would have guessed anyone in their right mind would use.

In case you thought that was all, here's one more. We were going in north of the Mang Yang Pass, in an extremely mountainous area. Anything close to resembling an LZ was set at about a 45-degree angle. Well, needless to say, we gave it our best shot and it worked, sort of. The only real problem was that myself and another team member rolled down the slope about 50 meters before we could stop ourselves. I would suppose there is probably some special skill you can practice to keep that from happening, but neither I nor anyone else on the team could figure it out. It was certainly not what you could have called an obvious LZ, but then again it was not what you could really call a safe one either.

Now before you get the impression that insertions were routinely near disasters, let me add that for every flaky one, we had at least *ten* that were well executed and highly successful. These examples point out what might seem like minor details at first, but details that require careful study prior to final selection of the LZ. First, the need for the mission must not overshadow the ability to infiltrate without at least some degree of secrecy. Second, when selecting an LZ, look not only at clearance through the tree canopy, but also at grass and vegetation height on the LZ itself. And third, experiment with new insertion techniques in safe rear areas, not during actual missions.

The infiltration phase must never be taken lightly. If the enemy detects your presence during insertion they have the option of avoiding you or going after you. The insertion operation must be conducted to give you the edge, not the enemy.

False insertions and other deception tactics can help tremendously in masking actual insertion operations, especially when using helicopters. Dedicated special aviation and naval elements are a must due to the unique nature of the mission, degree of expertise required, depth of insertion, and so forth.

Avoid reusing the same insertion or extraction point whenever possible. The enemy can become wise and ambush the team after insertion. Allow a passage of time before reinserting a team into the same basic AO; otherwise, the enemy may be looking for you early on. When at all possible, pick an inaccessible location or unexpected route. It should be an area the enemy is unlikely to actively occupy. Points such as steep hills or mountaintops can be useful if selected carefully. Of course, do not forget to consider how the team will exit its insertion point or reach its extraction point.

Examine the aggressiveness of enemy rear area patrol and observation operations before committing to a method, location, and time of insertion and extraction. An enemy that aggressively patrols its rear areas will be a tough opponent for the LRP force and will significantly hamper infiltration and exfiltration operations.

Emergency procedures must be clearly thought out, with decisions regarding extraction due to unplanned contact, contact upon insertion, and so forth evaluated prior to commitment of the force.

Infiltration-Exfiltration Corridors and Passage Points

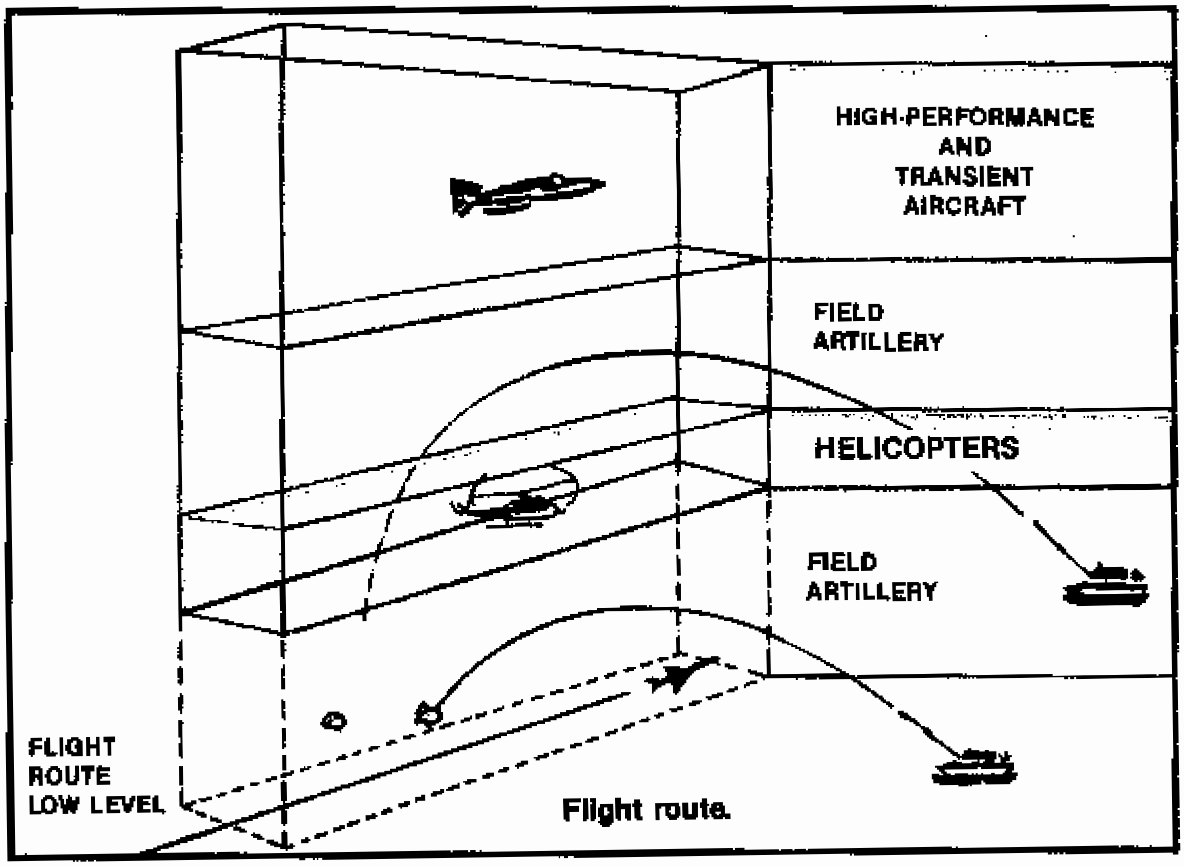
Air, ground, and water corridors must be clearly established as part of the infiltration or exfiltration route and plan. This prevents interference with other operations, aircraft, fires from artillery and air-defense weapons, and so on. The corridor terminates at the area of operations and begins at the start point.

Passage points and recognition signals must be established to prevent engagement by friendly forces and to aid in navigation. Normally, recognition signals are given and acknowledged before passage through the passage point. Passage points should be readily identifiable from the air, water, or ground. The recognition signals may consist of radio signals, smoke, lights, panels, or flares, with the LRP element responding with radio, lights, or visible movement.

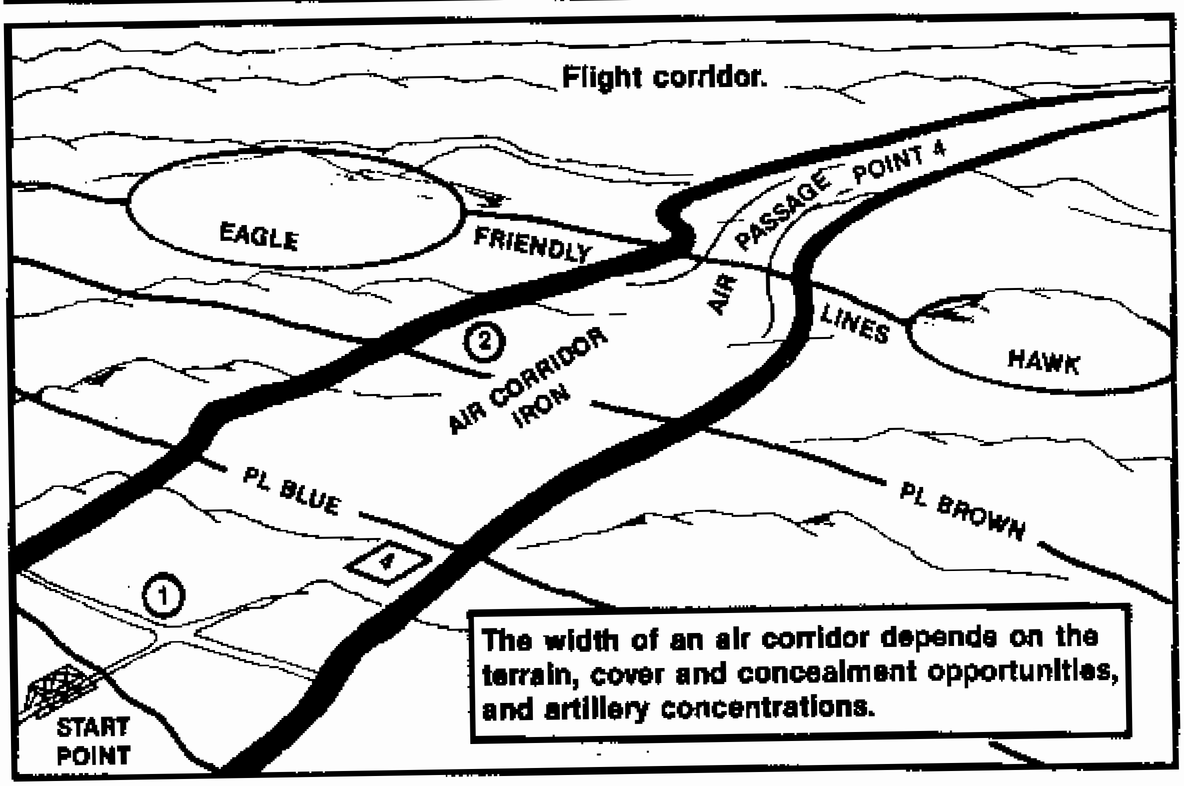
Evasion corridors, passage points, and recogni-

tion signals should also be established during mission planning in the event the team must evade the enemy and exfiltrate by ground or other means. The passage points would also be used as rally points by the team during its evasion operation, and in efforts to locate and extract the team.

The fire control measures discussed in Chapter 8 would also be used during infiltration and exfiltration operations.



Flight route.



Flight corridor.

The width of an air corridor depends on the terrain, cover and concealment opportunities, and artillery concentrations.

TACTICAL GROUND INFILTRATION

Tactical ground infiltration is infiltration by stealth in which a LRP team moves through or around an enemy force in order to enter its area of operations and accomplish its mission. To avoid detection it is usually accomplished during periods of limited visibility and over rough terrain. Of course, to a certain extent the entire LRP mission could be referred to as one of tactical infiltration. Employing the stay-behind mode is the defensive counterpart of tactical infiltration. In stay-behind operations, the team gains access to the enemy rear by hiding and allowing themselves to be bypassed.

Defensive doctrine for the modern battlefield calls for establishing platoon and company strongpoints separated by gaps of up to 2,000 meters, which would appear to offer numerous possibilities for night infiltration in favorable terrain. This is primarily the result of the need for battlefield dispersion to avoid devastating nuclear or conventional indirect fires.

Tactical ground infiltration involves an extended time factor, increased risk of detection, and passage of defensive lines, by vehicle or foot. Due to the hazards, distances, and other factors involved, tactical ground infiltration should only be utilized when no other means is available.

For LRP operations, the terms evasion, infiltration, and exfiltration are basically the same, the only difference being in when they are employed as opposed to how. The skills covered in Chapter 13 dealing with tracking, counter-tracking, stalking, and stealth, play an equally important role during tactical ground infiltration, exfiltration, and evasion.

Evasion measures are normally implemented after intentional, or accidental, contact with the enemy. Evasion itself is the art of moving through an enemy-influenced or controlled area and avoiding capture or detection. The end goal for the LRP team will be either to return to friendly territory, make contact with a friendly element, or continue the mission. Successful evasion requires confidence, endurance, patience, and a host of combat-related skills including land navigation, survival, stealth, and camouflage. Training should emphasize "hiding" skills, counter-tracking, camouflage, deception, and stress reaction. Evasion may only be for a short distance to reach a site for emergency extraction, or it may be required over long distance when it becomes necessary to "walk out" to friendly lines. Special emergency survival and signal and communications equipment must be available to each team member. For long-term or long-distance evasion operations, survival skills become increasingly important. Move cautiously and practice stealth, and of course remain 100 percent alert at all times.

Stay-behind operations are an excellent means of deception and offer the advantage of familiarity with an area. They may involve the participation of a larger unit to some extent, and can be employed as part of a counterattack, withdrawal, and so forth. Such operations are highly effective in counterinsurgency warfare when left at an abandoned forward fire base, and when the enemy relies heavily on resupply from items left behind by departing forces.

During conventional operations it is essential for the team to be located in a hide position well away from abandoned defensive positions or areas where advancing enemy forces may focus their attention when securing their new rear area or defensive line. It must be assumed that the enemy forces will conduct extensive patrols looking for bypassed forces, abandoned equipment, and so on.

As with any method of infiltration, tactical infiltration has advantages and disadvantages that must be weighed before a decision is made to employ them. Each must be evaluated as it pertains to the actual situation. Considering the normal load weight of a LRP team, tactical ground infiltration may be totally unrealistic for conducting a deep penetration operation. However, if combined with the stay-behind mode, it may become more feasible.

Prior to a LRP team attempting ground infiltration, a careful ground reconnaissance must be accomplished to locate gaps in the enemy's defensive line. Ground surveillance radars, thermal imagery devices, and other observation equipment should be employed, but these efforts must be accomplished without detection by the enemy.

During tactical infiltration, it is advisable for the team to travel as light as possible. A team could be resupplied by air after two or three days, even though aerial insertion was not feasible. If so, the team could travel with minimum rations and equipment until they could be dropped supply bundles.

When it is decided to infiltrate through enemy lines, it will be essential to coordinate closely with friendly forces in the sector involved. Coordination will be required with not only the main defensive line, but also with any OPs, LPs, and short-range patrols. Guides may be essential to lead the team through, or around, wire obstacles, booby traps, minefields, and other hazards in the defensive sector. All friendly troops must be aware of the team's presence forward of the lines, especially supporting surveillance teams that may be using ground surveillance radar and other electronic equipment. During tactical infiltration of enemy lines and passage of friendly lines, there should be four distinct phases.

Phase one. During this phase, the team would move to the forward defense line of friendly troops for the purpose of daytime observation of the area over which the infiltration will take place, for a briefing by the guide if one is to be used, and a coordination meeting with the immediate sector commander. The briefing should include challenge and passwords, information on the terrain to the front, the latest intelligence on enemy activities and disposition, discussion of navigational aids and signals, and dissemination of emergency signals to be used during the team's passage. The team members must study the terrain thoroughly and memorize as many details as possible. Deception during this phase is extremely important and must begin prior to the team's arrival, by wearing uniforms that match those of the soldiers in the sector, including unit insignia. Their own uniforms and equipment must remain packed and hidden to avoid possible compromise. During Phase One the team operates on the defensive sector's radio net. After all briefings, the team is placed on hold waiting for the most suitable weather and light conditions—dark, stormy, and rainy!

Phase two. This phase commences with the team changing into mission uniform and equipment and ends upon reaching a point where the enemy's first defensive positions can be observed or identified without observation equipment. At this point, if a guide is employed, he is dropped off to return to friendly lines after the team's passage of the initial enemy defenses. Up to the end of Phase Two it is possible to abort the mission and attempt passage at a different point or time. The speed at which Phase Two is accomplished must be left entirely up to the team. However, if movement becomes too slow or is delayed to the point where the team will be unable to begin Phase Three in sufficient time to clear the enemy's forward defensive line, it may become necessary to abort. Considerable care must be taken to avoid detection by enemy OPs and LPs. During the planning stage, efforts should be made to locate a suitable gap between primary enemy defensive positions, and preferably between units. Completion of Phase Two should bring the team to a suitable gap.

Phase three involves the actual penetration of the enemy's forward defense line and ends once the team has successfully infiltrated well to the rear. With the high probability of the enemy employing a defense in depth, Phase Three is considered to be completed after clearance of the primary defensive line. Timing is crucial. Phase Three should not be entered if sufficient cover of darkness is not available to complete this phase. Accurate intelligence about the enemy's defensive dispositions must be available in order to establish a timetable.

Phase four will be the longest segment of the operation. Due to distance and time, the team may have to spend the first part of Phase Four in hiding if they are unable to clear the entire enemy defensive line in one night. In this case, prior to daylight, the team must occupy a suitable hide that has been planned in advance. The team moves on after nightfall and negotiates the remaining leg of the passage. Phase Four is considered complete when the team is well beyond the last principal defensive line, preferably at least 1,000 meters.

Special LRP Operations Ground Vehicles

In certain areas, and under the right circumstances, it may be desirable to use lightweight vehicles or motorcycles to conduct either the infiltration, exfiltration, mission, or all three. There are a wide variety of vehicles available for this purpose. Examples are shown in the accompanying illustrations.

The team could either infiltrate over ground using light vehicles, be delivered to their operational area by airdrop or air landing, or land by water. In either event, the vehicles envisioned could easily be transported with the team for increased mobility.

Desert regions are an excellent area for employment of mounted LRP teams due to the generally sparse physical occupation of the ground. All team members should be equipped with night-vision goggles to allow night-vehicle movement. Additional weapons and equipment could also be carried.

RBY-MK 1

Dimensions: overall length 4988 mm; overall width 2030 mm; overall height (unloaded) 1660 mm; wheelbase 3400 mm; track 1665 mm; ground clearance (front & rear axles) 270 mm; ground to transfer case 375 mm; ground to bottom of vehicle (full load) 480 mm; curb weight 3600 kg.

Performance: max. road speed 100 km/h; speed over rough terrain 50 km/h; max. range on roads 550 km/h; max. range cross-country 400 km approx.

Engine: 6 cylinder gasoline engine; model Dodge 225-2; displacement 3,700 cc; power 120 BHP net; bore 7.4 cm; stroke 10.44 cm; compression ratio 7.4:1; water cooled, positive pressure, sealed circuit, thermostate controlled cooling system.

Transmission: Type manual, 4 forward 1 reverse; model New Process 435; Gear ratios: 1st 1:6.69, 2nd 1:3.34, 3rd 1:1.66, 4th 1:1.00, rev. 1:8.25; transfer case, New Process 39360, front gear drive 1:1, front and rear low gear 1:1.98; rigid front and rear axles, full floating hypoid.

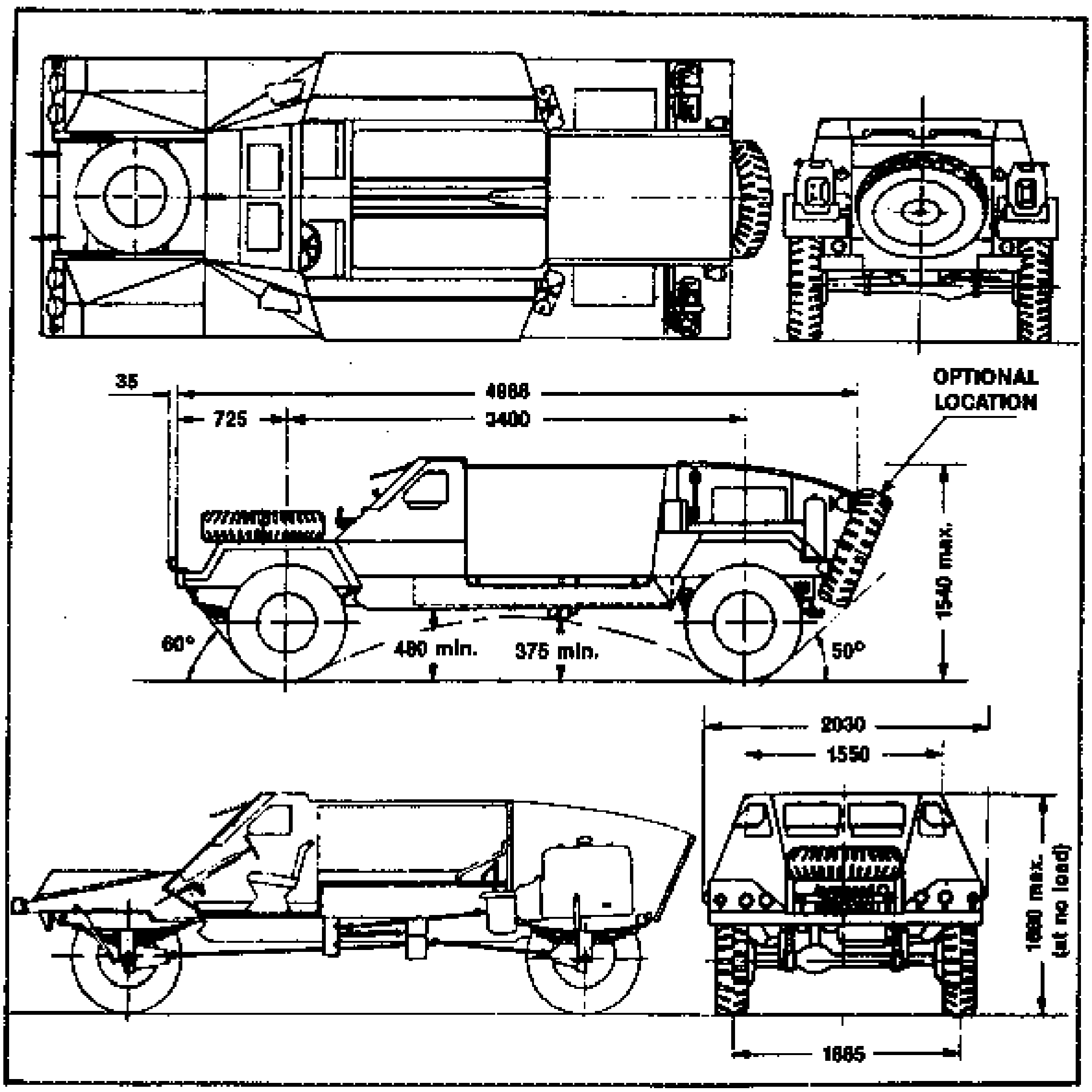
Brakes: running brakes, hydraulic, dual master cylinder, hydro-vac assisted; parking brakes, mechanical drive shaft mounted.

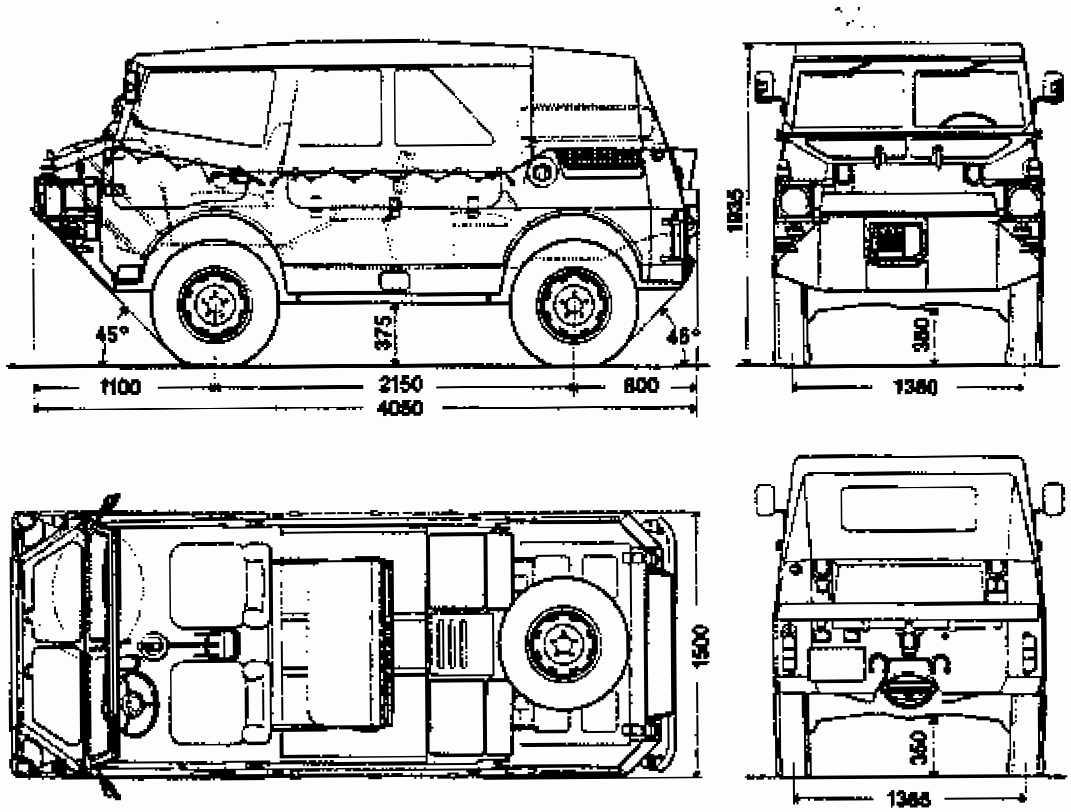
Suspension: front & rear semi-elliptic leaf-springs; hydraulic shock absorbers.

Steering: worm and sector, power assisted.

Fuel tanks: three separate tanks, total capacity 140 litres.

Electrical system: 24 V dc; 2×12V heavy-duty batteries, 60 ampere alternator; suitable for attachment of military Signal Corps equipment. Winch: 2500 kg tractive capacity.

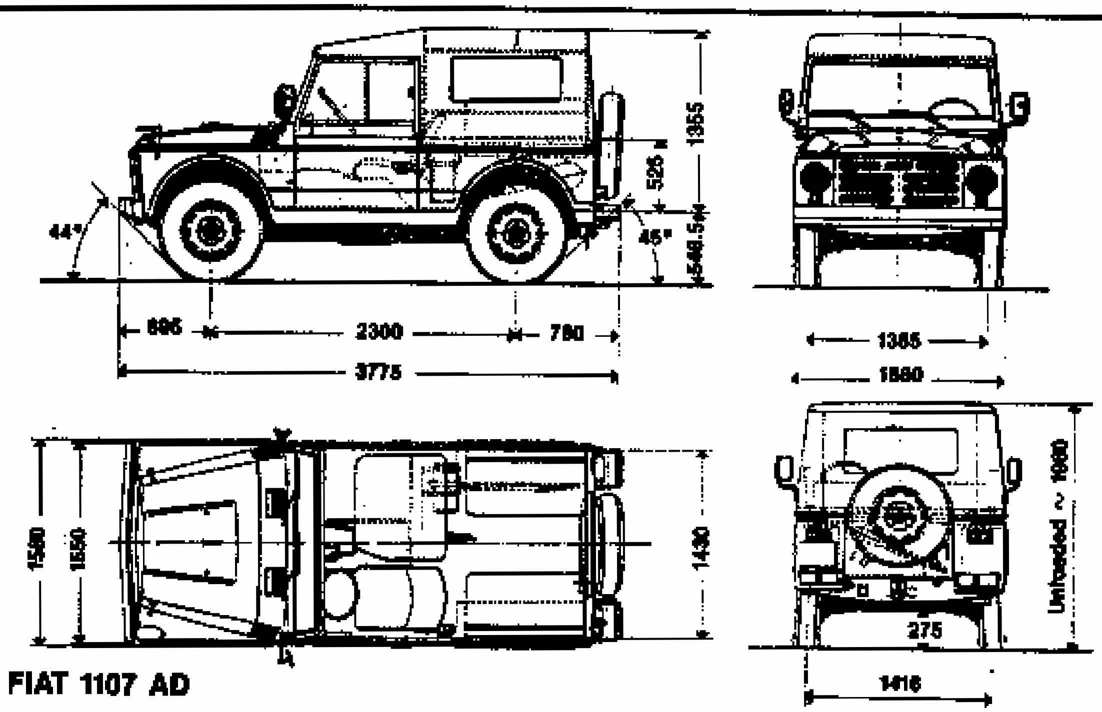




VCL (FIAT-MAN-SAVIEM)

VCL
(FIAT-MAN-SAVIEM)

Dimensions: length 4.05 m; width 1.5 m; height 1.93 m; ground clearance 0.35 m.
Weights: empty 2140 kg; payload 500 kg; total 2640 kg; towing weight 500 kg.
Suspension: all independent.
Engine & gearbox: in-line four cylinder petrol engine, 1995 cc, 75 HP; five forward speeds & reverse.
Performance: max speed 100 km/hr; speed in water with hydrojets 7.6 km/h, gradeability 60%; side tilt 30%; range 600 km; turning circle 5 m.



FIAT 1107 AD

FIAT 1107 AD
CANVAS TOP
STANDARD

Dimensions: length 3.77 m; width 1.6 m; height 1.35 m; ground clearance 0.27 m.
Weights: empty 1727 kg; payload 610 kg; overall weight 2337 kg; maximum towed weight 500 kg.
Suspension: all independent.
Engine & gearbox: four cylinder in-line petrol engine with a swept volume of 1995 cc, developing 80 HP. 4 forward speeds & reverse.
Performance: max road speed 110 km/h; range 400 km; gradeability 100%; side tilt 40%; turning circle 5.4 m.

WATERBORNE OPERATIONS

It may become necessary to infiltrate or exfiltrate teams by coastlines, harbors, rivers, lakes, canals, and other inland waterways. The method used will vary, based on the situation and equipment available, and may be accomplished by self-contained underwater breathing apparatus (SCUBA), small boat, or surface swimming. Methods can be further divided into the following categories: water airborne or airmobile landing sites (see also "helocasting"); inland waterway travel; and seaborne coastal landings.

Waterborne operations can be further broken down into slow or fast, in the case of river and seaborne methods, depending upon whether paddles or motors are used. Counterinsurgency warfare may require the use of small boats to conduct an entire operation in swamp or marsh territory. Surface swimming or SCUBA equipment may be used as well as small boats.

It may be necessary to combine methods, i.e., the team is air dropped for rendezvous with a submarine which delivers them to a drop-off point where they infiltrate the next leg using small boats, followed by surface swimming to strike an inland harbor and dock area, and so forth.

Depending on the type of mission, waterborne insertion and/or extraction may be safer or more hazardous. In the case of infiltration along a river route, the potential for ambush may be extremely high. However, a coastal landing may be a relatively safe means depending on the amount of coastal security the enemy employs.

Other than for entirely waterborne patrols and water air landings, operations would normally be conducted at night to reduce the risk of detection. As an aid to navigation, a strip map should be prepared on a strip of luminous tape showing checkpoints. This eliminates the need to fumble around with a map and is readable at night. Whenever possible, a prominent terrain feature should be used for the team to guide on during all phases of the operation.

Exfiltration will normally involve alternate pickup times, and possibly locations, over a two- or three-day period, or perhaps even longer. Specific signals, emergency procedures, and so on must be arranged. A variety of special equipment is required, and in many cases is interchangeable with any waterborne method of infiltration, exfiltration, or operation.

Small Boat Infiltration

This requires planning and training in the following areas: loading and unloading procedures, type of craft, route and release points, selection of beach landing sites and alternate sites, actions by supporting elements, emergency action procedures, navigational aids and signals, and special equipment. When selecting boats for waterborne operations, consider character and velocity of the water, weight and material of construction, stealth requirements, and speed. During operations in the Falklands the SAS found boats with keels and highly reliable motors to be essential.

Camouflaged flotation jackets should be worn. All sharp or pointed objects should be wrapped if an inflatable boat is used. Waterproof equipment as much as possible, and ensure that it is carefully packed and stowed, and secured to the boat in case it capsizes. Weapons should be secured to each member with a lanyard or extra long sling that allows them to move about while keeping their weapons secure. A second long cord should be attached from the weapon to the boat.

When planning equipment loading, spread the weight of equipment and personnel evenly throughout the boat. The weight should be kept as low as possible to maintain a low center of gravity. Tie paddles to the boat to avoid loss and wrap them to avoid noise. Tie lines to both sides for use if someone is thrown overboard, or in righting the boat if it capsizes.

Visual contact should be maintained between boats at all times. Consider tying a length of rope, with floats attached, for night movement or movement through rough waters. However, bear in mind that you may have to quickly cut the line to save one boat.

River Operations

When conducting a waterborne patrol, infiltration, or exfiltration along rivers, at least two boats should be used. The team should move by leaps and bounds, one boat covering the other as it moves ahead, and should remain close to the bank or overhanging vegetation for concealment. Bends should be approached with extreme caution.

Negotiating a river bend can be done in two different ways: the team can split, with one element going to ground to check the opposite side; or one element moves to a point on the outside of the bend and moves forward until it can observe downriver. The other element then quickly moves around on the inside of the bend and takes up a covering position. The method used will be determined based on a map study and general appearance of the area. The idea is to avoid running into an enemy force when you come around the bend. Movement may be endangered by slightly submerged obstacles, booby traps, and water mines. The choice of routes is generally more restricted, increasing the danger to the team.

When moving on inland waterways, study maps carefully and n key landmarks to verify your course and distar. Remember that rivers sometimes change course and may only flow during certain times of the year. Depths, current, and other factors can change quickly with the weather. Dams or irrigation or drainage ditches may not appear on maps.

The surface of the river directly in front should be closely watched. Lightly rippled water, where no wind is blowing, usually indicates shallow water, sandbars, or gravel bars. A long undulating wave, however, may indicate deep water or fast current. A smooth surface usually indicates deep water and slightly lessened velocity. A "V" in the surface of the water usually indicates an obstruction lying parallel with the direction of the current. The combination of current velocity and the size of the obstruction determines the size of the "V." A rolled surface at a particular point usually indicates an obstruction such as a log or tree lying perpendicular to the direction of the current.

Coastal Operations

When selecting a coastal insertion point, patrol craft should have been dispatched previously to locate radar "blind spots." Select an area with shallow waters, or nearby shallows, which will help protect the operation from deep-draft enemy craft. During insertion, radar detection efforts must be used to ensure the drop-off boat is not picked up. Sheets of aluminum or sheet metal can be placed around the superstructure of a wooden boat to aid in deception, then removed after nearing the drop-off point to change the radar signature of the craft. The craft should keep moving during the drop-off and continue on at the same course and speed for a short distance to deceive radar or coastal observers. Use rain squalls, high waves, and general bad weather to help mask the operations, providing it is not so bad as to endanger the team's survival.

When a suitable open-water landing area is located on charts or maps, the actual tides, prevailing winds, wave patterns, light data, weather and distances involved must be closely reviewed. Assistance from experienced naval planners should be considered a must. Attachment of a naval liaison officer should be arranged when extensive joint operations are to be conducted with naval units. A lee shore will generally be chosen, usually just around a headland, or the landing. The actual landing site should afford easy and quick unloading and traverse, nearby cover, and, if needed, nearby hiding places for boats and equipment.

Surface Swimming and SCUBA

Underwater (SCUBA) operations require that personnel have extensive training in the use of sophisticated equipment. Also, some personnel are not psychologically or physiologically capable of performing underwater operations. Surface swimming techniques were originated and developed by the Royal Danish Navy to overcome these limitations and have been further developed by the U.S. Army Special Forces.

Using surface swimming techniques and equipment, it is possible for personnel to swim distances of up to 10,000 meters in water with temperatures as low as 28° Fahrenheit. In addition, the swimmer's low profile makes detection by the enemy extremely difficult.

Teams equipped with boats, surface swimming equipment, or SCUBA equipment can be delivered to their infiltration drop-off point by air, surface craft, submarine, or even land vehicle, which may include amphibious aircraft which land and drop off the team; non-amphibious aircraft for parachute insertion (static line, HAHO, or HALO), or helocasting; submarines, for surface launch, broached or "wet deck" launch, or bottom lockout or submerged launch; and surface craft.

Surface craft delivery may include high-speed water entry from Fast Surface Interdiction Boats at speeds of up to 25 knots to aid in masking the drop-off.

Surface debarkation of swimmers. Swimmers may debark from the conning tower of a broached (partially surfaced) submarine. Debarkation of more than two swimmers at a time usually requires that the upper and lower conning tower hatches be opened simultaneously, a practice that the release point. Ram Air canopies can fly approximately 30 miles per hour and have a glide ratio of 4 to 1 or better.

HALO parachute procedures have the disadvantage of requiring the delivery aircraft to enter enemy airspace to get the team on target.

HAHO parachute procedures. Instead of entering enemy airspace, it is possible for the aircraft to remain over friendly territory, with the team deploying its canopies upon exit and using high-glide technology to fly as much as 25 to 30 miles from the exit point into the denied area.

HAHO uses high-performance nonrigid gliding canopies, and exit from high-performance aircraft at altitudes up to 30,000 feet, while HALO can utilize virtually any steerable parachute of current design, but may also employ the same nonrigid gliding canopies.

Although the use of HAHO/HALO operations during training and peacetime covert operations have proven highly successful, the situation must be viewed with realism. To remain proficient in HAHO/HALO requires frequent training, and preferably the ready availability of a high-altitude training chamber. If these aspects cannot realistically be made available, then other forms of infiltration must be considered, with HAHO/HALO reserved for special high-risk missions.

HAHO and HALO jumpers both must operate at altitudes (over 15,000 ft.) for extended periods of time where the oxygen content of the air has insufficient pressure to be used in the body, which decreases the supply of adequate oxygen to the blood cells.

Hypoxic hypoxia is a lack of sufficient oxygen due to high altitude. Prolonged hypoxia results in unconsciousness, brain damage, and death. At 25,000 feet, the time of useful consciousness is three to five minutes. At 35,000 feet it is only 30 to 60 seconds. It is easily prevented by the use of in-flight oxygen breathing, frequently performing jumpmaster and buddy system checks on each other and the complete oxygen system, carrying adequate oxygen to descend to below 10,000 feet, and finally formulating a contingency plan. Other forms of hypoxia are listed below, and can be prevented by frequent medical checks and good physical conditioning.

1. Hypemic hypoxia, a reduction in oxygen capacity caused by a reduction in circulating hemoglobin as a result of anemia or excessive smoking.
2. Stagment hypoxia, oxygen deficiency due to poor circulation.
3. Histotoxic hypoxia, inability of the blood to use oxygen, caused by alcohol or drugs.

Team members must constantly watch each other for signs of hyperventilation. The anxiety and stress involved not only in HAHO and HALO operations, but in the LRP operation itself, may cause you to overbreathe and suffer from hyperventilation, which causes an imbalance of CO_2 in the blood and can lead to unconsciousness. As the aircraft ascends to operational altitude, any gases in the body expand, creating discomfort in the sinuses, intestines, and ears. All of these problems are lessened by frequent chamber training allowing early recognition of the problem, continual in-flight examination, and the use of minimum oxygen pre-breathing times.

Cold is another physiological factor affecting HAHO/HALO operations. As a rule of thumb, temperatures drop 3.5°F for every 1,000 feet of altitude. During a typical 100-degree desert day, the team could expect temperatures of −5°F at 30,000 feet, making the danger of hypothermia very real. In addition, you have to add in the windchill factor, which at 100 miles per hour would drop the temperature to −50°F, resulting in exposed skin becoming instantly frostbitten.

Weather must be closely checked, and winds aloft checked at 3,000 meter intervals up to the planned exit altitude. You must compute a weighted average of the wind speeds in order to determine wind-drift distances.

For HALO operations, you would need to compute wind-drifting free-fall, which is done using the formula D=KAV; where Drift equals constant (K=3) times altitude in hundreds of feet times wind velocity. A parachutist will drift three meters for every one hundred feet of fall for every knot of wind. To calculate the drift under canopy for HALO or HAHO, K=4 for a Ram Air chute.

Constant team training in "grouping" or "relative work" is essential for bringing the team down together with pinpoint accuracy. Continuous and thorough training in theory, equipment, aircraft procedures, malfunctions, canopy control, hazardous landings, and other aspects of parachuting are essential for maintaining an effective and successful HAHO/HALO operational mode. If this training time is not realistically available, look elsewhere for a means of insertion.

the chance of detection and the amount of time in critical high-hover flight altitude. Normally the maximum rappelling altitude is 100 feet.

The rope deployment problem was basically solved by personnel at the U.S. Army Jungle Operations Training Center (JOTC) in Panama and consists of fabricating a rope deplnyment bag issued as a component part of the Stability Operations Extraction System (STABO).

To make the rope deployment bag:

1. Use a flat piece of canvas about 48 inches long and 18 inches wide. Bar-tack to it two parallel strips of type III nylon the length of canvas, approximately two inches in from the edge.
2. Next, turn up the bottom nine inches, sewing it along the sides to form a pocket. Fill the pocket with a partially filled sandbag. This weight will ensure that the ropes deploy fully. The sandbag should weigh approximately two to three pounds. If deploying the ropes through an adequate opening in the trees or over open ground or water, the weight is not necessary, but doesn't hurt, either.
3. Tack the two parallel nylon strips, along the sides, every two inches, and secnre retainer bands (type 64 rubber bands work fine—big ones!) between each tack, similar to those on a "D-Bag." Sew a two-inch strip down just above the weight pocket, and centered, at the top center of the bag.
4. Prepare the ropes in a normal rappel or STABO configuration and stretch them out to full length. Place the bag at the loose ends (ground ends).
5. Make sure all the rubber bands are present, and then form a bight in the running ends of the rope, and place it in the retainer band centered above the weight pocket.
6. Fold the rope in an "S" fold and stow it in the retainer band, working from side-to-side, making sure the folds do not extend past either edge of the bag. Place six to eight folds of rope in each band, working toward the top of the bag. Then form a bight in the rope 24 inches below the first snap-link, at the anchor end, and stow it in the top center retainer band.
7. Inspect the rope and retainer bands, then roll the bag from bottom (weight pocket) to top, leaving the snap-links at the anchor end exposed. Secure the top flap of the bag—tape works fine.

The other problems revolve around actually rappelling with the equipment load carried by a normal LRP team. If you have ever tried balaying yourself with an extremely heavy load while zipping down a slick nylon rope, you know what I am getting at. Although in theory, and in most instances, you will be able to slow or stop your descent well enough to avoid injury, it is not always possible. For those occasions, the solution is really rather simple. The principal drawback is that the time required to complete the insertion is almost doubled. All that is necessary is to have personnel in the aircraft send the team's rucksacks down after they are on the ground. Hook a snaplink onto the frame of the rucksack, put the rappelling line through, and toss it over the side. The team on the ground lowers it by balaying the lines accordingly. However, it is generally safer to rappel with equipment on rather than extend the aircraft's hover time.

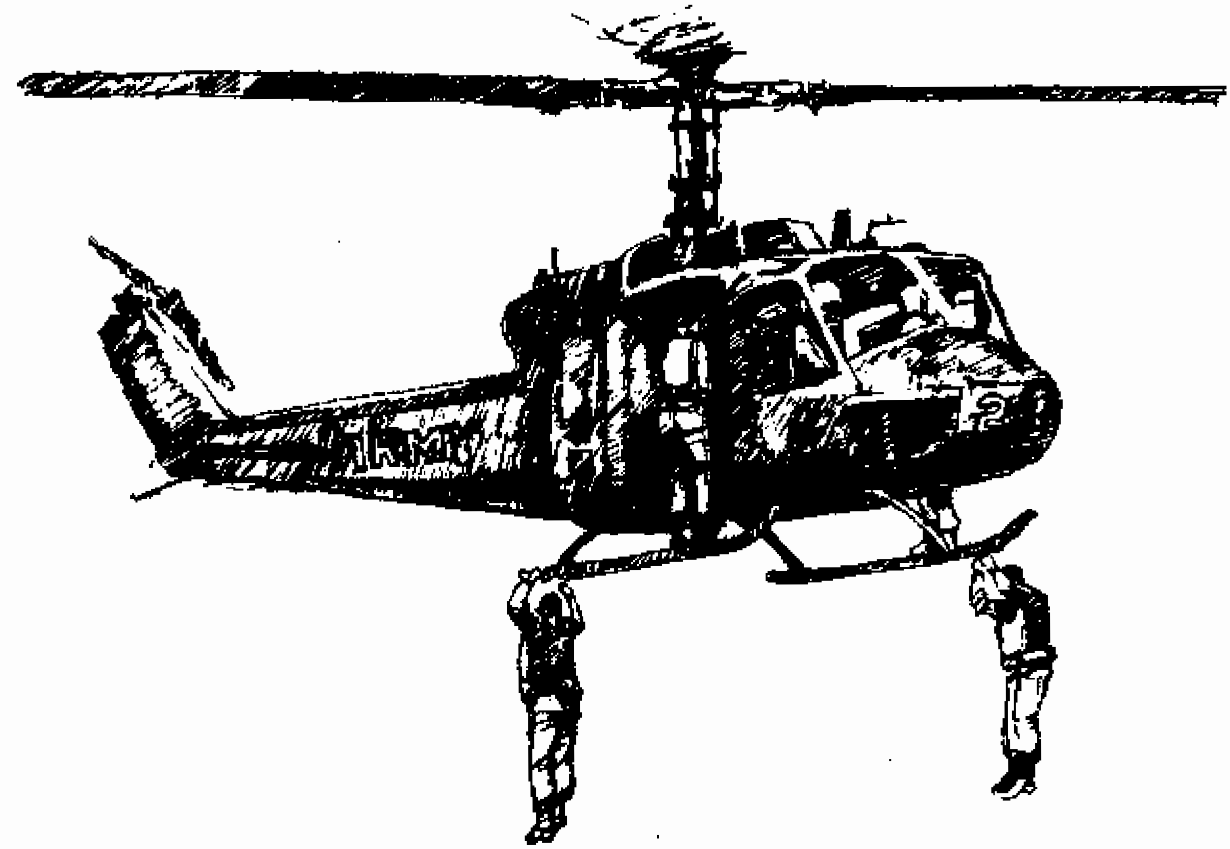
Airborne Operations

Airborne (parachute) operations require detailed planning, extensive training, and generally good weather. They also require disposal of equipment after insertion, and have a higher possibility of injury than ground, water, or helicopter operations. Airborne operations include HAHO (high altitude, high opening), HALO (high altitude, low opening), and static line jumps. Airborne insertion is extremely high risk for LRP-type operations due to the seven-percent injury rate associated with airborne drops and the small size of the element being inserted. A mission could be quickly scrubbed due to injury, with little ability to extract the team quickly. However, with all the possible faults, HAHO and HALO operations both offer a considerable degree of stealth and surprise.

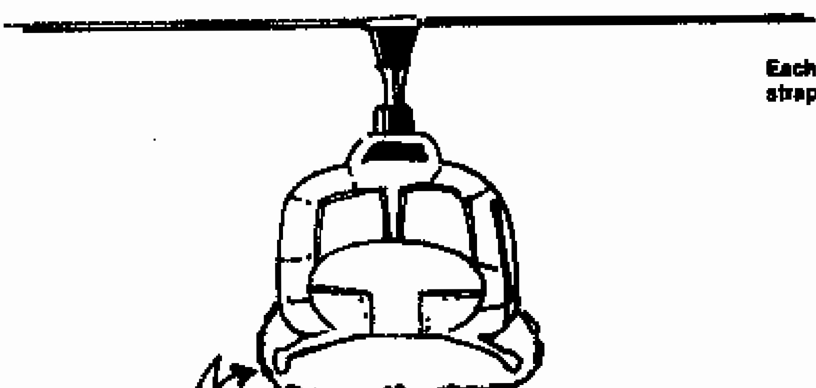
Equipment, training time, and level of expertise required are in general terms the primary drawback to HAHO and HALO operations. However, to reduce this problem, it is feasible to have only certain teams or units designated to conduct HAHO/HALO insertions to support strategic LRP missions, with the other teams and units utilizing more conventional methods.

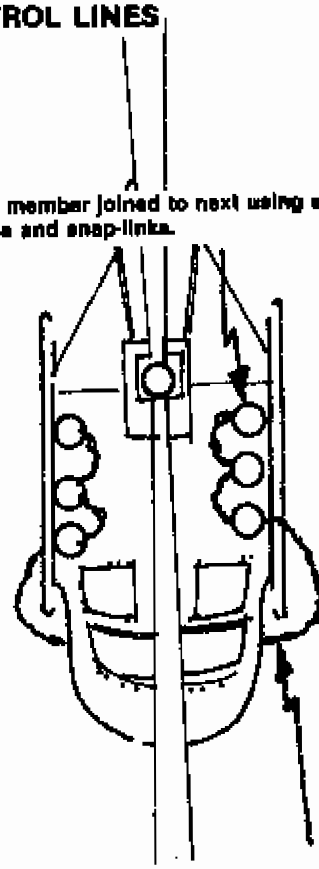
HAHO/HALO OPERATIONS

Current concepts call for deep insertions of special operations teams to be made by either static line or free-fall deployment of Ram Air airfoil section canopies at altitudes between 20,000 and 25,000 feet. The team then directs their canopies to a target area approximately 25 to 30 miles from



HELOCAST SAFETY AND CONTROL LINES





Safety-control line links team together using individual sling ropes or straps and snap-links. Rucksacks would be attached to 60 foot quarter-inch or smaller lines, which would be attached to each team member's harness, and the rucksack held in the lap. Rucksacks would be tossed first, followed by personnel. Aircraft would hover during drop.

Line linking TL and ATL emplace at loading, using TLs and ATLs sling ropes or straps and snap-links.

of insertion, helocasting also has its drawbacks. The advantages are:

1. The aircraft can fly nap-of-the earth throughout the mission to lessen its vulnerability to enemy fire.
2. Teams can safely exit the aircraft at altitudes up to 50 feet and at air speeds of up to 50 knots (10 knots preferred), allowing the aircraft to keep moving, increase deception, and avoid becoming a stationary target.
3. The number of possible LZs is increased considerably in some areas.

The disadvantages are:

1. There is little cover for the team if it is discovered upon insertion.
2. Additional equipment is required to move the team to shore.
3. Team equipment must be bundled, unpacked, and secured by the team members after insertion, increasing their time near the LZ.

An LZ must be reasonably clear of water debris, and at least 15 feet deep. If using a river, the current must be negotiable by the team with their equipment bundles.

Rather than employ a raft or rubber boat, the equipment bundles should be floatable, and each team member must wear a flotation vest of some type. Small air bags that can be inflated, deflated, and reinflated, located inside waterproofed rucksacks, would be the preferred option. Individual vests must be camouflaged and preferably dual-purpose, i.e., inflate for use, deflate for later use. Air bags and vests are inflated after they hit the water. This can easily be accomplished using lanyards for the equipment bundles which are long enough to allow the bundles to hit the water prior to being pulled, similar to a static line. Vests would be inflated by the team members either individually or using the same process.

Helocasting is similar to an airborne drop, in that equipment checks must be made, a jumpmaster employed, and a specific body position used. Personnel should exit the aircraft in pairs on a signal from the jumpmaster. They must clear the aircraft in a manner similar to parachuting, and as they clear the aircraft assume the proper body position.

Helocasting body position. Cross your arms across your chest; turn so that you are facing the opposite direction of the aircraft's flight path; keep your head erect, eyes focused on the horizon, and feet together until you hit the water. Upon entering the water and activating his flotation vest, each team member holds one arm straight over his head to signal that he is okay.

Wet extraction, either to abort the mission due to detection or injury, or upon completion of the mission, can be accomplished via STABO rig. For end-of-mission extraction, the team would enter the water, swim to the center of the LZ, and await arrival of the aircraft. In most instances, if they can enter the water undetected, they will be relatively secure until arrival of the pickup aircraft. A strobe light is used to mark the pickup point.

A properly designed vest and flotation device for the rucksack includes CO_2 cylinders for initial insertion use, and is inflatable by mouth for use during the course of the ground mission or if a "wet" LZ should become necessary for extraction. After the team is safely in the water after helocasting, the CO_2 cylinders can be discarded at the bottom of the LZ . Vest and rucksack buoyancy must be closely evaluated to ensure adequate function based on actual weight.

When the use of SCUBA equipment is desirable, you should be able to tie flotation equipment into the SCUBA tank to allow adjustment of the buoyancy. Ideally, you should be able to inflate and deflate in order to adjust your position in relation to the water's surface to aid concealment. At the time of this writing, a vest and rucksack flotation kit are currently under development through commercial sources and should be available in the near future. The vest can double as a survival, combat, and flotation vest, while the rucksack kit allows considerable adjustment in buoyancy, and includes static line activation.

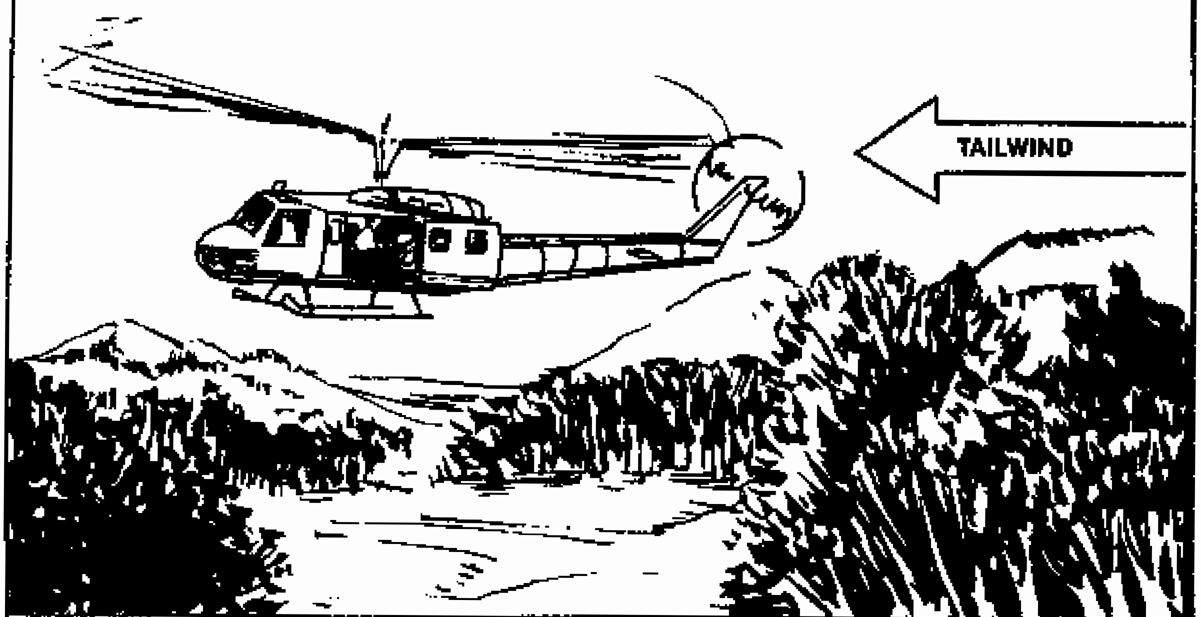
HELICOPTER RAPPELLING

Although a reasonable alternative for insertion, rappelling has its drawbacks and problem areas, not the least of which is deployment of the ropes. A single medium lift helicopter, such as a UH-1H, is capable of inserting a six- to eight-man team by rappelling, in addition to a safety NCO or officer. Due to the potential for injury, rappelling insertions should be a last choice. Although rappelling offers excellent surprise and deception, the weight of equipment normally carried by the LRP will increase the level of difficulty.

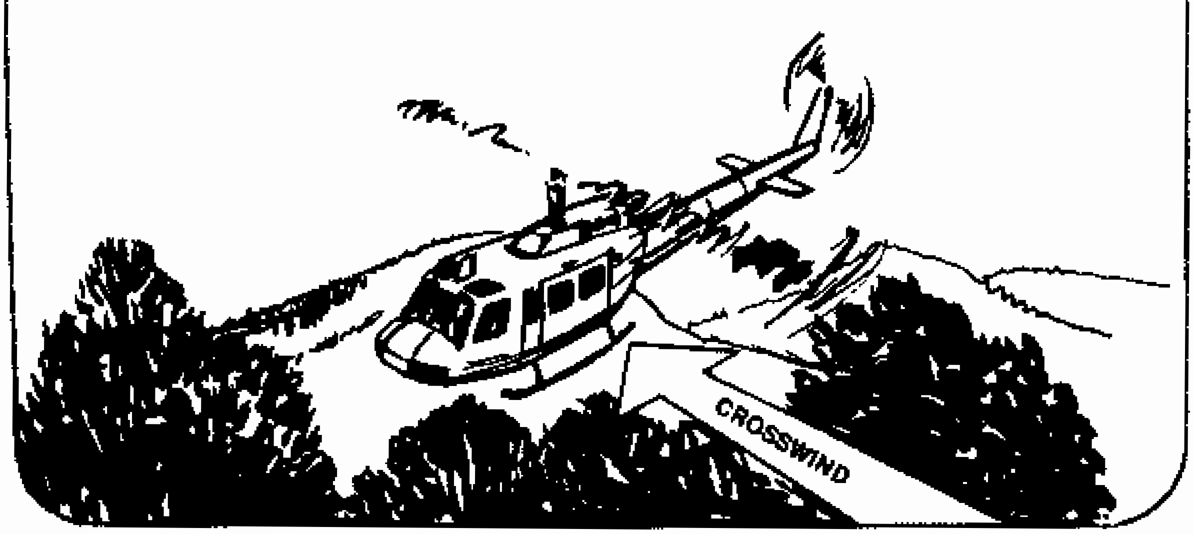
As the aircraft approaches the release point, the team should be hooked into their ropes and ready to make the descent. They would stand on the skids (UH-1H series), facing inward. The aircraft must be cleared as expeditiously as possible to reduce

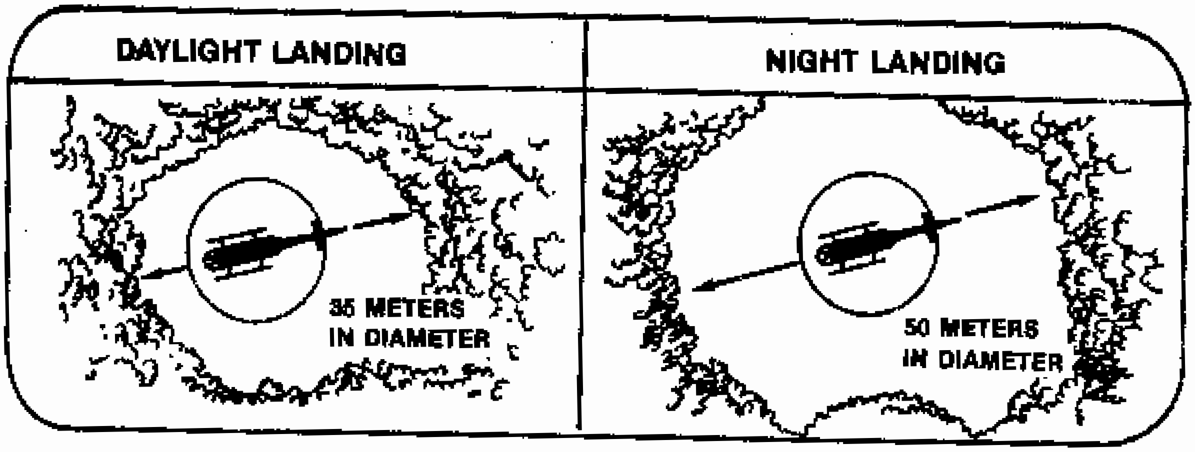
UTILITY AIRCRAFT CANNOT LAND WHEN—

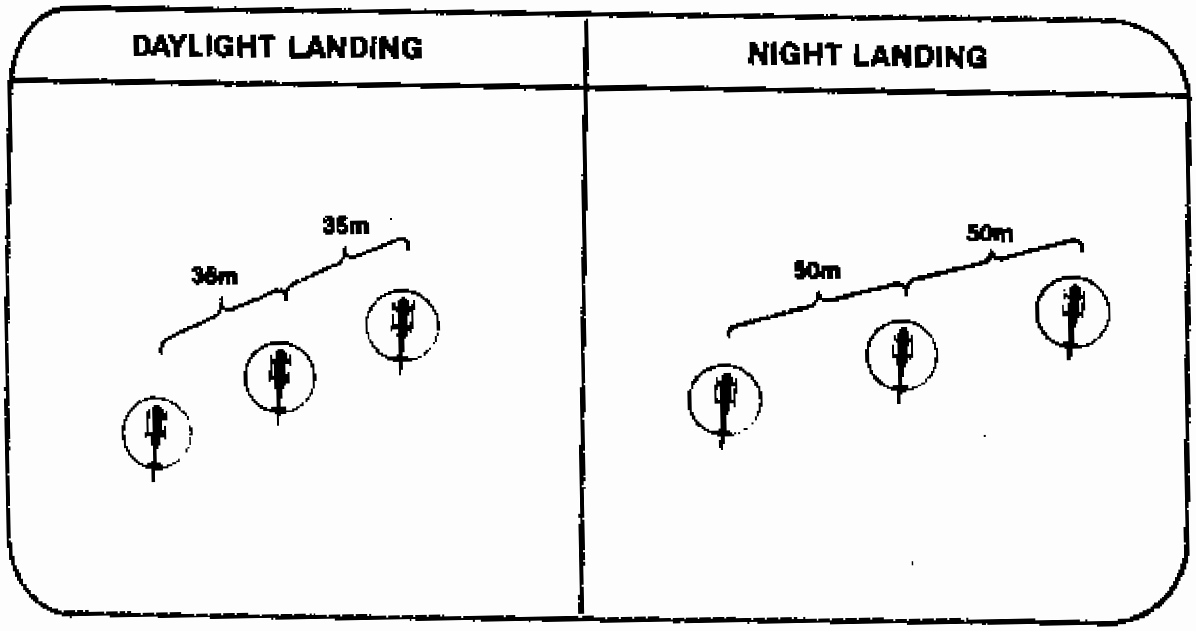
Downwind (tailwind) speed is 5 knots or more.

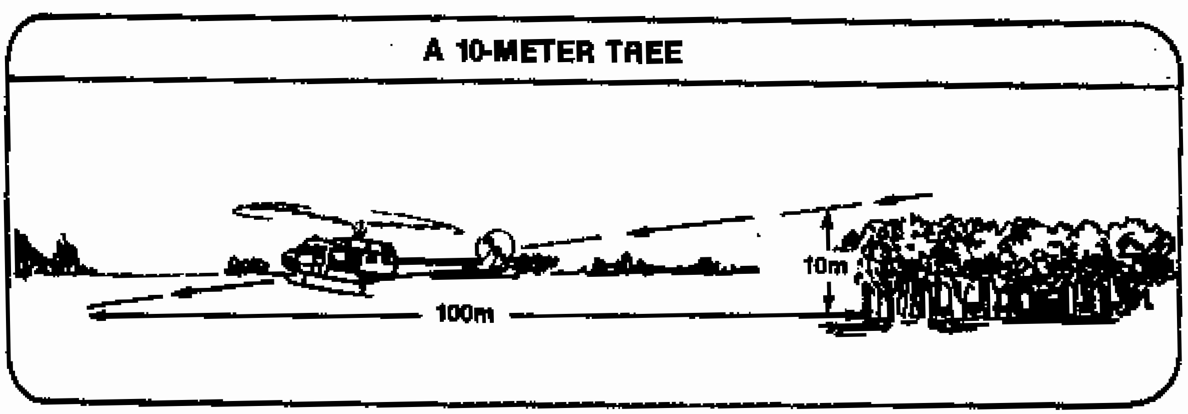


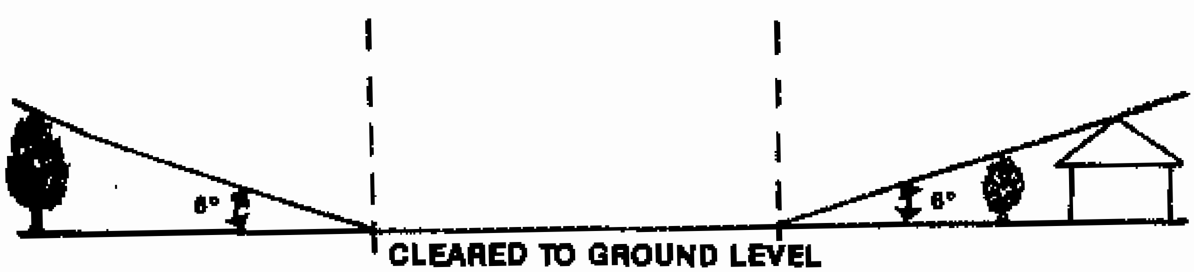
Crosswind speed is 10 knots or more or the wind gusts are 15 knots or greater.

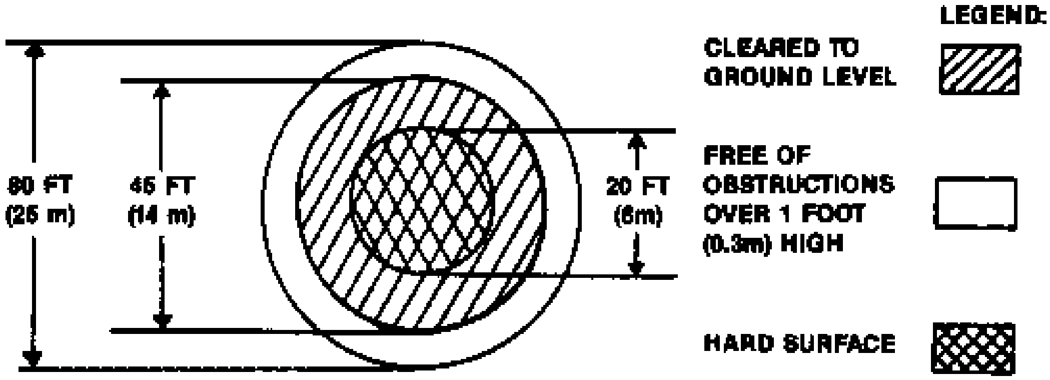



DAYLIGHT LANDING
35 METERS
IN DIAMETER
NIGHT LANDING
50 METERS
IN DIAMETER

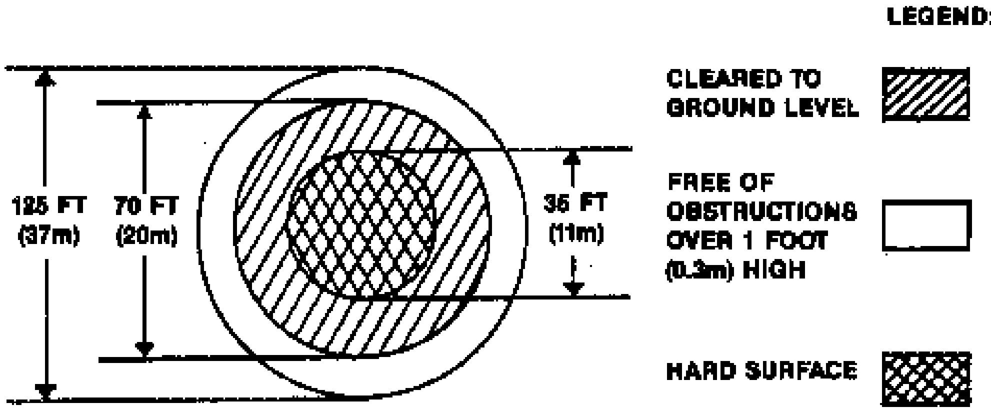

DAYLIGHT LANDING
35m
35m
NIGHT LANDING
50m
50m


A 10-METER TREE
10m
100m

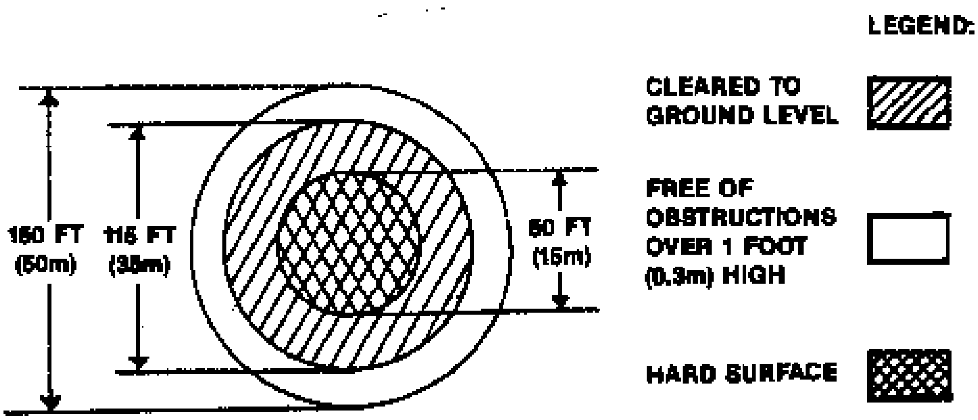

6°
6°
CLEARED TO GROUND LEVEL



Small landing point.



Medium landing point.



Large landing point.

HELICOPTER LANDING ZONES

Team personnel must be skilled at selecting suitable landing sites for supporting helicopters. The actual size and orientation, and other factors, will vary based on the aircraft to be used, size of the team, wind factors, and so on. However, for general planning purposes, the following criteria should be used:

LZ approach and exit. Ideally there should be obstruction-free approach and exit routes into the prevailing wind; in conditions of light wind, a single approach/exit is acceptable. The normal maximum obstruction angle, measured from the outer edge of the central cleared area, should be no more than 6 degrees, or one in ten. For planning purposes, a ten-meter tree would require 100 meters of horizontal clearance. Greater obstruction angles may be acceptable, but must be confirmed by aviation personnel. As many Vietnam vets will attest, a really good chopper pilot can get in and out of a mighty small hole when he needs to. I have personally seen pilots trimming tree limbs as they hovered to pick up my team after a mission. Of course, this must be the rare exception, and not the normal rule.

Landing point. The landing point consists of the pad area where the helicopter actually sets down, and the cleared area around it for blade clearance. The ground should be as free as possible of rocks, tree stumps, and loose objects that can become flying hazards in the rotorwash, or that could cause main or tail rotor-blade strikes or damage to the underside of the aircraft. If the aircraft must actually set down, the ground must be sufficiently firm so that it does not sink into the surface. Snow should be packed to reduce blowing, and a marker is essential to provide a visual reference for depth perception and reduce the effect of white-out. As a general rule, helicopters will require a larger landing point at night than during the day.

Dimensions. There are three general sizes, based on aircraft lift capability, size, and climate conditions: small, medinm, and large. The general dimensions, or at least desirable dimensions, are shown in the accompanying illustrations. For night operations, increase dimensions by approximately 40 degrees. If more then one aircraft is to land at the same time, the following distance between landing points, measured center to center, should be used:

Small: 80 feet (25 meters)
Medium: 115 feet (35 meters)
Large: 165 feet (50 meters)

Ground slope. The ground should be relatively level, and the slope should not exceed 8 degrees (or 15 percent, or one in eight) if the aircraft is to land. However, at the pilot's discretion it may be possible for a helicopter to hover just in contact with the ground on slopes greater than 8 degrees. The cleared ground around the actual landing point should not exceed 10 degrees in slope. When the slope is less than 4 degrees, they should land up slope, and sideslope when it is 4 to 8 degrees.

Concealment. The locarion of the landing site and approach route should afford masking from enemy observation and radar whenever possible.

Prevailing winds. Unless wind velocity exceeds ten knots, concern yourself with concealment of the route rather than direction. The ability to land crosswind or downwind will vary depending upon the type of aircraft. Smaller aircraft can accept less cross or tail wind than larger ones. If the wind velocity is over ten knots, select an approach and exit route that is directed into the wind.

Density altitude. The density altitude is determined by altitude, temperature, and humidity. For planning purposes, as density altitude increases, the size of the landing site must be increased proportionately. Generally speaking, high, hot, and dry condirions at a given landing site will decrease the lift capabilities of helicopters.

Again, these are ideal sites, which for the LRP may be very rare. The maximum slope, size, and obstacles can vary considerably, especially when you consider that the helicopter will not normally set down. The size would normally have to be increased in mountain areas due to wind turbulence and reduced lift capacity in thinner air.

HELOCASTING

Helocasting is a technique in which the team free-drops into a water landing zone from a helicopter that flies at low level and reduced air speed or hovers over the drop point. After entering the water, the team swims ashore with its equipment to continue the mission. Because these landing zones can be used day or night and are less likely to be under observation or boobytrapped, they offer an excellent possibility for use by the LRP team. Of course, as with any method nel is multiplied by 240 (260 for airborne drops) to arrive at the load weight (or divide the aircraft ACL by 240 to determine the number of personnel). However, for LRP operations with their significantly higher mission load weights, a figure of 300 pounds should be used to allow for an adequate safety margin. Better yet, weigh the personnel and their equipment if the margin of error is really tight.

Each team member must be familiar with the general characteristics, capabilities, flight characteristics, limitations, and emergency procedures for any aircraft flying operational support. For helicopters they must be thoroughly familiar with landing zone dimension requirements, including the maximum vertical height of obstacles located around the approach paths to the LZ.

Training in Pathfinder subjects should be considered essential, with at least two members of each team being Pathfinder-qualified. As an additional force capability multiplier, at least one LRP team per patrol platoon should be fully Pathfinder-qualified in order to locate, mark, and control drop zones, landing zones, and combat airheads for deep penetration airborne raids and assaults by airborne or airmobile infantry and Ranger combat operations.

Aircrew and LRP Team Briefings

Prior to any air operation, aircrews and LRP personnel must be fully briefed on emergency procedures in the event the aircraft is shot down or crashes. These aspects should also be included in routine unit training programs. The pre-mission briefing should cover the following specific actions or areas:

1. Direction and distance from the aircraft;
2. Equipment to be removed from the aircraft, and its location;
3. Location and procedures for destruction of sensitive equipment;
4. Order and means of extraction;
5. Individual actions of crew and team members;
6. Handling of wounded and dead;
7. Location and use of emergency exits;
8. Method of exit from the aircraft if all doors are jammed;
9. Actions for forced landing or crashes in water;
10. Location and type of survival and first aid equipment.

Helicopter Operations

The helicopter is an excellent tool for LRP force insertion and extraction. The use of helicopters requires limited prior training, offers rapid travel time, flight accuracy, immediate extraction capability, and reduced danger of injury. Landing zones may be extremely small or even nonexistent. The helicopter can be used for helocasting, rappelling, air-landing, and parachute operations. Troop ladders may also be used, though they are extremely slow. Extraction may also be accomplished by STABO rig or winch.

Under normal conditions (hail, sleet, icing, winds greater than 40 knots, or wind gusts up to 15 knots will normally prevent their use), helicopters can climb and drop at steep angles, thereby flying in and out of tightly confined areas and use terrain and trees for cover during flight. A typical insertion by helicopter would involve picking the least likely landing zone. The helicopter carrying the team would try to spend the minimum amount of time near the ground, and hovering over the LZ would be avoided as much as possible.

Personnel can be off-loaded while the helicopter is hovering a short distance above the ground by troop ladders and rappelling ropes. The team can jump from the helicopter at the slowest and lowest point in the approach pass. By having the helicopter speed through its pass, the distinctive sound of hovering can be almost totally eliminated.

Helicopter insertions can be enhanced by dipping in and out of dummy landing zones and generally hopping about to confuse the enemy. Supporting aircraft could slow down as the actual insertion is made to create the impression that the flight actually never stopped moving. Fake insertions can add to this effectiveness, as can direct exchange insertions where one team is dropped off and another is extracted at the same time and point. If the enemy was aware of the original team's presence, it would be an even chance that they would assume it had been extracted, but not that a fresh team had been inserted. Cardboard silhouettes made to resemble men can be stood up in the floor of the aircraft as the team exits to deceive the enemy further.

Following insertion, the aircraft should loiter in the general area for twenty to thirty minutes in case the team runs into trouble and must be extracted.

or when working near acoustically activated demolitions. Their primary use in the teams is for training and searches. The depth limit is 130° due to the increasing effect of nitrogen narcosis beyond that depth. Normally, open circuit dives requiring decompression should not be conducted. When decompression dives are required, the UDT Diving Barge with its chamber should be on the scene, as available.

The open circuit SCUBA unit presently furnished by BUSHIPS and on the UDT Allowance List is regulator and cylinder assembly, low magnetic effects model FSN S4220-541-7397. This is a low magnetic effect model designed for EOD use with non-accoustic mines, and consequently all replacement parts are to be requisitioned only from Ship Parts Control Center, Mechanicsburg, Pennsylvania. Requests for parts must specify nonmagnetic parts.

The unit is manufactured by U.S. Divers and utilizes their DA Aqua-Master regulator attached to twin 90s. The bottles are constructed of spun aluminum and each has a nominal internal volume of 725 cubic in. When charged to 3000 psi, the assembly contains approximately 170 cubic feet of free air. Weight when charged is 90 pounds. Technical Manual 394-0065 provides repair and maintenance instructions and part numbers.

Semi-closed circuit. The MK VI is a low-magnetic effects model which consists of the following parts; two high pressure spun aluminum cylinders (84 cubic feet at 3,000 pounds test pressure; 5,000 psi); and a high pressure brass manifold valve assembly; a single stage, aneroid controlled, constant mass flow regulator assembly; a control block assembly; a canistar assembly; a detachable breathing bag and vest assembly; an exhaust valve mounted in the exhalation breathing bag; a monthpiece "T" tube assembly; and a back plate.

Closed circuit. The primary advantages of closed circuit equipment are that it is quiet, can be utilized effectively on long, shallow swims, is hard to detect, is economical of gas, and is comfortable to wear. 100% of the gas media can be utilized and the gas consumption is dependent only on the work rate, not on depth. Disadvantages include depth limitations (oxygen becomes extremely toxic at two atmospheres); the delicacy of the equipment; the consequent length of time spent in training, preparation, and maintenance; and the reduced work rate necessitated by the possibility of rapid CO_2 buildup. The apparatus lends itself excellently to SCV and/or sneak attack operations.

Emerson. The EMERSON Closed Circuit Oxygen Breathing Apparatus, hereinafter referred to as the Emerson, was accepted by and phased into the U.S. Navy on or about June, 1963. It replaced the German made DRAEGER LT LUND II, which had in turn replaced the Italian made PIRELLI 901 and 701. The Emerson is a recirculating, closed circuit, self-contained oxygen breathing apparatus. It has a 12.7 cubic foot (359.6 litre) standard oxygen cylinder which can be charged to 2000 psi, and a cylindrical canister which will hold approximately 6 pounds of baralyme. It has a useful duration of up to four hours at a moderate work rate (1 litre/minute). Other major components include the gas supply control unit (waist valve) which can be set to provide a constant flow of 0 to 3.5 litres/minute, a by-pass valve which permits 75 psi air to pass directly into the right breathing bag, two breathing bags (each with a 4 litre capacity) attached to a zippered vest with common sense fasteners, a regulator preset to 75 psi, and a mouthpiece assembly fitted with non-return valves and a 2-way (off/bag) valve. The completely assembled unit weighs about 35 pounds out of water (including baralyme), and is approximately neutrally bnoyant underwater. The nnit is carried under FSN 9L6505-053-2461, and is covered in Instruction Book NAVSHIPS 393-0656. The use of granular, as opposed to pellet, baralyme, is required by Naval Operations Support Gronp, Pacific, Instruction 9940.1.

AIR OPERATIONS

Air landing, airdrop, and aerial extraction operations may be conducted to infiltrate and exfiltrate teams, resupply deployed teams, evacuate casualties, and extract captured personnel or eqnipment. LRP operations will normally be supported by light or medium lift, fixed or rotary wing, aircraft using improvised landing strips, concealed drop and landing zonas, and as much deception and stealth as possible.

Operational mission capabilities will be dictated by the type of aircraft available, terrain, temperature, humidity, wind conditions, fuel load, allowable cargo load, and altitude of the pickup zone (PZ), landing zone (LZ), or drop zone (DZ). A primary planning characteristic is the allowable cargo load (ACL) of the available aircraft. For regular infantry operations, the number of persondard rucksack. The rucksack must be tested in water to determine the amount of weight or flotation which must be added to achieve neutral or slightly positive buoyancy. This testing must be done in salt water if operations are to be conducted in salt water or in fresh water if operations are to be conducted in fresh water. Because the volume of water displaced by each rucksack varies, it is very difficult to reliably predetermine the correct buoyancy.

Weapons carried by surface swimmers should be lightweight, automatic, easily assembled and disassembled, and lend themselves to waterproofing. Experience has shown that the only waterproofing required for the M16 is a coat of standard lubricant. If operations are conducted in salt water, the weapons should be rinsed in fresh water and thoroughly cleaned as soon after reaching the beach as tactically possible.

Demolitions may be required to destroy bridges, shipping, or harbor facilities. When the tactical situation permits, an electrical system is preferred as waterproofing of the blasting cap is not needed. Salt water is a semiconductor of electricity; the electrical system must be shunted prior to inserting the blasting cap.

When a nonelectric system is used, the entire system may be waterproofed as follows:

1. Determine length of time fuse needed and place one end into the fuse lighter.
2. Place the fuse lighter, to include at least 1 inch of fuse, into a balloon, withdraw all air, and seal.
3. Place the other end of the fuse into the blasting cap and crimp.
4. Use putty or clay to seal the blasting cap opening and then dip six to eight times in waterproof paint or varnish, letting dry after each dip.
5. Place cap in demolition at objective. Pull fuse lighter pin through balloon to ignite.

These are but a few of the techniques which may be used to waterproof equipment. There are many other nonstandard items which may also be used. For example, car or truck inner tubes, which have been cut and clamped on each end, may be used for equipment too long for the rucksack or modified container.

RIGGING

Equipment bundles are towed by lines attached to the swimmer's weight belt. For safety reasons, tow lines should never be attached directly to surface swimmers. Individual weapons are attached to equipment bundles or to the swimmer. When attached to the swimmer, the M16 will be rigged as follows:

1. Remove sling from front swivel, and attach it to the carrying handle.
2. Install the sling keeper so that the running end of the sling forms a quick release. In emergency situations, an upward pull on the free end of the sling will release the keeper and the rifle will fall free of the swimmer.
3. Tape sling keeper in place.
4. Place the weapon on either side of the body with the sling across the chest and over the opposite shoulder, depending on whatever position is most comfortable to the individual.

DRY SUIT COMPONENTS

The one-piece main suit body is fully vulcanized and made of a strong rubber-coated polyester fabric with double thicknesses at wear points. This light material allows complete freedom of movement and the smooth surface gives a minimum of swimming resistance. The cut of the suit is designed to permit additional layers of thermal protection as required.

The Latex hood is used to seal the suit around the face and neck. The neck ring (worn under the Latex neckpiece) and Latex band are used to insure a watertight face seal. The polypropylene neck ring seals the hood to the Latex neckpiece of the main suit body. The Latex band, approximately two inches wide, is used to complete the seal. This seal provides for full air protection of the body, neck, and head.

A pure Latex neckpiece affords easy entry into the dry suit. It is also used to make the watertight seal between the hood and main suit body. The cuffs are made of a pure Latex material and allow a variety of gloves to be attached to the dry suit. Heavy treaded rubber boots are rugged for long wear and are designed to fit comfortably, allowing for additional layers of warm socks.

SCUBA MODELS

Open circuit. This is the least economical of all types of SCUBA, for only five percent of the available breathing is utilized. Because of this, and because of the large amount of bubbles and noise emitted by the units, open circuit cannot be used for extended swims, where secrecy is necessary.

3. Weights (normally made of lead) should have smooth edges to preclude damage to the dry suit.

COMPASSES AND WATCHES

There are numerous wrist compasses and watches manufactured for surface swimming operations. Whatever types, they must be waterproof and have luminous dials with large numerals. To avoid magnetic interference, the wrist compass should not be worn on the same arm as the watch.

The straps on both the wrist compass and watch should be of nylon, leather, or plastic and should pass under the device and over both retaining pins. Expansion bands are not suitable, nor are two-piece bands which fasten on each side of the device. With a one-piece band, the device will still be held on the wrist even if one of the pins should fall out of place. Additionally, the strap should be large enough to fit over any protective clothing which may be worn.

FLARE

The flare (MK 13, MOD O, Signal, Smoke and Illumination, Marine) is used to signal distress or to indicate the commencement or end of an operation. One end of the flare contains the day signal, a heavy red smoke. The opposite end, which has raised beading around the edge, contains the night signal; a red light. The raised beading enables the swimmer to locate the night signal during darkness. Each end is activated by means of a pull ring. The flare should be held at arms length with the signal end pointed away from the swimmer at a 45 degree angle. Swimmers should be upwind of the smoke signal. At night, do not look directly at the signal light as it will destroy night vision.

SWIM VESTS

An approved swim vest is a mandatory piece of equipment for surface swimming operations; Special Forces surface swimmers use either the U.S. Navy Modified UDT or Mark III swim vests. Both vests are equipped with oral-inflation tubes and automatic inflation systems which use CO_2 cartridges. The automatic inflation system can be actuated by the swimmer or his buddy if the swimmer becomes unable to help himself.

Preparation of Equipment

One of the most important steps in mission preparation is to plan for and prepare your equipment for infiltration.

SELECTION AND PREPARATION

Individual combat loads should be as light as possible and include only mission essential equipment, weapons, and ammunition. Equipment bundles should be limited to the smallest size possible to reduce water drag, to allow for easier handling, and to present a low profile in the water. The weight and size of equipment bundles are dependent on the mission, swim distance, and method of transport/delivery.

Weapons, communications, and other mission essential equipment must be packed as ready operating units. The weapon or radio will be useless if component parts such as ammunition or batteries are packaged separately and lost or temporarily separated. For safety reasons, blasting caps and demolitions should not be packed together.

All sharp edges of equipment must be padded to prevent puncture of the waterproofing material and reduce the possibility of entanglement during parachute operations. A variety of padding material is readily available in all Special Forces units.

WATERPROOFING

All equipment selected for surface swimming operations must be waterproofed or capable of being waterproofed. Radios, cameras, binoculars, infrared signalling and detection devices, and other sensitive equipment are particularly susceptible to damage from water. Special Forces units should procure plastic wrapping, bags, heavy lubricants, sealants, and other materials for waterproofing equipment prior to surface swimming training or operations. The following general guidelines for waterproofing should be used:

1. Don't waterproof any item of equipment that doesn't require it.
2. Disassemble equipment into component parts whenever the tactical situation permits; it is easier to waterproof these smaller items. Identify each component with tags or tape to enable quick assembly.
3. Waterproof each item more than once.

Many attempts have been made by both the Army and Navy to develop a waterproof equipment container for surface swimming operations; to date, none have been successful. Currently, waterproofed equipment is placed inside the stanly through the nose. If the mask seals, it should provide a good seal in the water.

The size or style of the faceplate is another matter of personal choice. The swimmer should seek a mask which provides the widest angle of vision. The faceplate must be constructed of tempered or shatterproof safety glass. Faceplates made of ordinary glass are a serious hazard to the eyes. Plastic faceplates, which are shatterproof, are generally unsuitable because they fog rapidly and are easily scratched.

SWIM FINS

Swim fins increase the efficiency of the swimmer, allowing him to move faster, farther, and to swim using less energy. Flexibility, blade size, and configuration each contribute to the relative "power" of the fin. A large blade will transmit more power from the legs to the water, providing that the legs are strong enough to use a larger blade.

Fins are manufactured from a variety of materials and in several styles. There are, however, two basic types:

1. The *straight blade* normally has an enclosed toe and an open heel, the fin being held on by either a fixed or adjusted heel strap. It directly extends the line of the foot to a nearly horizontal position as the swimmer moves through the water. This requires a greater extension of the foot and tends to bring on leg cramps.
2. The *offset blade* normally has a molded-in socket for the foot, with the toe area left open. It is set at an angle and requires less extension of the foot thus reducing leg cramps.

The swimmer should select the combination of size and stiffness that gives him the best motive power without causing excessive fatigue. This is largely a matter of trial and error, and, as a swimmer gains in strength and experience, he will find his requirements changing. Swim fins with small or very "soft" blades should be avoided. A safety line should be attached to each swim fin and secured to the swimmer's ankles. This will prevent loss of the fins through water action or strap breakage.

KNIVES AND SCABBARDS

Knives used in surface swimming should have corrosion-resistant blades, such as stainless steel, and a handle of plastic, hard rubber, or wood. Handles made of wood should be waterproofed with paint, wax, or linseed oil. Handles made of cork or bone should be avoided, as these materials deteriorate rapidly when subjected to constant immersion, especially in salt water.

Blades may be either single or double edged, although a double edge is preferable. The most useful style is sharp on one edge and saw-toothed on the other. All blades must be kept sharp.

The knife must be carried in a suitable scabbard, worn on the swimmer's hip, thigh or calf—the position being a matter of personal preference. The knife must be readily accessible and not interfere with body movement while swimming or working. The scabbard should hold the knife with a positive but easily released lock.

The swimmer must not secure the knife and scabbard to the weight belt. If the weights are released in an emergency, the knife will be dropped at the same time and will not be available for use in any subsequent emergency.

BUDDY LINE

A buddy line is a ¼ inch nylon line approximately 6 feet in length with a snap link attached to one end. The swimmer fastens one end of the line around his waist and the snap link end to his partner's buddy line. This enables the buddy team to maintain contact at all times. Buddy line signals should be established and known by all swimmers. For example, two tugs on the line could indicate OK; three tugs could indicate STOP; four tugs, EMERGENCY; etc. No line signal should ever be ignored; an OK tug should be answered with the same tug if OK is the case.

WEIGHT BELTS

Most swimmers are positively buoyant and need to add extra weight to achieve neutral or slightly negative status. In surface swimming, sufficient weights should be used so that only the head of the swimmer is above water. This extra weight is furnished by the use of a weighted belt, worn outside of all other equipment and strapped so that it can be easily ditched in the event of an emergency. Each swimmer may select the style, size belt, and weights which best suit him.

The weight belt should meet certain basic standards:

1. Belts should be made of a rot-and-mildew resistant fabric, such as nylon webbing.
2. The buckle must have a quick-release feature, easily opened by either hand.

Specifications

Length: 36'
Beam: 10' 8½" (maximum)
Draft: 3' 6" (loaded)
Capacity (including crew): 39 Men (without equipment) or 8,595 pounds of equipment
Speed (unloaded): 15 Knots at 2100 RPM
(loaded): 10 Knots
Hoisting Weight: 16,000 pounds
Range: 110 nautical miles at full power and with full load.
Reference: NAVSHIPs 250-452 (Boats of the U.S. Navy)

LCPL MK 4

THE LANDING CRAFT, PERSONNEL, LAUNCH (LCPL) MK 4: THE LCPL MK 4 IS A V-BOTTOM, STEEL-HULLED LANDING CRAFT USED BY THE UDT FOR ESSENTIALLY THE SAME TASKS AS THE LCPR. ALTHOUGH IT IS FASTER THAN THE LCPR, IT IS MORE DIFFICULT TO WORK FROM SINCE IT HAS NO BOW RAMP AND ONLY A SMALL COCKPIT.

Specifications

Length: 36'
Beam: 11' 2¼" (maximum)
Draft: 3' 6" (loaded)
Capacity (including crew): 20
Power: One 300 HP turbine exhaust diesel engine (model 61217)
Speed (loaded): 19 Knots
Hoisting Weight: 18,000 pounds
Range: 140 nautical miles at full load
Reference: NAVSHIPs 250-452 (Boats of the U.S. Navy)

LCPL MK 11

THE LANDING CRAFT, PERSONNEL, LAUNCH (LCPL) MK 11: THIS MODIFICATION OF THE LCPL HAS A LOWER FREEBOARD AND MORE STORAGE AREA THAN THE MK 4. HOWEVER, THE MK 11 IS NOT ADAPTED FOR LIFTING BY WHELIN DAVITS, AND THE HULL WILL NOT FIT IN STANDARD SHIPBOARD SKIDS. THE HULL OF THE MK 11 IS CONSTRUCTED OF LAMINATED FIBERGLASS AND PLASTIC, AND IS EASILY MAINTAINED.

Specifications

Length: 36' 1/8"
Beam: 13' ⅛" (maximum)
Draft: 3' 11" (loaded)
Power: One 300 HP gray marine diesel engine (61217)
Speed (loaded): 17 Knots
Hoisting Weight: 18,500 pounds
Range: 173 nautical miles at cruising speed (17.3 Knots)
Reference: NAVSHIPs 250-529-3 (Inspector's Handbook for Boats and Small Craft)

LCSR

THE LANDING CRAFT, SWIMMER RECONNAISSANCE (LCSR) 1: THIS CRAFT HAS BEEN DESIGNED ESPECIALLY FOR UDT, AND IS FULLY EQUIPPED FOR FULTON DROP AND PICKUP. ITS HULL IS SANDWICH-TYPE PLASTIC, FIBERGLASS AND FOAM LAMINATE. THE NOISE OF THIS CRAFT PRECLUDES ITS BEING USED CLOSE TO LAND IN COVERT OPERATIONS. IT IS EQUIPPED WITH RADAR, FATHOMETER, AND IFF EQUIPMENT.

Specifications

Length: 52' 4½"
Beam: 14' 9¼"
Draft: 5' 7"
Capacity: (swimmer cabin) 20 swimmers, fully equipped.
Power: Two 1000 HP gas turbine engines
Speed: 34 Knots
Hoisting Weight: 54,000 pounds
Range: 150 miles
Reference: BUSHIPs plan # LCSR 52-145-1, 847,427-436

Accessories

Surface swimmers may select various accessories depending upon the mission and situation. The selection of a particular type accessory is a matter of personal preference. For example, one swimmer may feel more comfortable with a straight blade swim fin; another may prefer the off-set blade. The following paragraphs describe those accessories used most frequently for surface swimming operations.

FACE MASKS

The face mask is used primarily to protect the swimmer's eyes and nose in rough water. As a secondary function, it provides maximum visibility by placing a layer of air between the lens of the eye and the water permitting the eyes to focus on transmitted images. This feature is minor compared to the psychological value of protecting the eyes and nose from the water.

Face masks are available in many styles, shapes, and sizes. A swimmer should select the style which makes a seal and feels comfortable on his face. Proper fit can be checked in two steps:

1. Holding the mask in place with one hand, inhale gently through the nose and let go of the mask. It should stay in place, held by the suction.
2. Put the mask on as it will be worn, with the head strap properly adjusted, and again inhale gent-

is not always safe when the submarine is broached. In such cases, the submarine usually surfaces with decks awash. Submarine crewmen man and open all hatches and assist swimmers in handling equipment. Swimmers are called topside by number from the control room. If space permits, the first pair of swimmers may take station in the conning tower prior to surfacing. Swimmers with their equipment debark in pairs from the leeward side of the submarine. Debarkation of each pair is usually ordered by the submarine commander.

Submerged debarkation of swimmers. Swimmers may debark (lock out) through the escape trunk of a submerged submarine. Four surface swimmers can debark through the escape trunk at one time. Duties of crew members include trunk operations, supervision, and the manning and opening the lower hatch of the escape trunk. Swimmers form in the forward torpedo room with their equipment. Each team of swimmers enters the escape trunk and floods the trunk from within. After the team debarks and secures the outside hatch, the crew members drain the trunk and prepare to debark the next team. A SCUBA tank is often stowed in the trunk with debarking teams for use in case of emergency. Individual ship's emergency bills contain instructions relative to escape trunk operations. Dry and wet rehearsals should be conducted by the teams prior to debarkation.

Submerged debarkation of boat teams. Boat teams may debark from a bottomed submarine in the same manner as swimmers. Duties of submarine crew members include escape trunk operation, supervision, and the manning and opening of the lower escape trunk hatch. Two SCUBA-equipped swimmers and the boat team form in the forward torpedo room with their equipment. The two divers are locked out first; they release a deflated boat which has been stowed on the main deck, surface the boat, inflate it, and secure it to keep it from drifting. The boat team then debarks through the escape trunk. After the boat team has debarked, the two divers enter the already flooded escape trunk and lock in. The debarkation procedures commence on order of the submarine's commander.

Surface recovery of swimmers. The submarine may surface to recover swimmers via the conning tower or main deck hatch. Surfaced recovery of swimmers may be required for wounded or physically disabled personnel. Recovery can be completed in a minimum of time if the submarine surfaces with decks awash and recovers swimmers through the conning tower hatch.

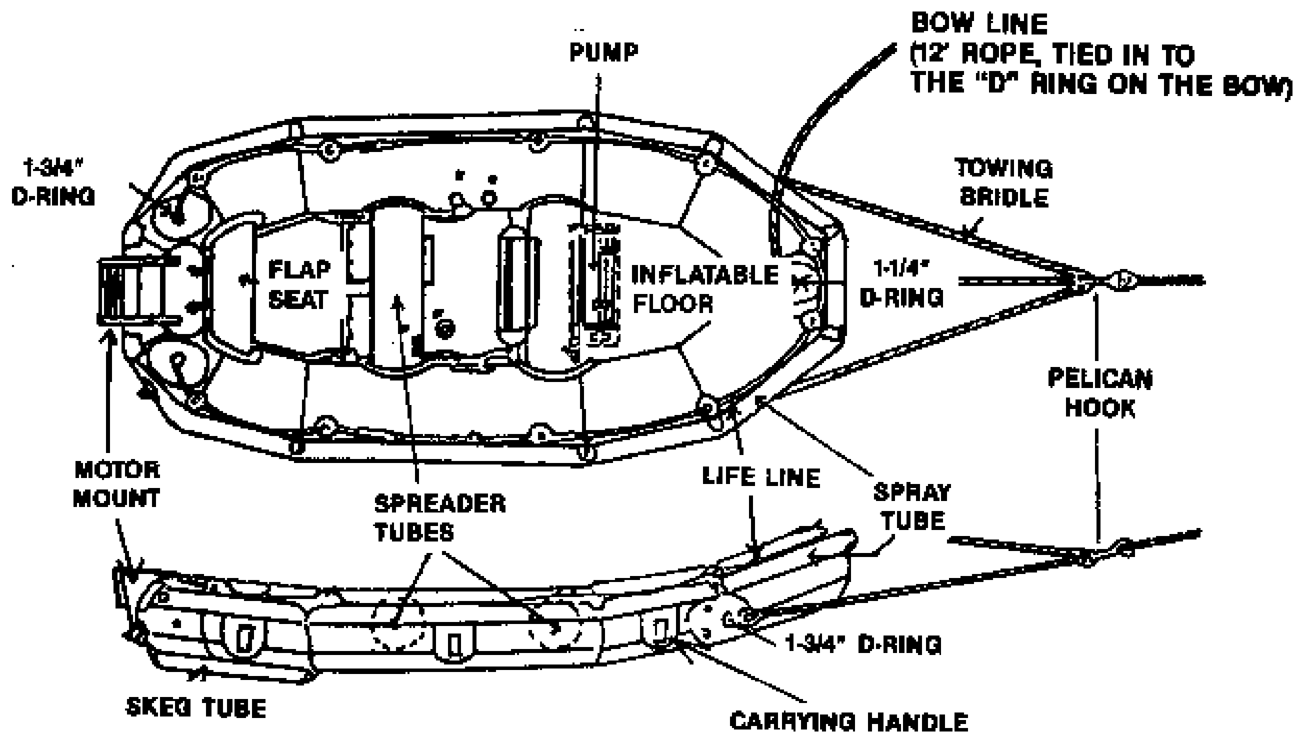
Submerged recovery of swimmers. Swimmers may be recovered aboard a submerged submarine either bottomed or under way. To aid swimmers during descent, a line may be rigged either from the periscope housing to the escape trunk, or to a floating buoy from the escape trunk. Small air tanks or air hoses with demand regulators are attached to the descending lines to provide the swimmers with an air source during descent to the escape trunk. The details for a bottomed or under way recovery are provided in the following paragraphs.

Bottomed recovery. In a bottomed recovery, surface swimmers descend along the line to the vicinity of the escape trunk hatch. The escape trunk is flooded, lighted, and opened to receive swimmers prior to commencement of recovery operations. Four swimmers per cycle lock in. The last two swimmers to descend retrieve the descending line and air sources.

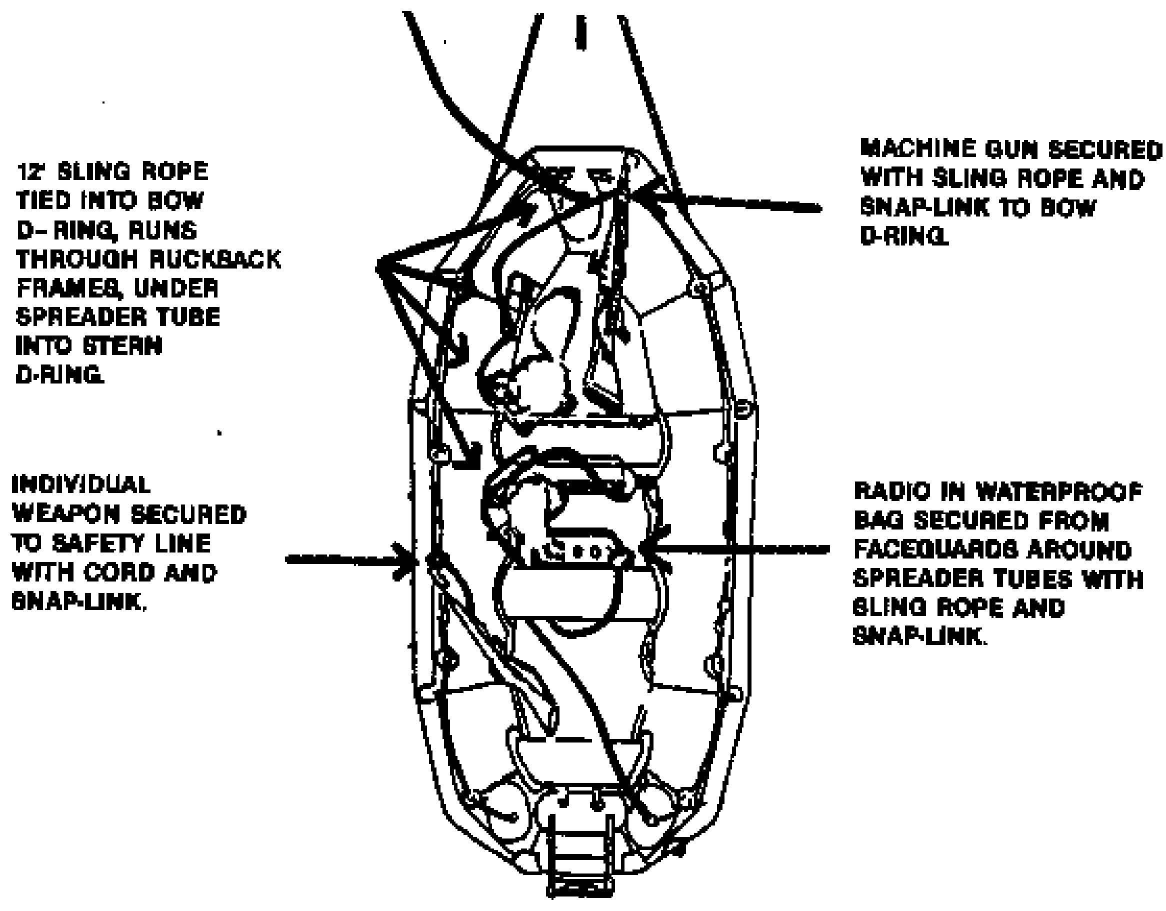
Under way recovery. Under way recovery of surface swimmers is essentially the same as a bottomed recovery except that physical contact with the submarine is facilitated by the swimmers stretching a line across the path of the approaching periscope. During this pickup and lock in, the submarine proceeds at a speed of 1 to 3 knots. Recovery of more then four swimmers during a single pass by the submarine is impractical. After the periscope makes contact with the taut recovery line, the swimmers on both ends of the line haul themselves hand over hand to the periscope. A line attached from the periscope to the escape trunk is provided to aid the swimmers during descent and lock in.

LCPR

THE LANDING CRAFT, PERSONNEL, RAMP (LCPR): THE LCPR IS A V-BOTTOM WOOD FRAME LANDING CRAFT, WITH PLYWOOD SIDES AND A DOUBLE-PLANKED BOTTOM (PLYWOOD INNER, CARAVEL OUTER). ALTHOUGH THE LCPR WAS LAST BUILT IN 1945, IT IS STILL CONSIDERED THE "WORKHORSE" OF UDT. THE BOW RAMP MAKES THE CRAFT IDEAL FOR DIVING OPERATIONS, AND THE SPACIOUS INTERIOR ACCOMMODATES TWENTY DIVERS AND THEIR EQUIPMENT.



*DENOTES INFLATION VALVES



AIRBORNE DROP ZONES

For LRP team insertions, drop zones will normally be unmarked and quite small, in some cases virtually nonexistent. However, the teams should be trained in Pathfinder operations and be able to select and mark larger troop and equipment drop zones. The schematics and charts provided in the accompanying illustrations set forth most of the marking and dimensional criteria for these zones.

When planning and selecting drop zones for airborne insertion, the following factors must be considered:

1. Type of aircraft to be employed;
2. Altitude at which airdrop is to be made;
3. Method of airdrop: high velocity, low velocity, HAHO, or HALO;
4. Availability of adequate approach and departure routes for aircraft;
5. The approach route should be headed into the wind to provide a slower ground speed, allowing more time over the DZ for a more compact delivery pattern. For HAHO/HALO the reverse may be desired;
6. Obstacles in the area, and for HAHO drops obstacles along the glide path;
7. Friendly control of air space.

The most acceptable personnel drop zone should offer a flat, resilient surface without obstructions. If necessary, drops may be made in wooded or forest areas, mountains, lakes, rivers, or the sea, with suitable special equipment.

The gradient of the ground may be up to 30 degrees depending on the strength of the wind. For other than HAHO/HALO jumps where the gradient is greater than 15 degrees the line of drop should preferably be at right angles to the line of greatest slope so that the landing may take place around the same contour line, and the dropping height is calculated in relation to the highest point of the zone.

The required length of a static line drop zone can be computed by using the ground speed of the aircraft and the time needed to release the jumpers or cargo. The formula is D equals RT; D is the zone length (distance) in meters, R is the ground speed (rate) of the aircraft in meters per second, and T is the time required to release its cargo or personnel. To use this formula, the air speed, expressed in knots, must first be converted to ground speed, expressed in meters per second. To compute the ground speed when an aircraft is flying into a head wind, subtract the velocity of the head wind from the air speed of the aircraft. To compute the ground speed when an aircraft is flying with a tailwind, add the velocity of the wind to the air speed. When the wind velocity at the drop altitude cannot be determined, use the aircraft's air speed as the ground speed. To convert knots to meters per second, use the following formula: air speed, plus or minus wind velocity, multiplied by 0.51, equals ground speed.

To compute the required length of the drop zone, take the ground speed as determined using the above formula, which is factor R, and multiply it times the amount of time to release the cargo, factor T, which will equal the required length of the DZ, or factor D, as shown below:

FORMULA EXAMPLE

	120	knots, air speed
	– 20	knots, wind velocity
	100	knots, adjusted air speed
	× 0.51	constant, 1 knot = 0.51 meters per second
R equals:	51	meters per second ground speed
T equals:	× 8	release time in seconds
D equals:	408	meters, length of drop zone

When the available drop zone is smaller than required, it is necessary to compute the number of passes and how many personnel, or how much cargo, can be released on each pass. To determine this data, take the length of the drop zone and divide it by the ground speed, and round the answer down to the nearest whole second to allow for any slight delays in initiating the drop.

FORMULA EXAMPLE

D equals:	150	meters, length of available drop zone
R equals:	÷ 51	meters per second ground speed
T equals:	2.9	seconds, rounded down to 2 seconds

The required width of the drop zone depends upon the method, and/or type of air drop, wind drift, and formation of the aircraft when more than one is used. When using a relatively narrow, or small drop zone, it may be necessary to locate the release point of the actual DZ to allow for calculated wind drift.

The wind drift formula D equals KAV is used to determine the amount of parachute drift in meters from a given altitude. In this formula, K is a constant that represents the characteristic drift of a specific model of parachute. For standard static line drop personnel chutes, K equals 4.1; for cargo chutes, K equals 2.6 (4.1 equals the drift ration, or 4 feet horizontal for each 1 foot vertical descent). A is the actual drop altitude of the aircraft over the DZ in hundreds of feet, represented in the formula as a number of hundreds; i.e., 500 feet equals a factor of 5. V is the velocity in knots of the surface wind. If the surface wind velocity is given in miles per hour convert it to knots by dividing by 1.15.

FORMULA EXAMPLE

K equals:	4.1 parachute drift characteristic
A equals:	× 5 drop altitude, 500 feet
V equals:	× 10 surface wind velocity
D equals:	205 meters, distance of release point from edge of DZ

Once the length and width of the DZ are known and the wind drift calculated, the location and orientation of the release point can then be established. To determine this accurately, you must also determine the azimuth direction of the wind currents.

PARACHUTE OPENING TIME

When planning area drops or selecting them as a reconnaissance function, it is necessary to consider parachute opening and descent times when selecting drop altitudes, drop air speeds, and so on. For general information, the U.S. T-10 Parachute technical data for static line jumps will be used.

Canopy deployment times, T-10 parachute. Subject to variation based on airspeed and other factors.

AIRSPEED (knots)	OPENING TIME (seconds) Minimum	Average	Maximum
60	5.30	5.97	6.50
80	3.95	4.57	5.29
100	3.18	3.80	4.52
115	2.80	3.40	3.90
130	2.30	3.20	4.10
150	2.30	2.90	3.70

Rates of descent, T-10 parachute. Subject to variation depending on the air density, air currents, and total load.

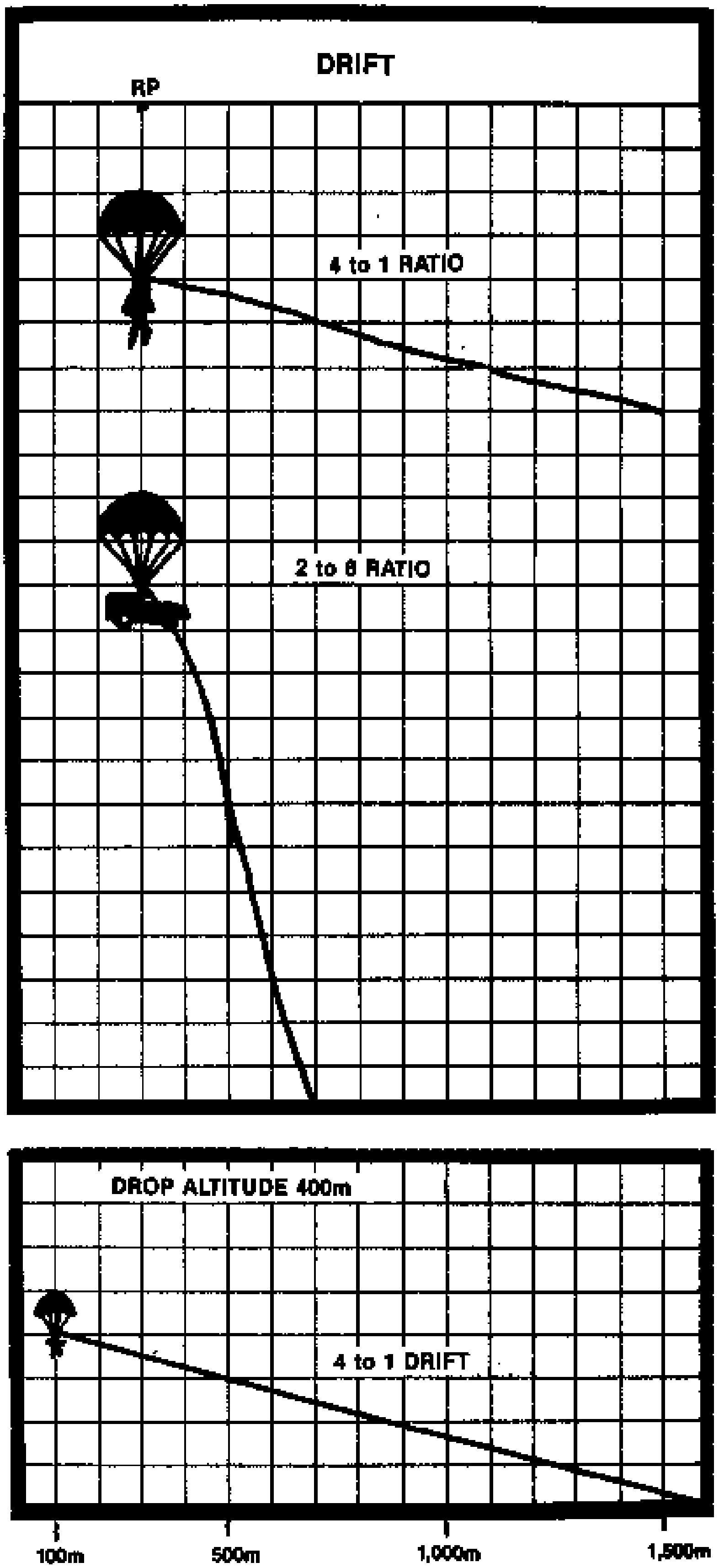
LOAD (lbs)	RATE OF DESCENT (feet per second) Minimum	Average	Maximum
200	15.37	17.75	22.06
225	15.63	18.00	22.48
250	15.80	18.30	22.70

Light Fixed Wing Airstrips

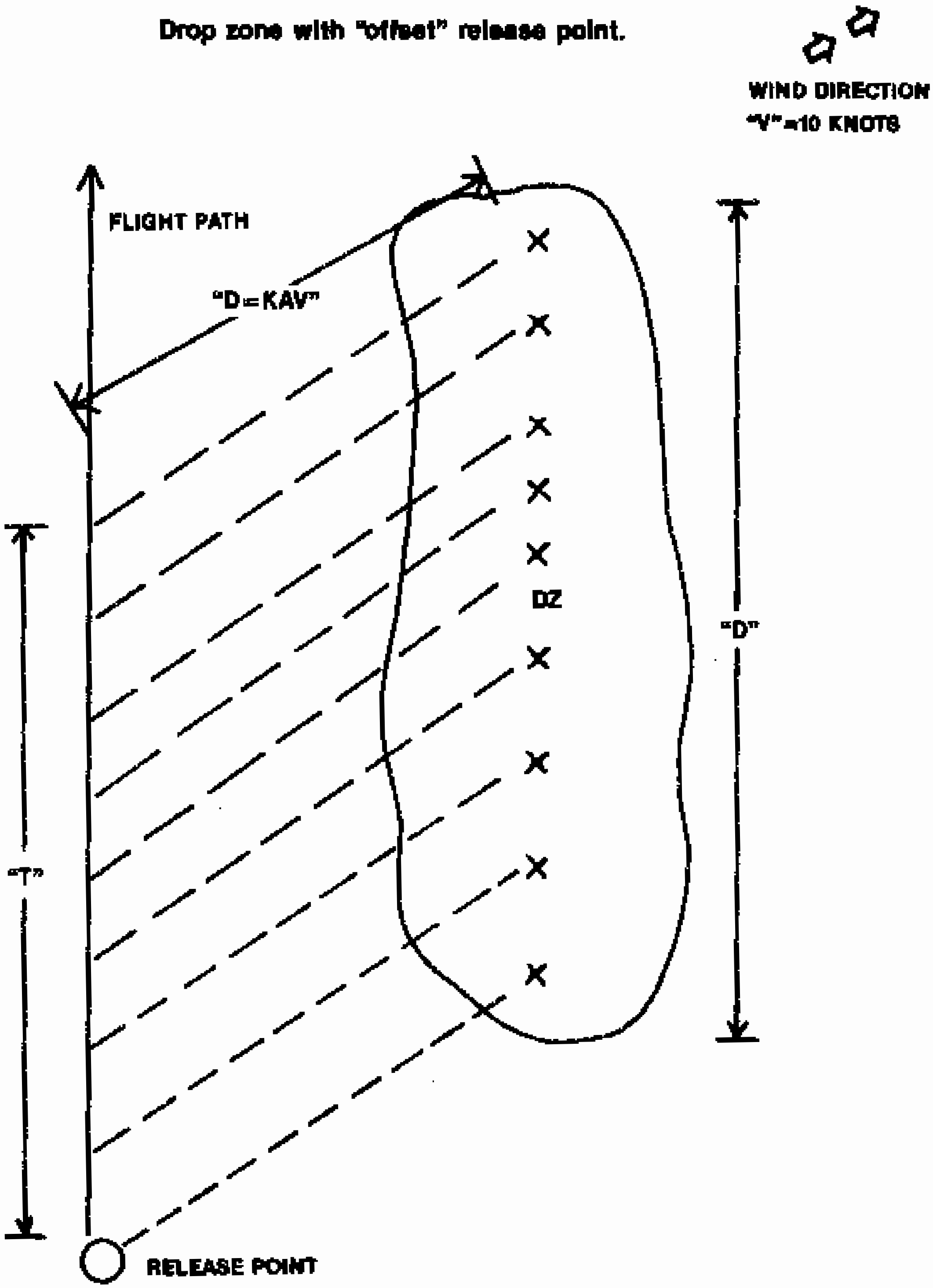
The team may require extraction by light plane, in which case it must locate a suitable tactical airstrip. The strip must be as level as possible and provide adequate approach and departure paths. The strip must be oriented in the direction of the wind, with the windward side providing the least end-of-strip obstructions. All takeoffs and landings are made into the wind. Adjust dimensions based on actual aircraft performance characteristics.

Dimensions. For light aircraft, the landing strip, excluding overruns, must be at least 100 meters; for medium aircraft, increase this to 300 to 400 meters. The overruns at each end should be equal to 10 percent of the total length. Make the strip wide enough to accommodate the wing span and length of the aircraft; it will also need room to turn around—fifteen to twenty meters will generally do. To accommodate most tactical transports and other medium and light aircraft, make the strip 400 meters long and 50 meters wide.

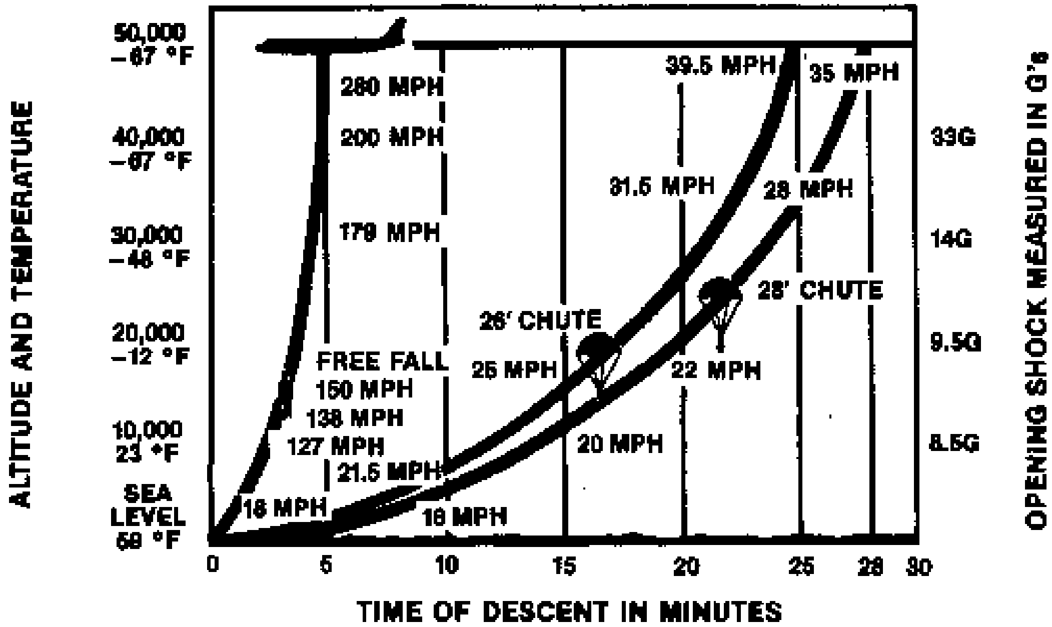
Surface. The surface of the strip must be firm and smooth enough to allow the aircraft to land, taxi, and take off without delay or damage to the aircraft, and without the wheels bogging down.


DRIFT
RP
4 to 1 RATIO
2 to 8 RATIO
DROP ALTITUDE 400m
4 to 1 DRIFT
100m
500m
1,000m
1,500m

Drop zone with "offset" release point.



DESCENT TIMES: VALUE OF FREE FALL



PARACHUTE DRIFT DISTANCE (ZERO GLIDE RATIO)

(Distance in miles of landing position downwind from position of parachute-opening)

Parachute-opening height	Wind in knots						
	10	20	30	40	50	60	70
30,000 ft. (9,000m)	3.7	7.4	11.1	14.7	18.4	22.1	25.8
20,000 ft. (6,000m)	2.7	5.3	8.0	10.7	13.3	16.0	18.7
14,000 ft. (4,300m)	1.9	3.8	5.7	7.7	9.5	11.4	13.3
10,000 ft. (3,050m)	1.4	2.8	4.2	5.7	7.0	8.3	9.7
8,000 ft. (2,400m)	1.2	2.3	3.5	4.6	5.8	6.9	8.1
6,000 ft. (1,800m)	.9	1.7	2.6	3.5	4.4	5.2	6.1
4,000 ft. (1,200m)	.6	1.2	1.8	2.4	3.0	3.5	4.1
2,000 ft. (600m)	.3	.6	.9	1.2	1.5	1.8	2.1

PARACHUTE DESCENT DATA

(200-lb. man except Apollo)

Parachute type	Rate of descent at sea level (feet per sec)	Rate of descent at 7,000 feet (feet per sec)	Glide ratio hor.:vert.
28 feet (C-9), escape	19.6	21.4	0
28 feet (C-9) w/4 suspension line release, escape	19.1	21.0	0.4
24 feet, paratroop reserve	22.7	24.9	0
24 feet, Martin-Baker system	24.0		0
35 feet (T-10), Army paratroop	15.3	16.8	0
35 feet (HALO), AF and Army special paratroop	16.0	17.3	0.3
Skysail (Navy), escape	20.2	22.0	0
Paracommander, AF special paratroop	18.0	19.7	1.1
Parawing (experimental)	10-15		3.0
Parafoil (experimental)	10-15		3.0
Parasail (experimental)	10-15		2.7
Apollo: 2 each (83 feet diameter)	35	37.2	0
Apollo: 3 each (83 feet diameter) (Apollo deployed at 24,000 feet)	30	32.5	0

Soft, wet, slippery, or any other unfavorable surface will normally increase the required length by at least seven percent.

Location. The strip should be located in a level area, away from obstacles. A gentle slope to the strip is acceptable; however, add eight percent to the length for every degree of slope in excess of two degrees. The maximum slope should be 10 percent, and it should slope in only one direction. The approach and takeoff route must be free of obstacles such as telephone lines and tall trees.

Altitude. For every 1,000 feet (307 meters) of altitude above 1,000 feet, you will need to increase the length by ten percent, due to the more rarefied air.

Wind. Crosswinds, if unavoidable, should not exceed 15 mph. The strip should be oriented to allow aircraft to land and take off into the wind. Crosswinds in excess of 15 mph will require the runway to be lengthened by at least seven percent.

Temperature. Increase the strip length seven percent for each ten degrees in temperature above sixty degrees Fahrenheit.

Safety. Whenever possible, increase the dimensions by 25 percent to allow for a safety margin.

The strip should be clearly marked once the aircraft is in sight and you have established communications. Mark the strip as follows:

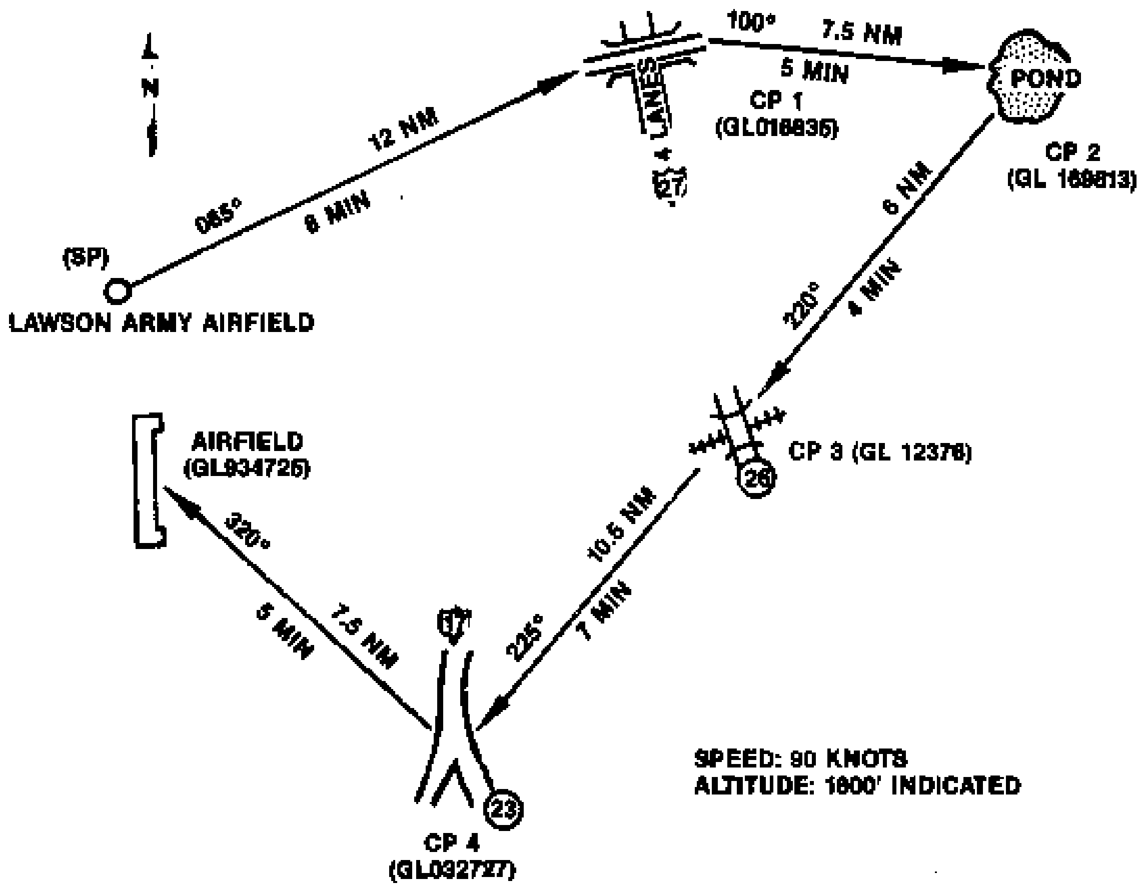
1. Downwind, start of overrun: Smoke grenade and panel marker.
2. Upwind, start of strip (excluding overrun): Panel marker.
3. Sides of strip: Panel markers, at least one on each side, midway point.
4. At night, replace the smoke grenade and panels with flashlights or small fires that can be quickly lit. When using flashlights, point them toward the aircraft at ground level. Use different color filters to indicate the ends of the strip, e.g., red for downwind, white for upwind, and green for sides.

The most difficult part of selecting or preparing an airstrip will be the obstacles in the approach and takeoff paths. For a light aircraft, a ten-meter high tree line would require almost 200 meters of overrun to clear it. For a medium aircraft, the same obstacle would require 400 meters of overrun. The overrun, during takeoff, would be considered the area at the point of liftoff to the first obstacle. Light aircraft use a ratio of 20 to 1; 40 to 1 is used for medium aircraft (20 feet/yards/meters overrun for each one foot/meter/yard of obstacle height). Of course this factor may vary considerably for STOL aircraft, load weight, and so on. This specific information should be clearly set forth during mission planning to ensure requirements are fully understood.

Aerial Navigation Strip Map

Aerial navigation strip maps must be prepared to allow systematic planning and study of air infiltration and exfiltration routes. As a general rule, the strip map would contain the following eleven elements:

1. Checkpoint numbers, lettered or numbered in sequence.
2. Identification of checkpoints, including a simple word description of the checkpoints. The checkpoints should be easily recognizable from the air.
3. Sketch of what the checkpoint will look like as the aircraft flies over; keep it simple.
4. Distance between checkpoints in nautical miles, measured on a map to the nearest half mile.
5. Magnetic headings, in degrees, from one checkpoint to the next.
6. Flight speed in knots that the aircraft is to fly from one checkpoint to the next. This is usually the cruising speed of the aircraft.
7. Altitude, or method of flight. The altitude as indicated on the aircraft's altimeter, including ground elevation. When nap-of-the-earth or similar methods are to be used, either along one leg or the entire route, indicate it between appropriate checkpoints.
8. Time rounded off the nearest minute between checkpoints. Keep the time between checkpoints uniform as much as possible. As the aircraft gets closer to the DZ/LZ, the checkpoints should be closer together to ensure accuracy of navigation.
9. Air corridor boundaries must be clearly marked along the route to include distances, identifiable terrain features, and so on.
10. Air passage points where coordination and passage of friendly lines or defenses are required will be clearly indicated to include radio call signs, signal methods, and so on.
11. Emergency release or landing points should be clearly marked in the event the aircraft must land or personnel must be dropped early. These would also include alternate LZs and DZs.



Emergency release or landing point

Flight Time Calculation

Flight times and distances for route planning can be accurately computed using the formula given below. Unknown, or unprojected, head wind, cross wind, and tail wind data will create a variance in time and distance. When the time and distance factors are critical for planning, ensure that the most accurate wind data available is used.

Time: $T = \dfrac{D \times 60}{R}$

Distance: $D = \dfrac{R \times T}{60}$

T = Flight time
D = Distance traveled
60 = Constant
R = Rate, speed, of aircraft in knots

FLIGHT TIME EXAMPLE

10 nautical miles × 60 = 600 ÷ 90 knots = 6.6 = 7 minutes (rounded)

FLIGHT DISTANCE EXAMPLE

90 knots × 10 minutes = 900 ÷ 60 = 15 nautical miles

Density Altitude Computations

Density altitude computations are necessary when computing aircraft landing zones and approach routes. No instrument is available for measuring density altitude directly. It must be computed from the temperature and pressure at the particular altitude under consideration. Estimates may be used in pre-mission planning, but they must be confirmed on the ground whenever possible.

Compute density altitude using the following formula:

Barometric pressure for the point of takeoff and landing must be determined. This can be accomplished using a barometer. During planning, it may be approximated using an altimeter. Set the map elevation of the site on the altimeter and then read the barometric pressure shown in the Kollsman window (example: 28.60" Mercury).

Field elevation at the point of takeoff and landing must be determined using an altimeter or map reference (example: 2,000 feet).

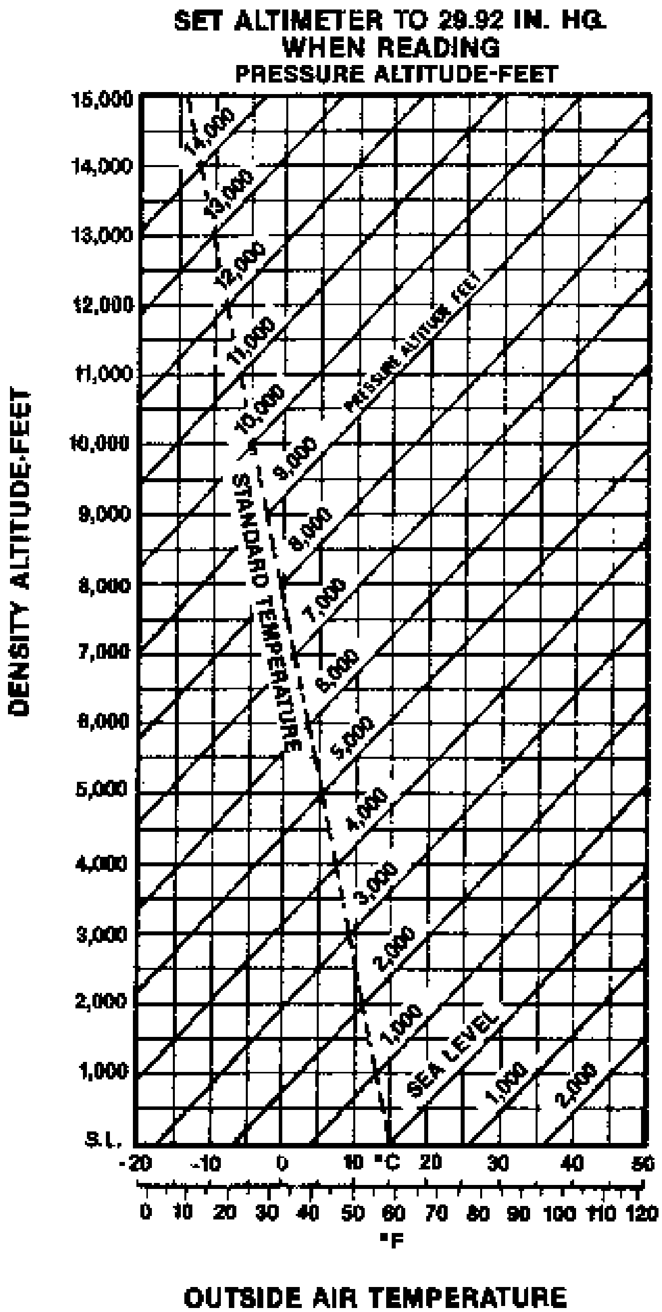
Pressure altitude is then determined using the accompanying chart and the field elevation and barometric pressure determined above. Keep in mind that the results are based on variables and must be considered to be close approximations. Add or subtract based on the readings shown in the two right-hand columns:

EXAMPLE

Barometric Pressure 28.60" equals:	1,245	Add
Field Elevation equals:	+ 2,000	
Pressure Altitude equals:	3,245	Feet

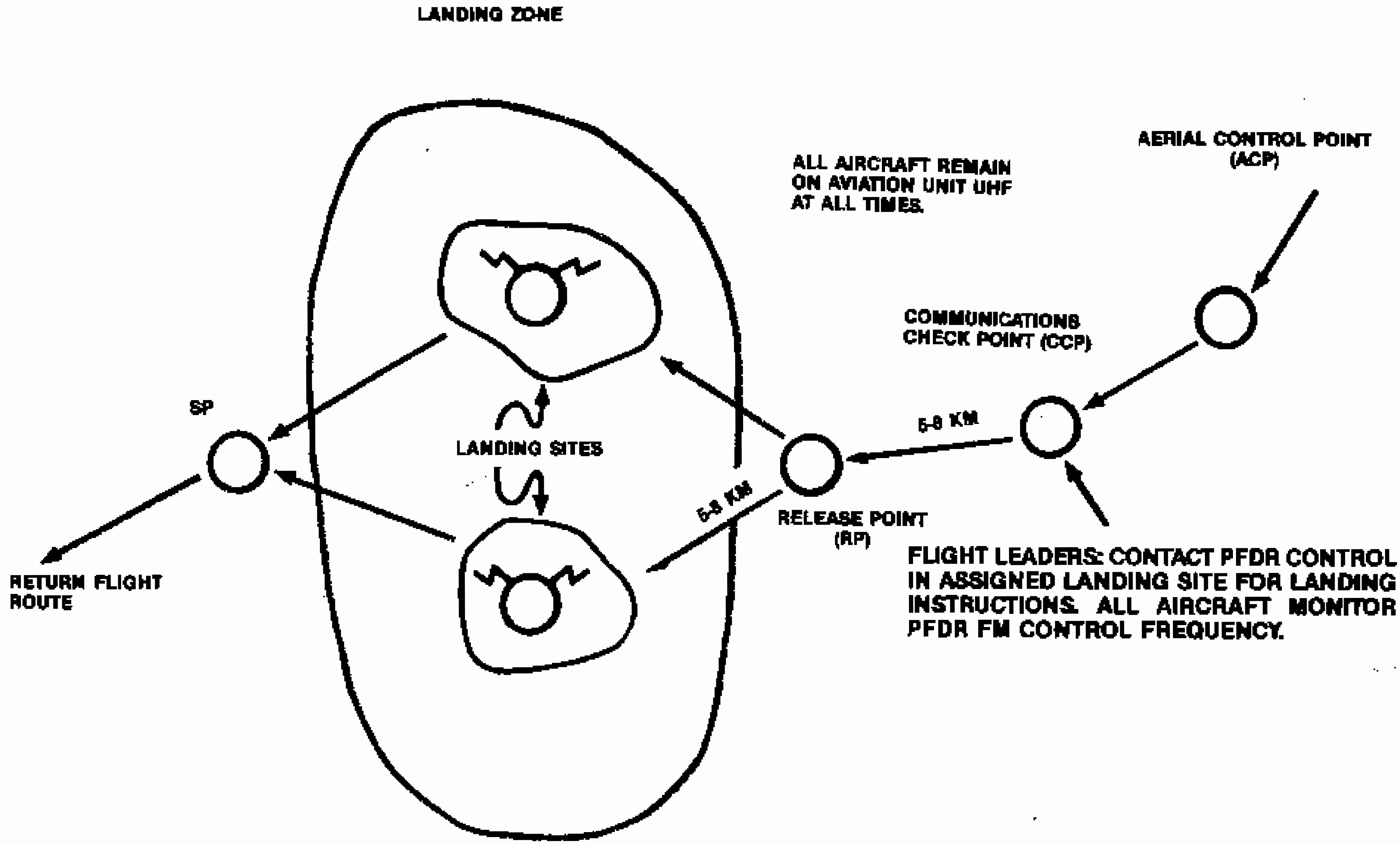
Outside air temperature at the landing point must be determined, preferably using a thermometer (example: 95°F (35°C)).

Density altitude can now be determined by finding the temperature along the bottom of the chart, then moving a pointer vertically up the chart along the temperature line until you intersect the diagonal pressure altitude line, and then read the density altitude at that point on the left side of the chart (example: approximately 6,200 feet).

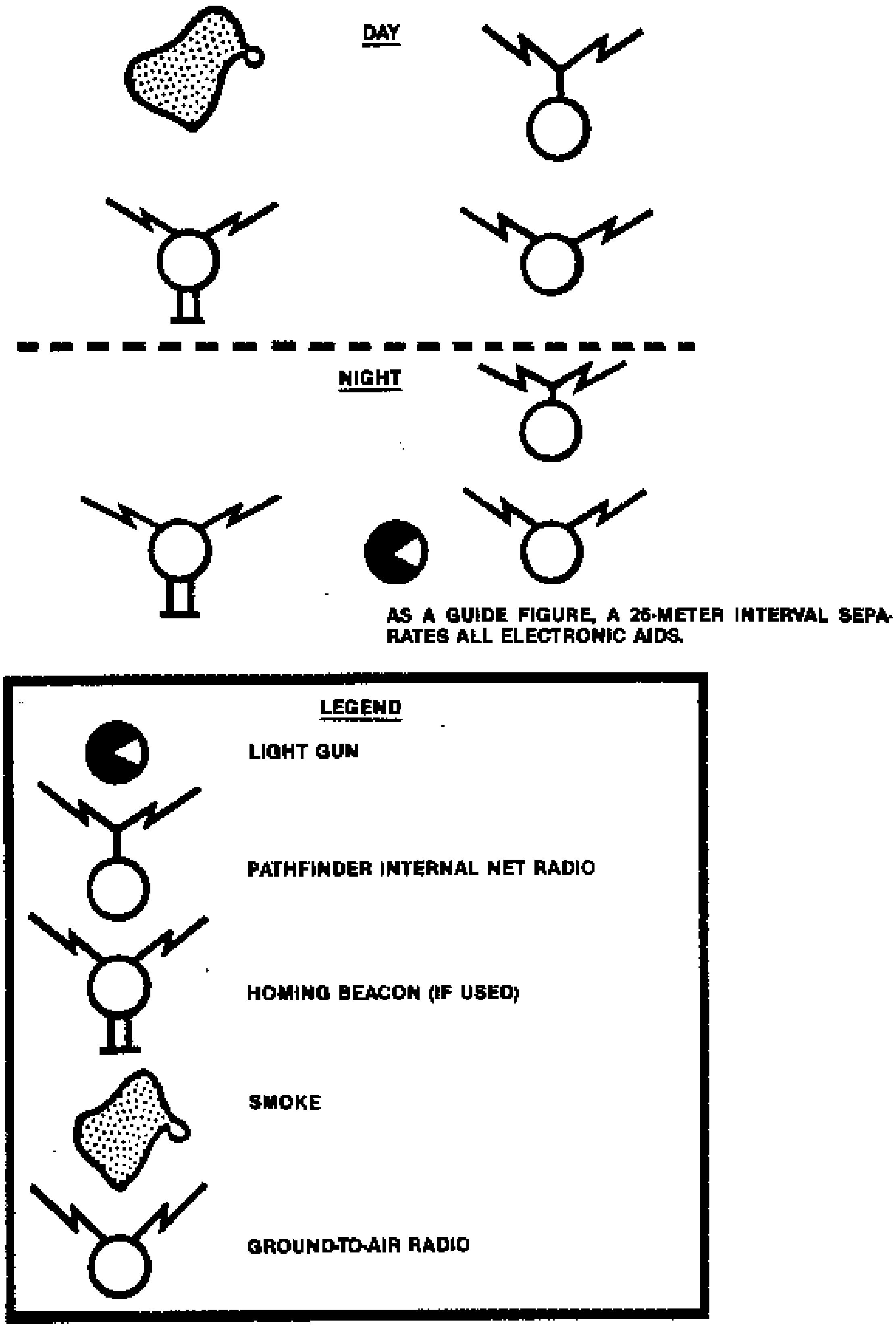


ALTIMETER SETTING IN. HG.	ALTITUDE ADDITION FOR OBTAINING PRESSURE ALTITUDE
28.0	1,825
28.1	1,725
28.2	1,630
28.3	1,535
28.4	1,435
28.5	1,340
28.6	1,245
28.7	1,150
28.8	1,050
28.9	955
29.0	865
29.1	770
29.2	675
29.3	580
29.4	485
29.5	390
29.6	300
29.7	205
29.8	110
29.9	20
29.92	0
30.0	−75
30.1	−165
30.2	−255
30.3	−350
30.4	−440
30.5	−530
30.6	−620
30.7	−710
30.8	−805
30.9	−895
31.0	−965

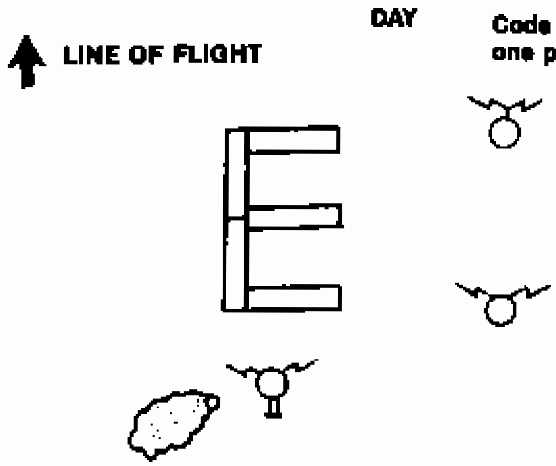
Chart for computing density altitude



Enroute communications procedures with pathfinders in landing zone.



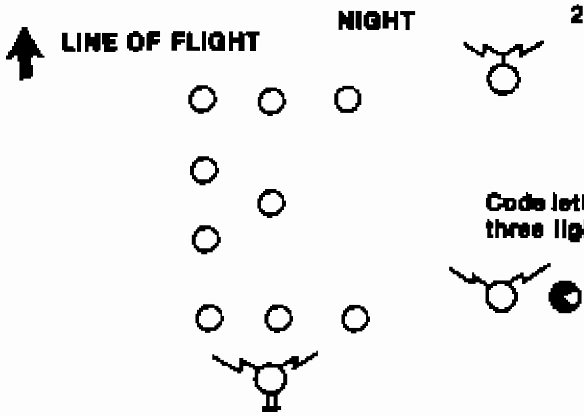
Control center (CC).



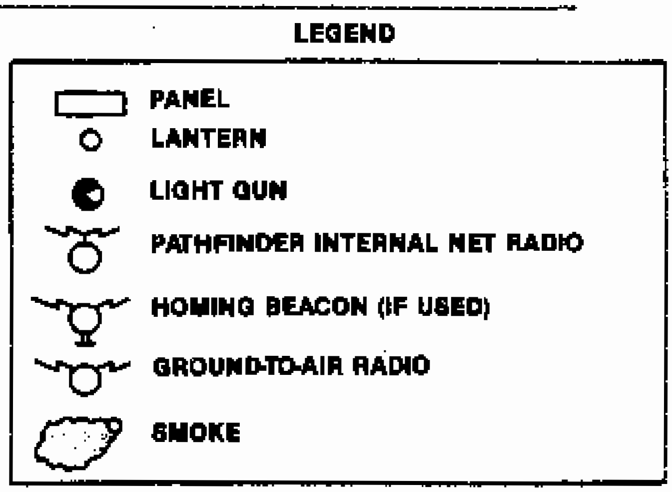
Code letter should be a minimum of two panels high and one panel wide, with all panels touching.

Notes:

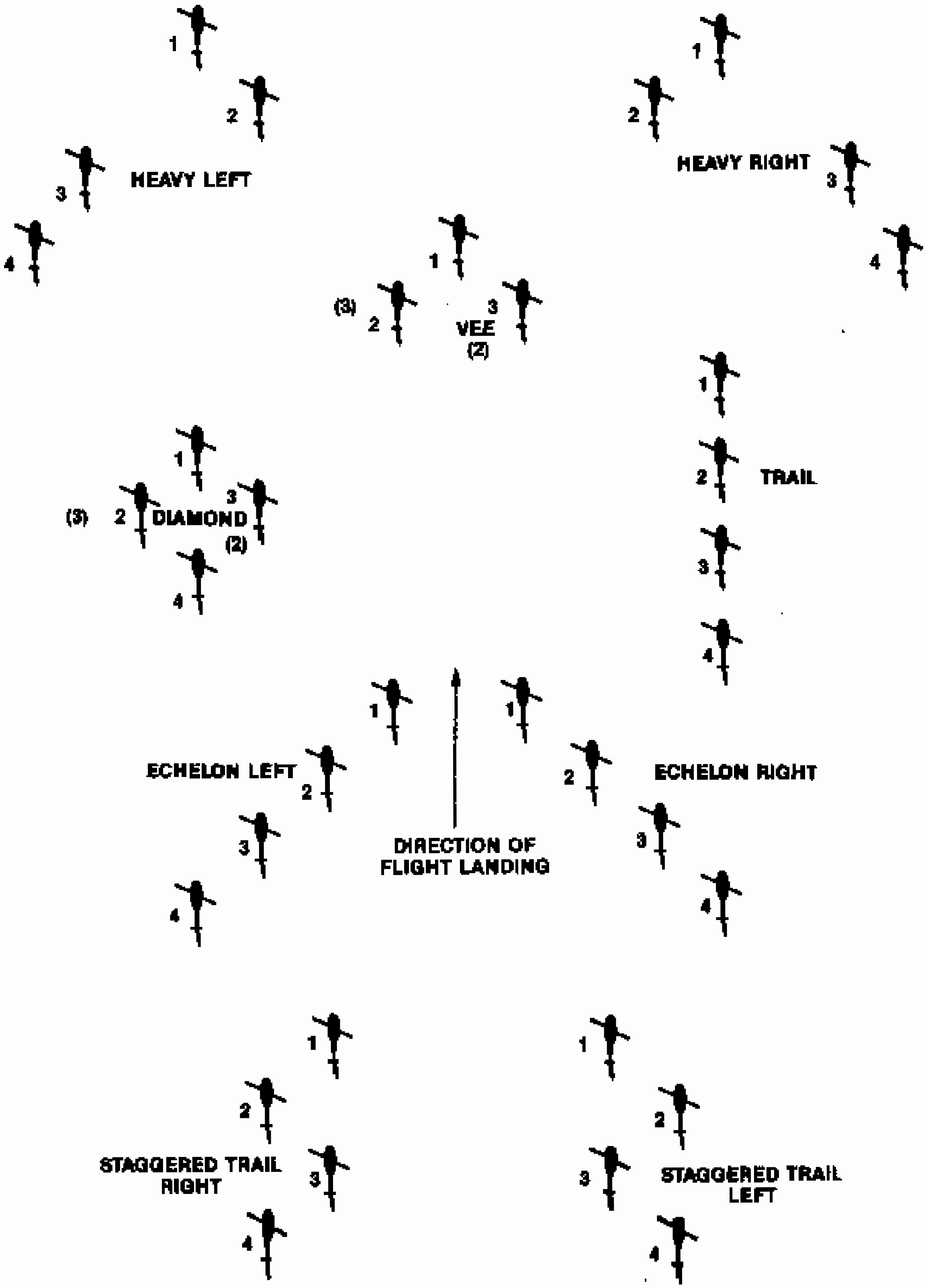
1. Any pre-coordinated code letter or other identification means may be used.
2. As a guide figure, a 25-meter interval separates all electronic aids.



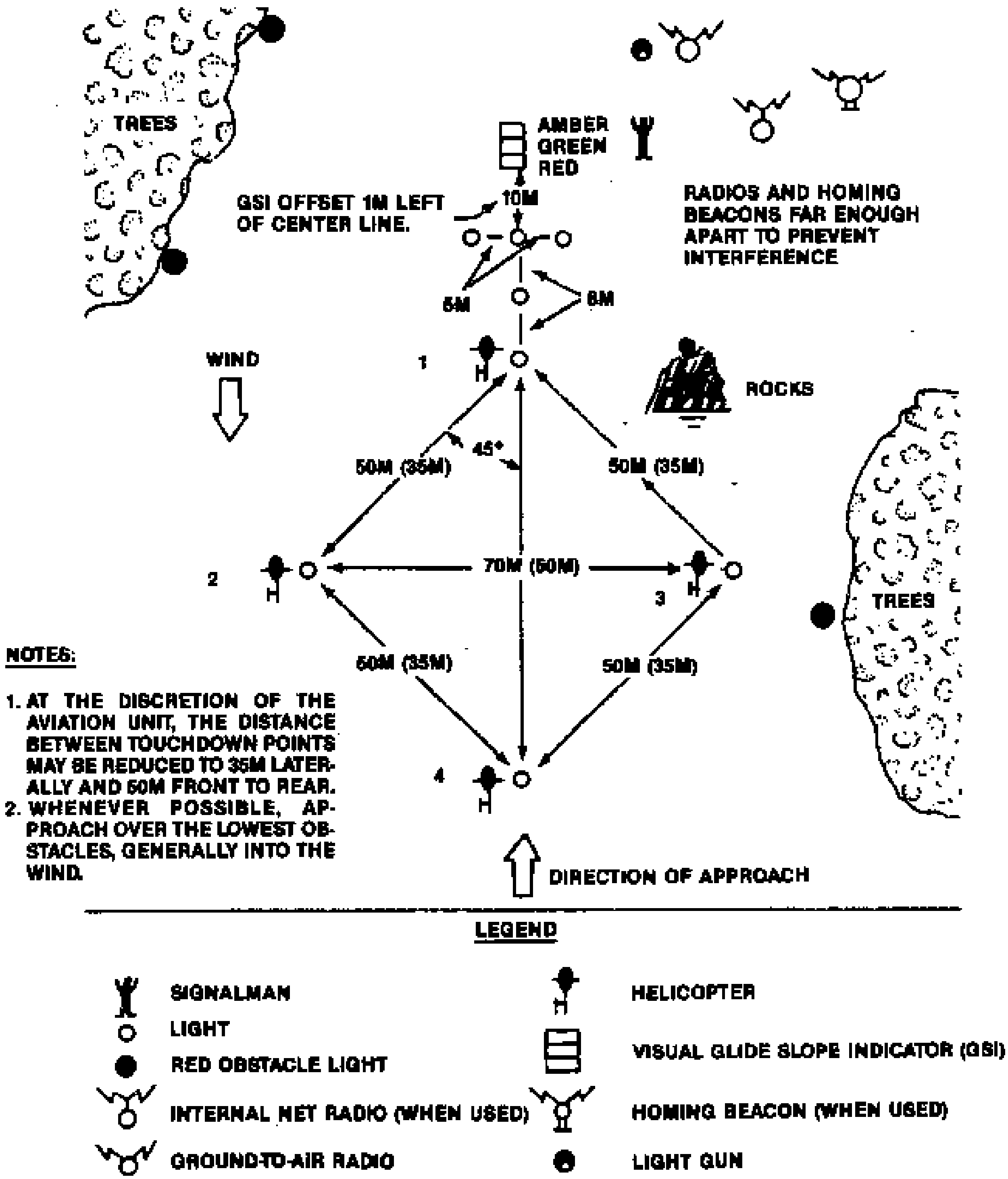
Code letter should be a minimum of four lights high and three lights wide, with five meters between lights.



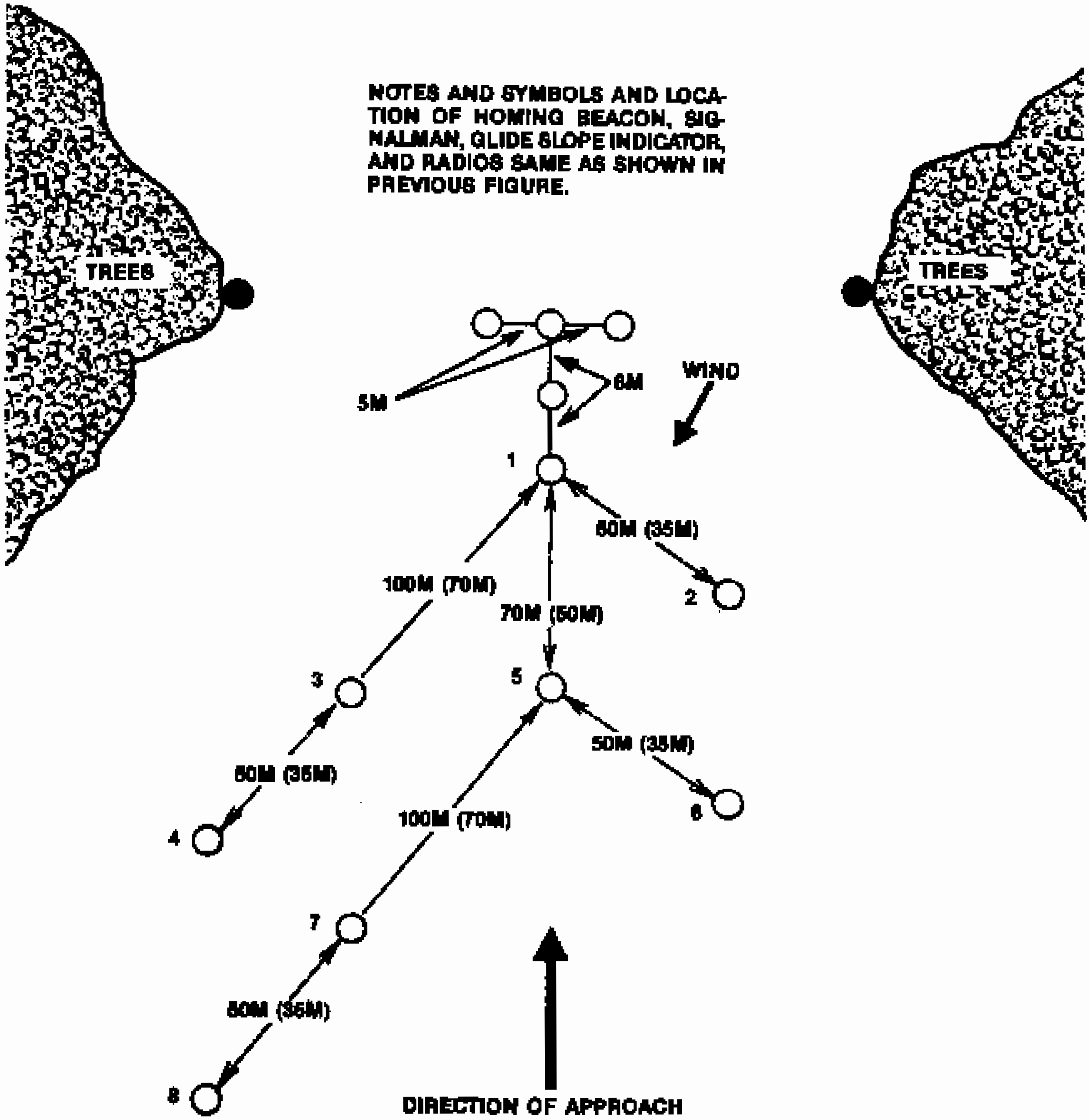
Release point (RP).



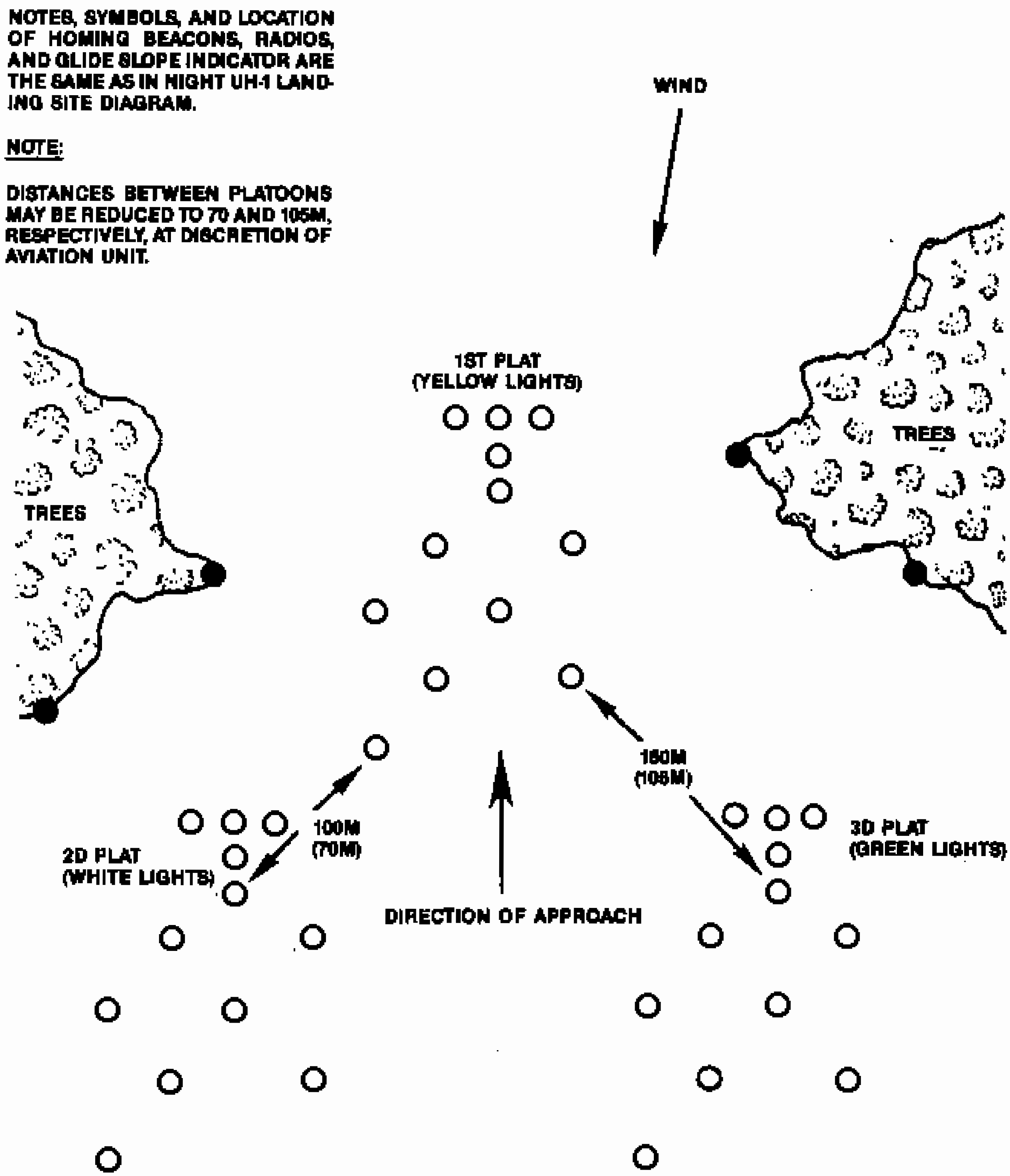
Standard flight and landing formations.



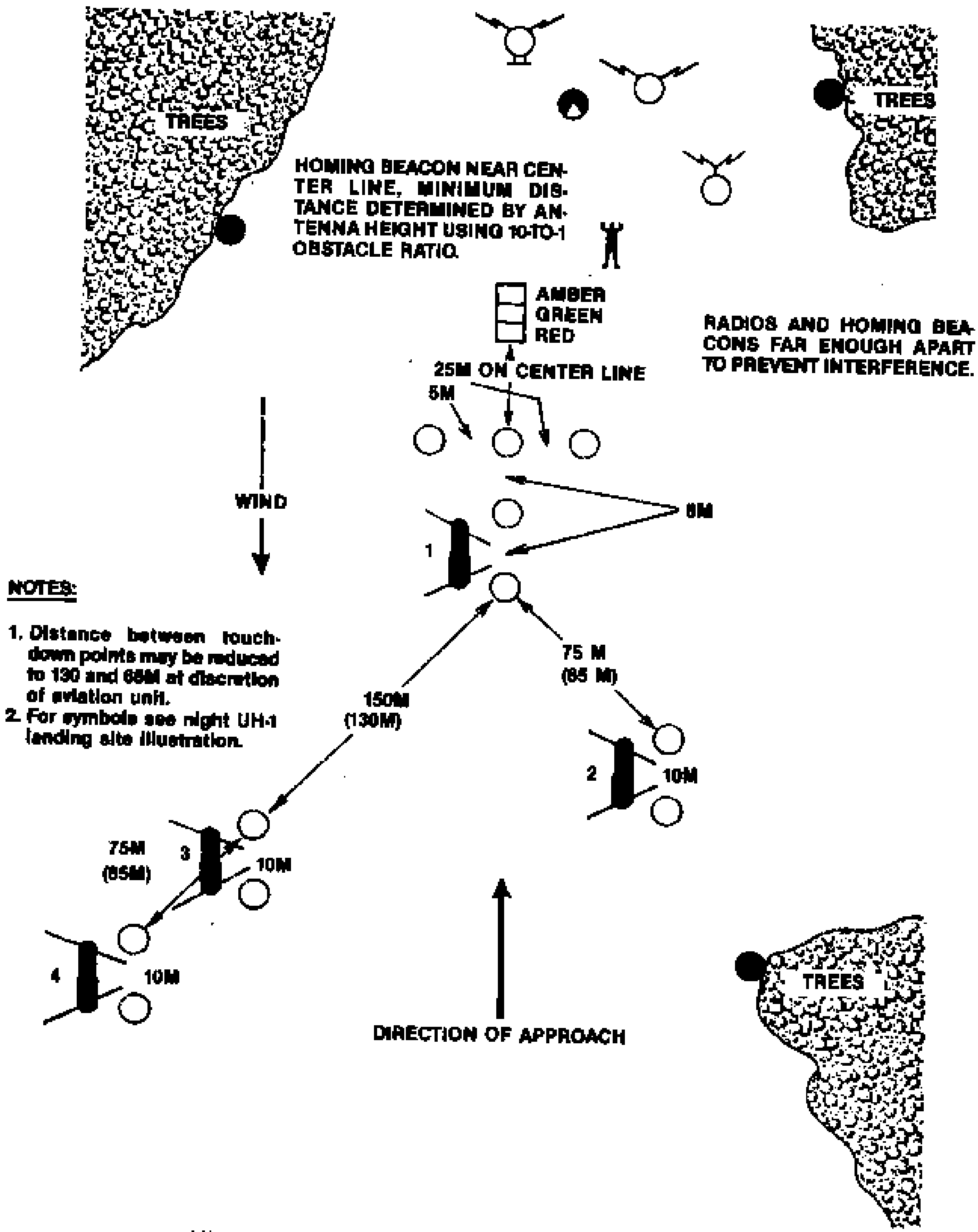
Night UH-1 landing site—diamond formation.



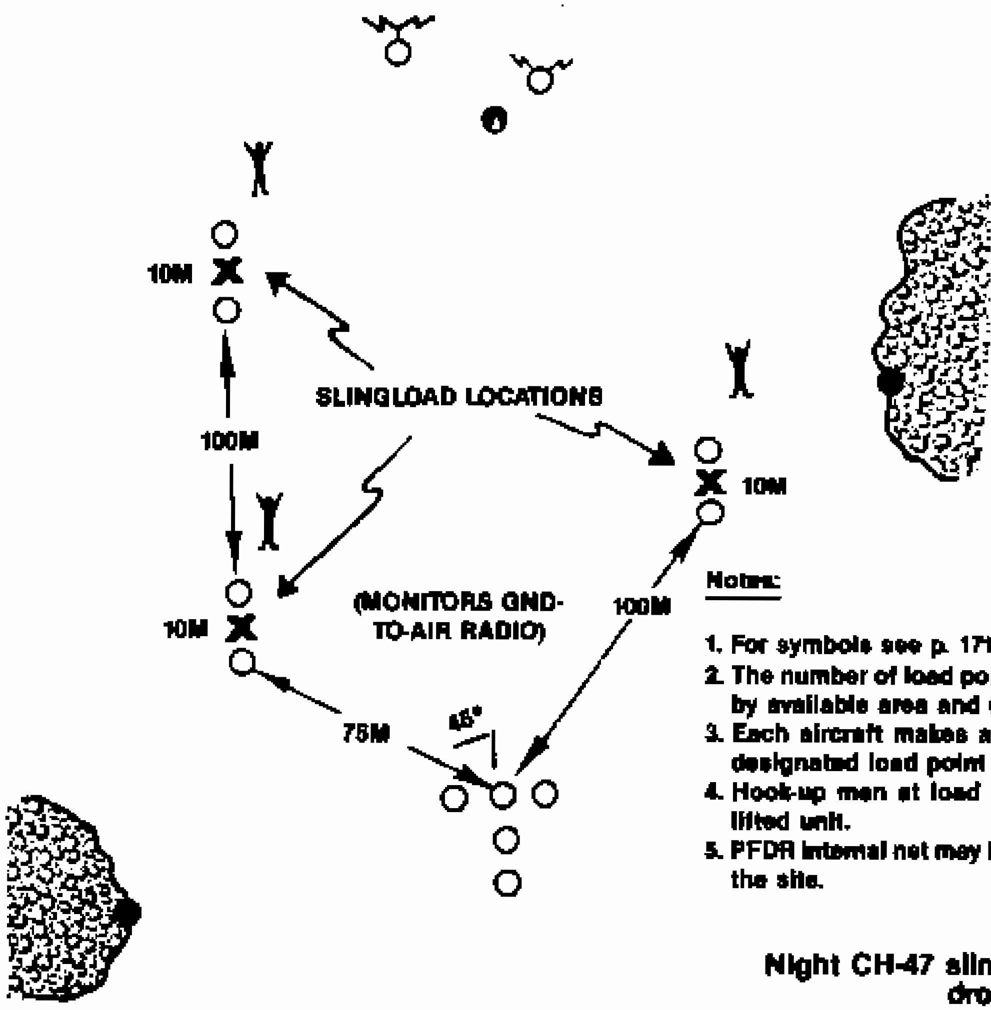
Night UH-1 landing site, flights heavy left formation.



Night UH-1 landing site—company vee, flights heavy left.



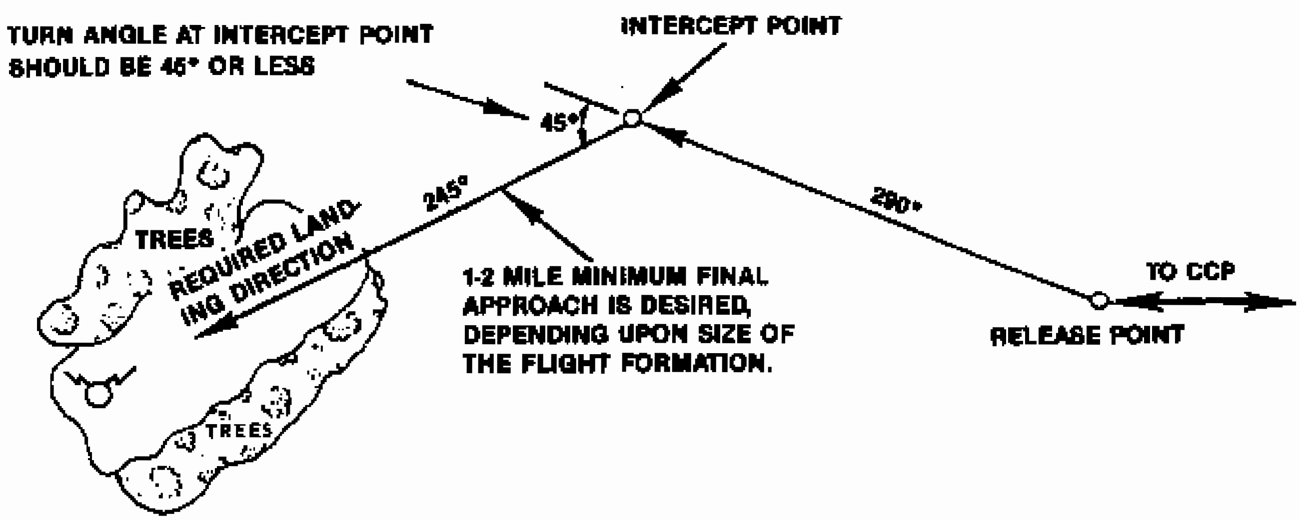
Night CH-47 landing site, flights heavy left formation.



Notes:

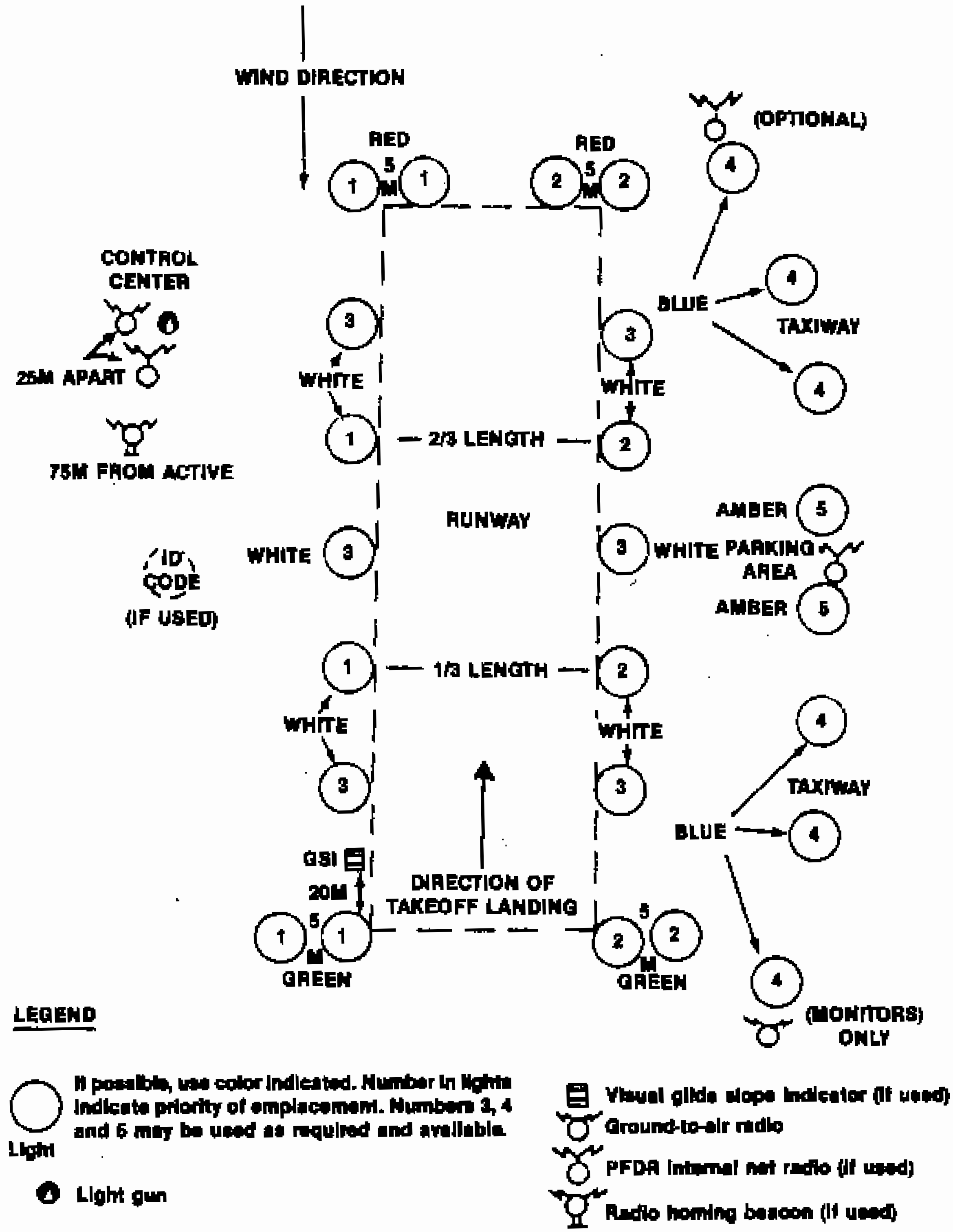
1. For symbols see p. 171.
2. The number of load points established is determined by available area and mission requirements.
3. Each aircraft makes approach to tee and hovers to designated load point at direction of CC.
4. Hook-up men at load points should be provided by lifted unit.
5. PFDR internal net may be used as required throughout the site.

Night CH-47 slingload pickup and/or drop zone.

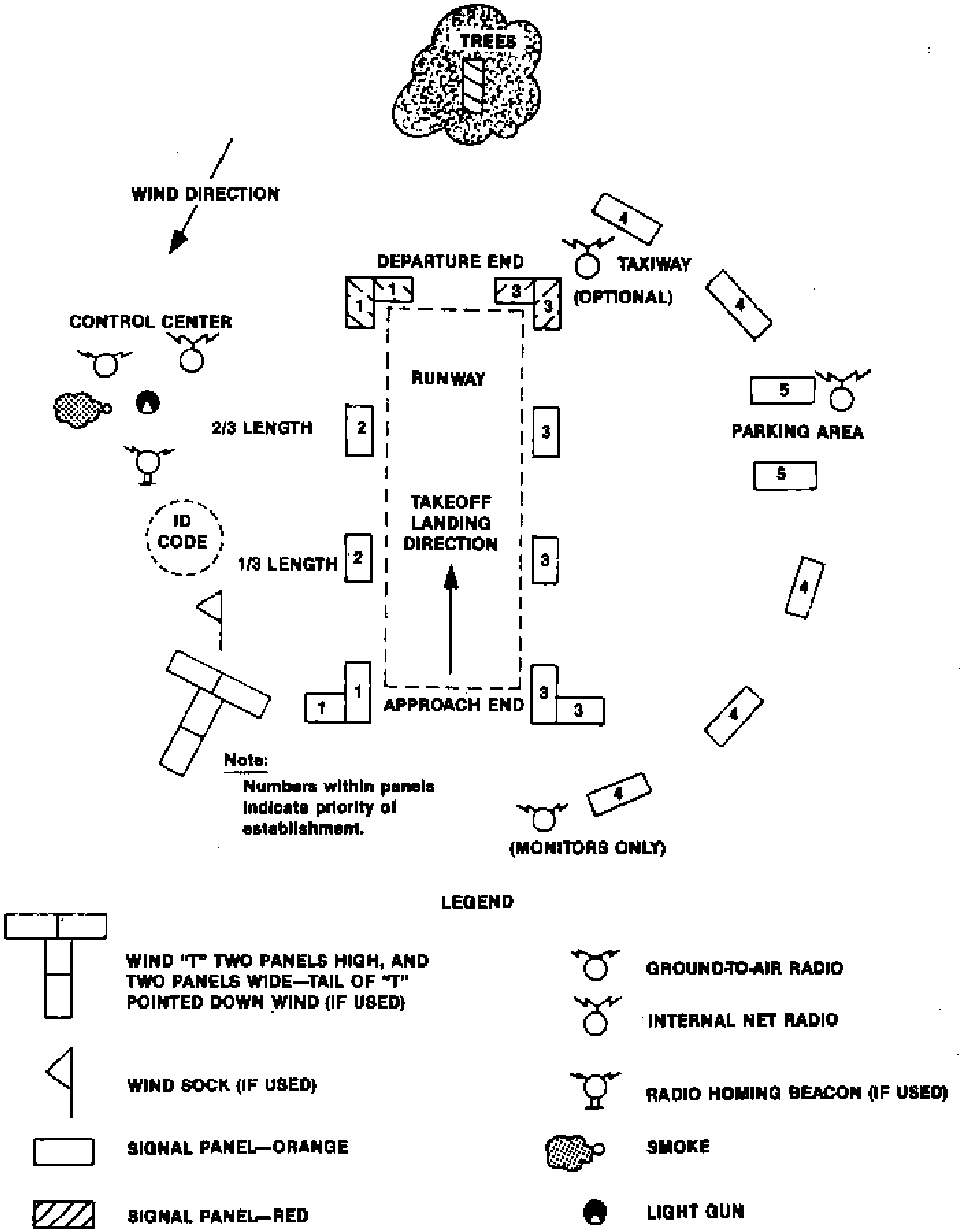


Requirement for use of intercept heading and location of the intercept point is determined by Pathfinder landing-site commander after evaluation of all circumstances present at his landing site.

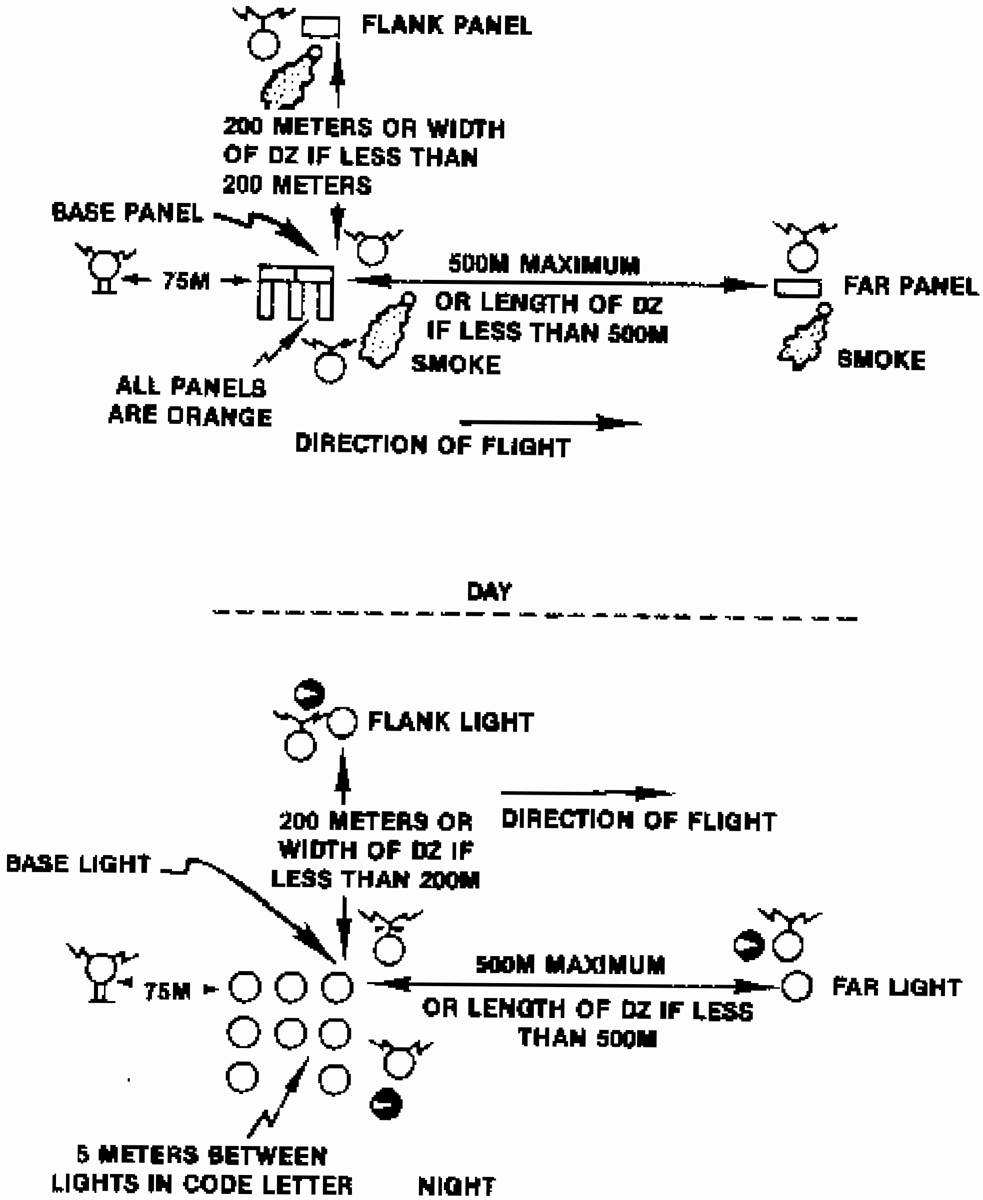
Intercept heading technique.



Airplane landing strip (night).



Airplane landing strip (day).

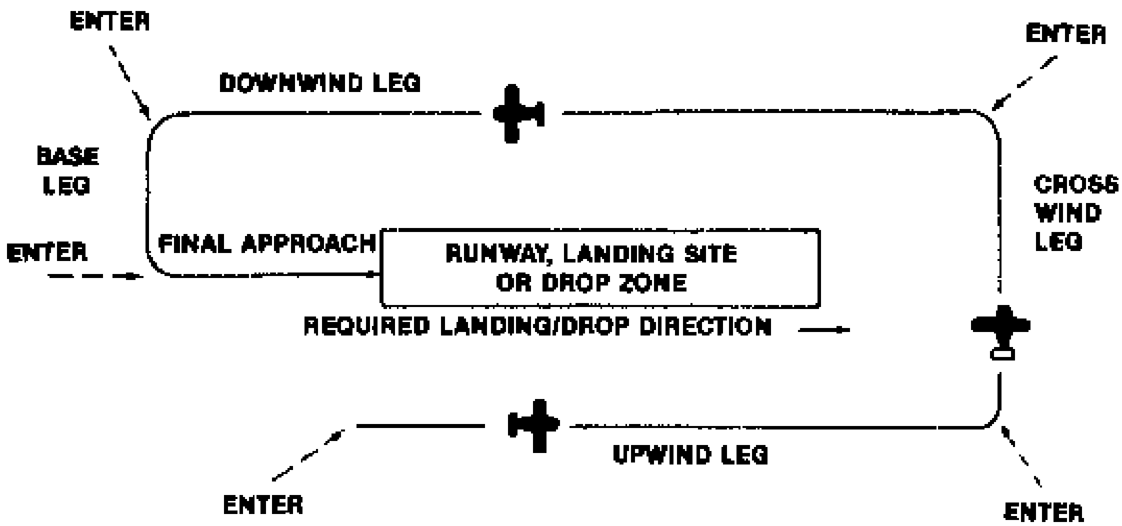


Note:
White lights are preferable: blue or green lights are difficult to detect from range.

Note:
For symbol legend, see pp. 177.

Day and night drop zone.

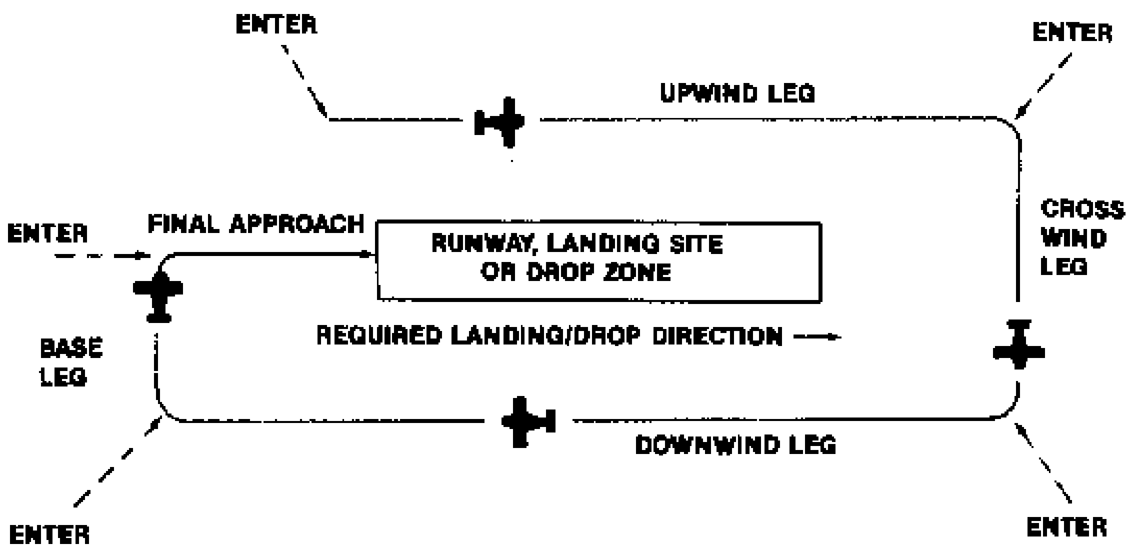
LEFT-HAND TRAFFIC PATTERN (STANDARD)



Notes:

1. Traffic pattern altitude is normally 1000-1200 feet actual
2. Traffic pattern may extend out to one mile in all directions from the runway, landing site, or drop zone

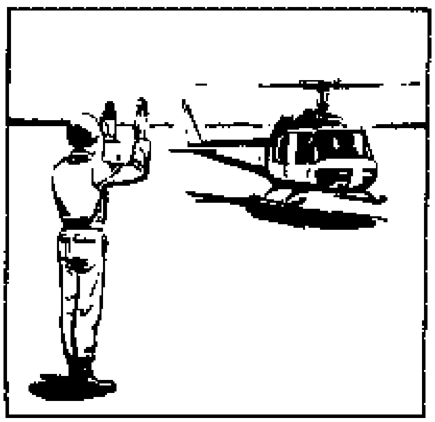
RIGHT-HAND TRAFFIC PATTERN



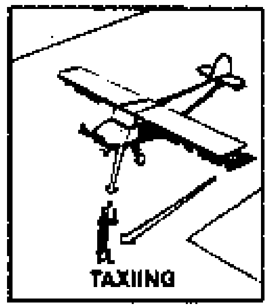
Air traffic patterns.

AIRCRAFT CONTROL ARM AND HAND SIGNALS

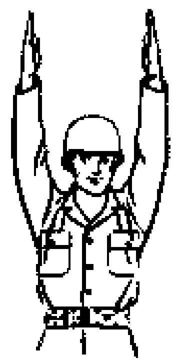
The arm and hand signals depicted herein can be used effectively to assist in landing, hovering, taxiing, or parking of aircraft. The signals must be given in a clear and distinct manner so as not to be confused with other similar signals, and should only be given when needed. Signals at night can be given using a flashlight in each hand, and are otherwise identical to the daytime signals. When using flashlights take care you do not blind the pilot! The speed of the signals when given indicates the desired speed of compliance with the signal.



Position of marshaller, rotary wing aircraft (pilot seated on the right).

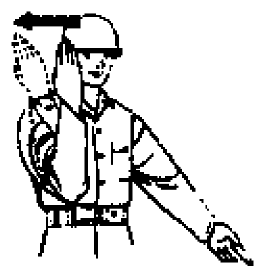


Position of marshaller, fixed wing aircraft.



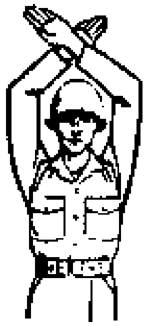
This way, this marshaller, desired landing direction, or desired landing point. (Pilot will make his approach toward the marshaller's front.) Hold arms rigid and overhead, palms facing inward (STANAG 3117).

Move ahead. Arms a little aside, palms facing backward and repeatedly moved upward-backward from shoulder height. Indicate the speed desired of the aircraft by rapidity of arm motions. (STANAG 3117).



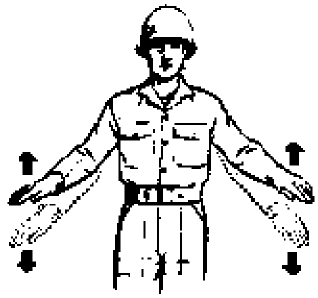
Turn to right (starboard). Position left arm down and point to right wheel; move right arm repeatedly upward and backward. Indicate rate of turn by rapidity of arm motions (STANAG 3117).

Turn to left (port). Position right arm down and point to left wheel; move left arm repeatedly upward and backward. Indicate rate of turn by rapidity of arm motions (STANAG 3117).

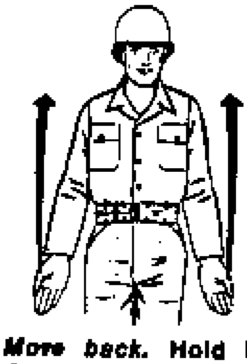


Stop. Cross arms above head, palms facing forward (STANAG 3117).

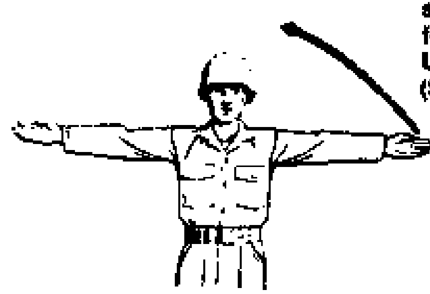
Tail to left (port). Point right arm down and move left arm from overhead vertical position to horizontal forward position. Repeat left arm movement.



Slow down. Arms down with palms toward ground, then moved up and down several times (STANAG 3117).



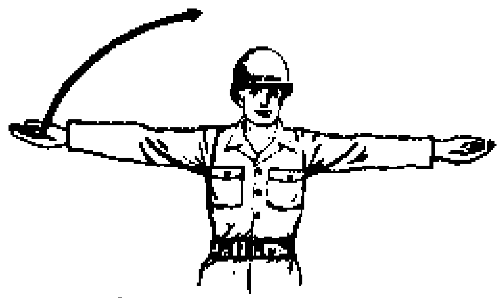
Move back. Hold hands down by side; face palms foward and with elbows straight, repeatedly move arms forward and upward to shoulder height. (Also used for PULL BACK AIRCRAFT USING ARRESTING WIRE.) (STANAG 3117).



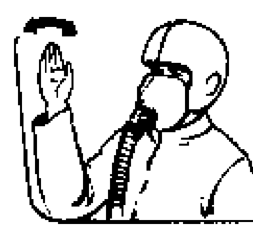
Move to left. Right arm extended horizontally sideways in direction of movement and other arm swung over the head in same direction, in a repeating movement (STANAG 3117).

Personnel approach the aircraft (given by ground crewmen). Left hand raised vertically overhead, palm toward aircraft. The other hand indicates the persons concerned and gesture toward aircraft (STANAG 3117).

Tail to right (starboard). Point left arm down and move right arm from overhead vertical position to horizontal forward position. Repeat right arm movement.

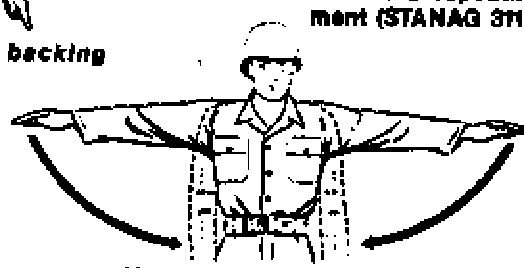


Move to right. Left arm extended horizontally sideways in direction of movement and other arm swung over the head in same direction in a repeating movement (STANAG 3117).

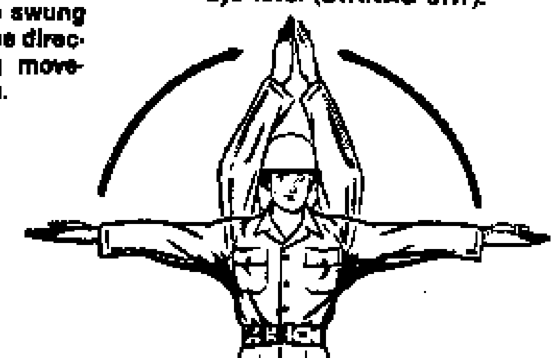


Clearance for personnel to approach aircraft. A beckoning motion with right hand at eye level (STANAG 3117).

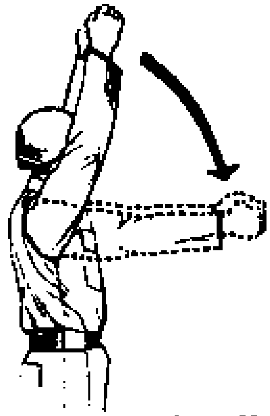
Turns while backing (STANAG 3117).



Move downward. Extend arms horizontally to the side, beckoning downward with palms turned down. Indicate rate of descent by speed of movement (STANAG 3117).



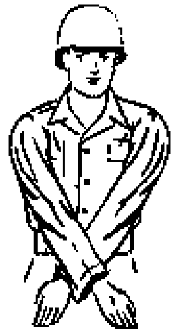
Move upward. Extend arms horizontally to the side, beckoning upward with palms turned down. Indicate rate of ascent by speed of movement (STANAG 3117).



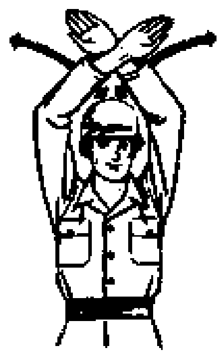
Landing direction. Marshaller stands with arms raised vertically above head and facing toward the point where the aircraft is to land. The arms are lowered repeatedly from a vertical to a horizontal position, stopping finally in the horizontal position (STANAG 3117).

Negative signal. Hand raised, thumb down (STANAG 3117).

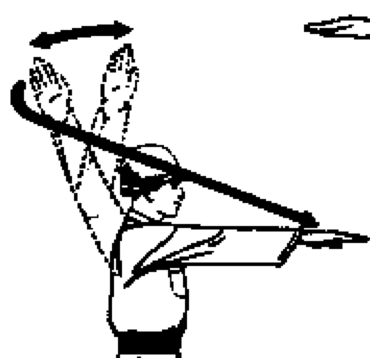
Acknowledgment, affirmative, or ready signal. Hand raised, thumb up (STANAG 3117).



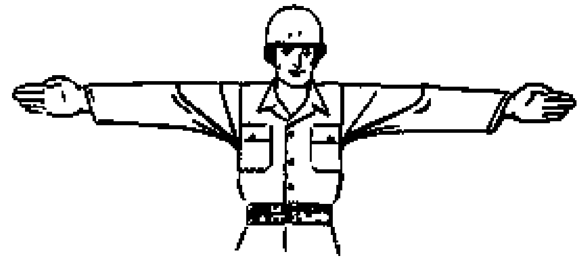
Land. Cross and extend arms downward in front of the body (STANAG 3117).



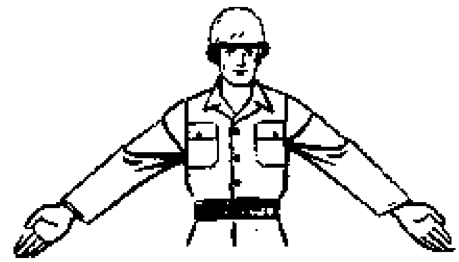
Waveoff, go around, or do not land. Cross arm repeatedly over the head in the STOP signal.



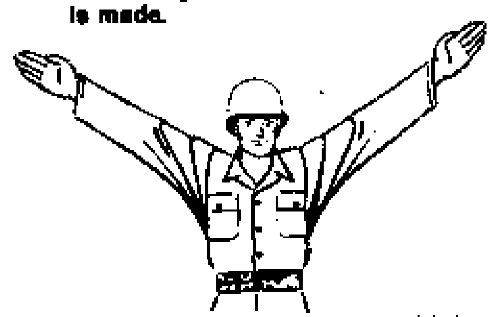
Takeoff. Make circular motion with right hand overhead, ending in a throwing motion in the direction of takeoff.



Your approach is correct. Extend arms to the side at shoulder height, with palms to the front.



Your approach is low: increase altitude. Extend arms 45° below horizontal. Raise arms to *your approach is correct* signal as correction is made.



Your approach is high: decrease altitude. Extend arm 45° above horizontal. Lower arms to *your approach is correct* signal as correction is made.

Hover. Extend arms horizontally sideways, palms downward (STANAG 3117).

EXTRACTION OPERATIONS

Although discussed periodically under the various methods of infiltration, it will be useful to look specifically at the various means of extracting a team, documents, or captured enemy personnel or equipment from the operational area.

As with infiltration, helicopters offer excellent means of extraction in a variety of environments with limited prior training, rapid travel time, accuracy, immediate response capability, and reduced danger of injury. Extraction may be accomplished by air landing, troop ladder, STABO rig, personnel rescue hoist, and "mini-STAR" (see below).

Troop ladder extraction, although feasible, is extremely slow, and should be used only as last resort. Personnel should be equipped with some form of safety rig (short length of rope and snap line), and climb close to the ladder using the side. To increase stability, if the ladder is to be left out until landing, attach rucksacks to its lower rungs. The normal maximum altitude for troop ladder extractions will normally be 100 feet. In cases of dire emergency, it is possible for personnel to hook on to the ladder using their safety rig and have the aircraft depart, without the team actually climbing the ladder.

STABO rig extraction is an improved version of the McGuire Rig developed during the Vietnam War by members of the MACV Recondo School for emergency helicopter extraction. Basically, personnel are suspended from nylon rappelling ropes beneath the helicopter until it can set down in a relatively safe area for the team to board.

The STABO rig itself is a harness made of Type-13 nylon webbing, the same as a parachute harness. On the shoulder straps are two V-rings. The pistol belt is threaded through the adjustable shoulder straps, and two more V-rings are attached to their ends. On the back of the harness the shoulder straps are crisscrossed and sewn to themselves. The pistol belt is threaded through or sewn to the shoulder straps. The extended ends of the shoulder straps are tied to the harness until needed for the leg straps. Run the leg straps from behind up between the legs and then hook them to the V-rings on the front of the harness. This harness replaces the normal issue web harness.

A separate suspension rope is used for each team member, or two ropes for three personnel. Depending on the lift capability of the aircraft, it will take one to two aircraft to lift out a six-man team. The hands are free to allow the use of weapons, radio, and first-aid equipment.

Once you hook into the suspension ropes, you walk in the direction of take off until the aircraft pulls you off the ground, and then cross your arms and legs and enjoy the view. Ropes must also be used to interlink team members in case one rope should break, and all rigs must be of equal length. The pilot must know what he is doing to avoid dragging the team through trees, bouncing them on the landing zone, and so on. Nap-of-the-earth flying is definitely out!

This method may be used either to abort a helicopter insertion due to detection or injury, or as the planned method of extraction upon completion of the mission.

Waterborne STABO extractions are also possible. The team enters the water, swims to the center of the "wet" LZ, and awaits arrival of the aircraft. In most instances if the team members can enter the water undetected, they will be relatively secure until arrival of the pickup aircraft. A strobe light is used to mark the pickup point.

Skyhook basically consists of boarding an aircraft while it is flying along at 130 miles per hour. The method was developed by Robert E. Fulton, Jr., grandson of the famous steamboat inventor, and is a rather novel idea that came into the limelight in a James Bond movie. Although not what I would call the preferred method of extracting a team, it may well be the only one available under certain circumstances. A more realistic use would be to extract a valuable POW or remove a sensitive equipment item.

Also referred to as the Fulton Surface-to-Air Recovery System (STAR), it was originally developed for air rescue and recovery work, but has limited application for deep penetration operations. Other than the obvious need for special equipment, well-trained pilots are a must. The system can be used by a passenger without prior experience or training by following the instructions that come with the equipment container.

Severe wind conditions can hamper the operation and after a certain point make it totally impractical. The aircraft approach speed is critical, as is the approach altitude. The airspeed is normally pegged between 125 and 150 miles per hour at an altitude at 370 to 430 feet.

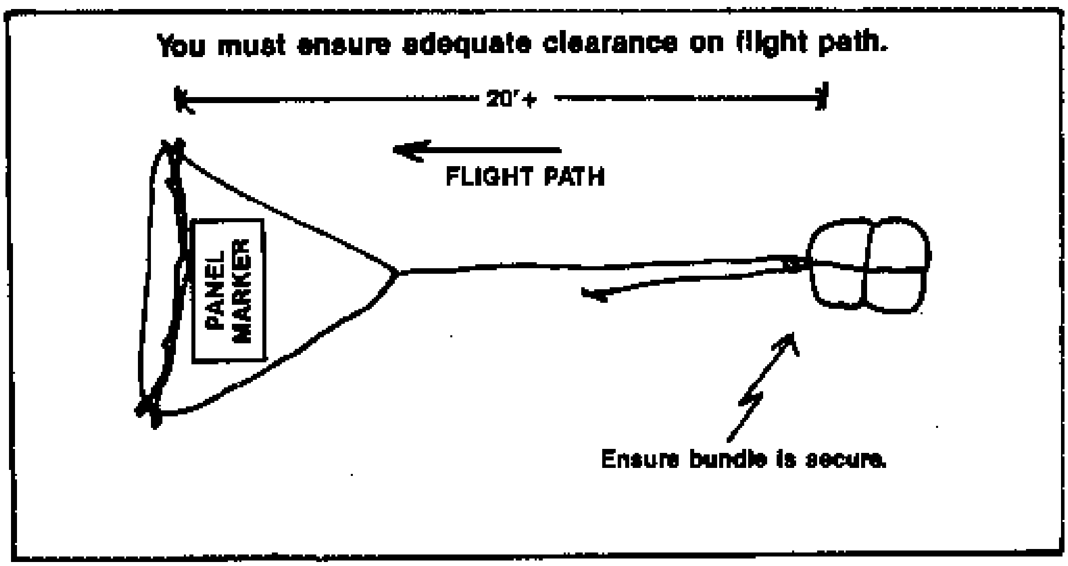
It is possible to snatch a passenger or bundle out of a ten-foot circle with obstacles as high as 50 feet around the outside.

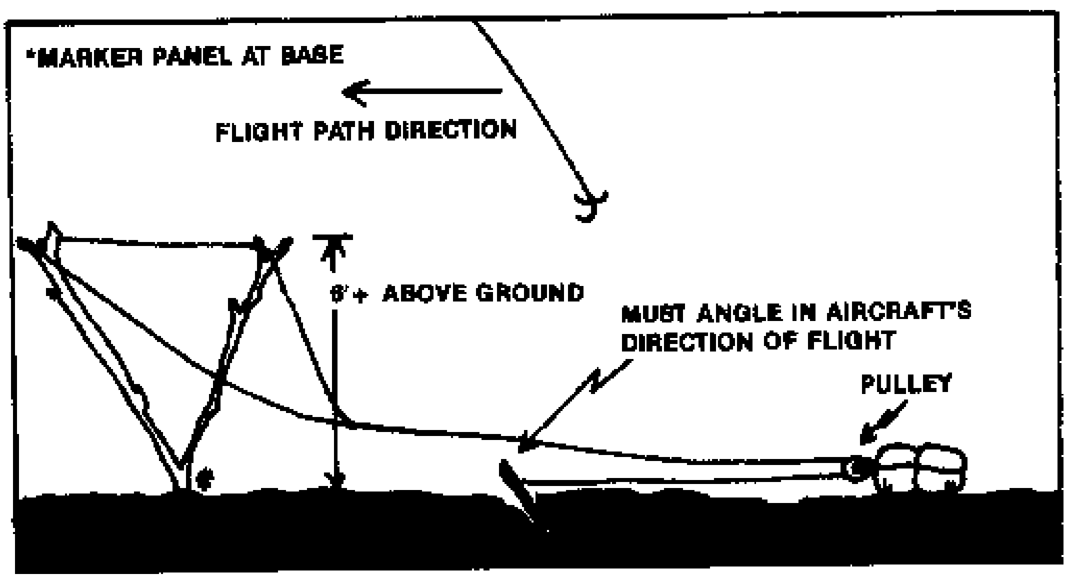
Mini-STAR equipment extraction. It may become desirable to extract captured equipment during the course of a mission while the team remains on the ground to continue the mission. Similar to the STAR system, but a simpler expedient method that uses much simpler equipment could be called Mini-STAR as it works on basically the same principle (see Illustrations).

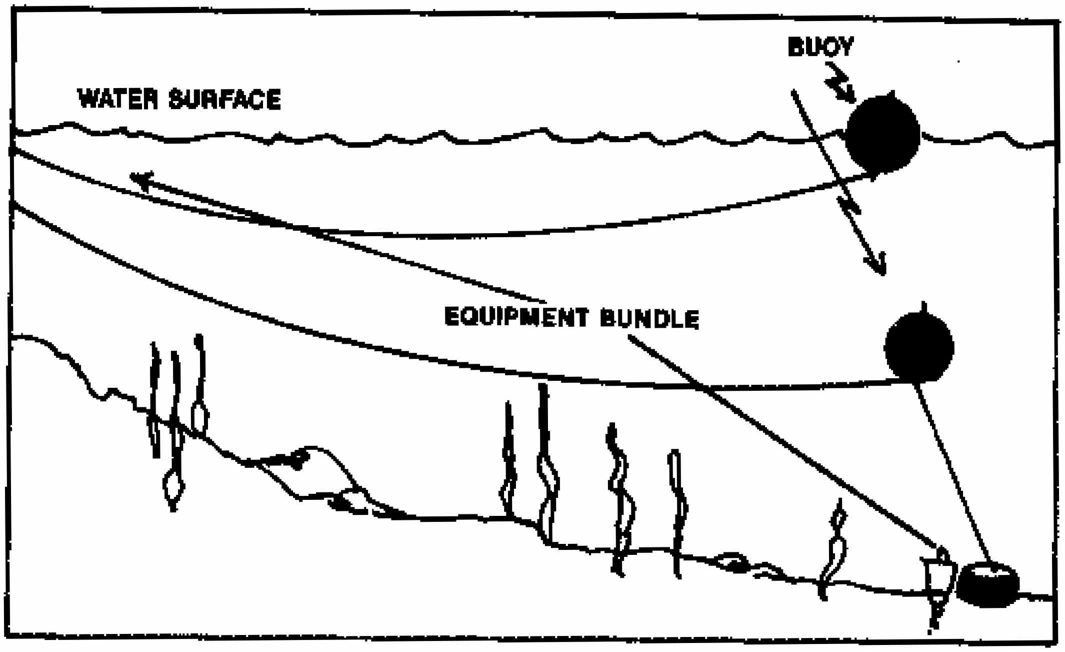
The pickup can be accomplished by a light plane, scout helicopter, or similar aircraft. The aircraft chosen should have a low stall speed to ensure pickup accuracy.

All that is needed is a rope on the ground and one in the aircraft, a grappling hook, and two trees or poles. The clearing should be at least five meters wide and long, and could be a stream, trial, field, or similar opening in the trees. The snatch rope should be strung between two uprights and attached to the package to be extracted. String it as high as possible, and ensure you have ten to twenty feet of slack. The grappling hook is attached to the end of a rope trailing the pickup aircraft so that the pilot maneuvers his aircraft to grapnel the snatch line. The team should talk the aircraft to the pickup point using radio and signal mirrors. The only marking should be a signal panel located directly under the snatchline. This method should only be used for equipment or documents. Stick with the STAR or similar system for personnel.

Waterborne equipment extraction. There are two







useful methods for equipment pickup by naval vessels. One requires a grapnel hook, while the other requires only a visible buoy marker. The material can be located either onshore or in the water. The onshore method requires a tow line to be attached to the buoy, and the floatable equipment container. When the line is snatched by the retrieval boat they simply tow it away. The other method requires the container to be submerged under the buoy to which it is attached. When the line and buoy are both submerged, a grappling hook must be used, in which case you must ensure that the coast line is not covered with underwater debris and that the distance from shore is known. Otherwise the operation becomes long and drawn out.

Security During Extraction Operations

During any extraction operations, and especially those where only equipment is being extracted and the team remains on the ground, security must be a top priority. The following general considerations apply to almost any type of extraction operation with minor modification, and apply equally well to resupply operations.

1. Always approach the extraction point with caution.
2. Maintain surveillance over the surrounding area prior to moving into the immediate location.
3. Conduct a reconnaissance of the surrounding area if time permits.
4. Position the team to provide as much security, or overwatch, as possible.
5. The team leader must maintain voice contact with the aircraft once it reaches the area, and provide the following information:
   - Approach azimuth and wind conditions.
   - Type, condition and height of foliage, underbrush, and so on.
   - Ground slope.
   - Team condition and situation. If recent contact was made with the enemy, ensure the pilot is briefed.

Normally the LRP team will not place out panels or use smoke markers during aircraft extraction. Signal mirrors and voice direction instructions should be used. Smoke should only be used when wind conditions are critical.

RESUPPLY OPERATIONS

Resupply of a team demands basically the same planning considerations as infiltration and exfiltration. Consider the possibility of compromise before committing to resupply or cache operations. If you can resupply the team, it may also be possible to extract them and insert a fresh team. However, living off the land may also become essential when exfiltration must be accomplished by walking out, evasion, and escape, or resupply is impossible.

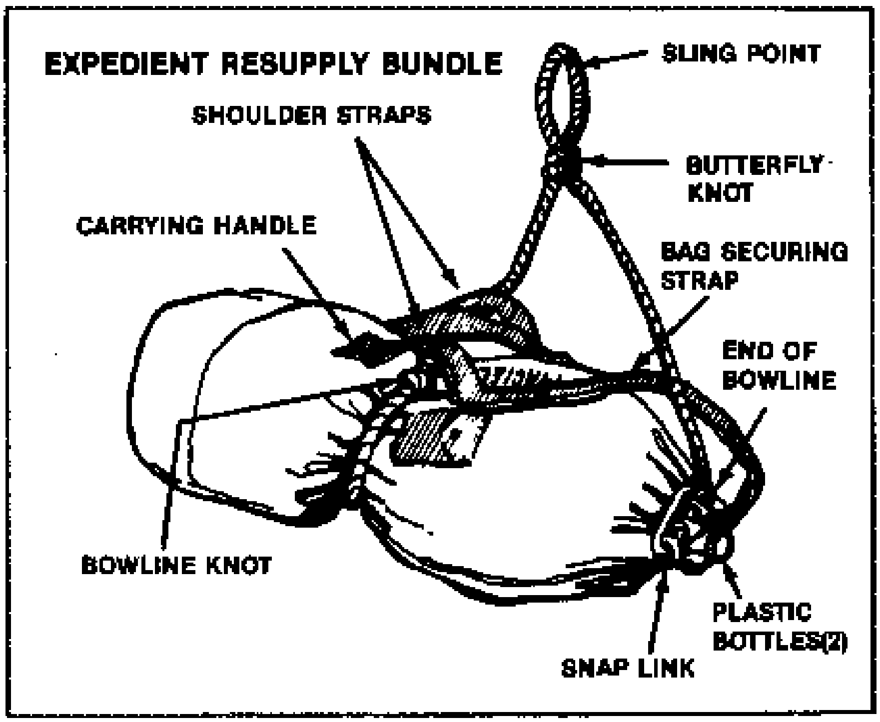
Resupply bundles should be prepacked by the team prior to departure in rucksacks or other easily handled containers. Consider using a rucksack for packing resupply items to save packing time in the field, speed of recovery, and so on. Look closely at what is needed, how the resupply will be accomplished and when, and the size and makeup of the resupply load.

Establishing caches for resupply during infiltration is an additional option available to the LRP force. However, you must consider the safety of the cache and the possibility of compromise upon returning for it.

In the event it becomes necessary to resupply a team in its operational area, a standard resupply brevity code should be developed, as part of the unit's supply SOP, that allows clear and rapid transmission of requirements. The brevity codes should include team and personnel data to allow clarification of needs, e.g., "Brown needs replacement boots," and so on.

Special brevity codes should also be established for specific prepacked supplies to support mission needs. Prepacked bundles could consist of demolition kits, rations for "X" days, special surveillance equipment, sniper equipment, and so on.

Coded bundles can be prepacked and sorted based on types of special equipment that might be needed after infiltration. Following reconnaissance on the ground, a special pre-coded signal can be sent for follow-up delivery of the desired bundle. The appropriate bundle is "static lined" out of the aircraft, and an electronic homing device on the parachute steering servo mechanism locks on and steers the parachute to the ground. Upon sighting the parachute, the team assumes radio control and guides it in on final approach and landing. If required, additional personnel can be inserted and follow the bundle to the ground.



10 Surveillance Techniques, Skills and Equipment

INTRODUCTION

Effective reconnaissance and intelligence acquisition requires the development of specific skills and considerable patience. Intelligence must be acquired not only to accomplish the LRP force mission, but also to execute it. The process must start during the mission planning stage and continue up to the mission debriefing. The types of intelligence and extent of the details and information collected will depend primarily upon the mission's purpose. A mission conducted solely to gain intelligence will require considerable detail regarding any observations, while a combat mission will stress details about the actual contact and allow more generalization about intelligence data gathered in route.

Intelligence collection is an important ongoing function even during strike missions. The team must be alert to intelligence indicators prior to engaging an enemy force that has been targeted. They may disrupt a pattern of activity which, if observed longer, may provide valuable intelligence data. The well-trained and disciplined team should be able to evaluate such situations sensibly and quickly, and delay contact to gather intelligence when the situation warrants. With surprise on their side they can often wait to make the kill.

Many, if not all, of the skills required for effective reconnaissance will also be essential for other aspects of the mission. Skills such as range determination, night and day observation techniques, target identification and selection, and so on, are vital to the LRP and require extensive training and practice to be fully developed and properly utilized.

LRP intelligence-acquisition efforts basically fall into two categories, surveillance and reconnaissance. Surveillance is basically conducted from a stationary observation position (such as a hide) of a particular target or point. Reconnaissance efforts are either deliberate or planned actions, or reconnaissance of opportunity, and will primarily involve movement within a designated area or zone to collect intelligence data; such efforts may also entail the use of stationary surveillance. Both categories can be further classified as either hasty or detailed. Hasty surveillance or reconnaissance is normally conducted as the result of a chance encounter with an enemy force or position, or accomplished as a secondary collection effort en route to the team's primary mission objective. Detailed surveillance or reconnaissance is normally conducted as the primary team mission and involves the collection of sufficient data to allow detailed analysis for tactical operations. The acquisition effort may be concerned with either a specific line or route of communications, position or installation, or enemy formation. It may also be concerned with the attitude, actions, and capabilities of the civilian population in the operational area.

To effectively perform their intelligence acquisition functions, the LRP team and force must orient their actions on the location or movement of the intelligence objectives, and be allowed maximum freedom of action commensurate with the mission. An intelligence acquisition mission is accomplished within the following fundamentals:

1. Information must be complete, timely, and

accurate.

2. Physical or visual contact by the enemy or local population must be avoided at all costs.
3. Visual or sensory contact must be gained as soon as possible and maintained for the duration of the mission.

The types of reconnaissance and surveillance missions that were discussed in Chapter 1 will not be rehashed at this point. Rather, we will concern ourselves with how to conduct reconnaissance and surveillance activities and what to look for.

In spite of any precautions the enemy may take to deceive friendly forces or to mask his operations, he must inevitably carry out specific activities in preparation for specific operations. These activities may be essential parts of his planned operation, or may be carried out as part of a deception plan. The LRP team must be able to identify and evaluate these intelligence indicators to conduct effective intelligence acquisition missions. The following list of typical intelligence indicators is by no means all-inclusive. It must be revised and expanded based on the opposing enemy force and their methods of operation. These indicators are much like signals, and if reported accurately and in a timely fashion, they can project the enemy's intentions.

TYPICAL INTELLIGENCE INDICATORS

Activity	Explanation
Concentration of mass toward either or both flanks.	Single or double envelopment normally is attempted in the offense. Tanks and mechanized units on either or both flanks may indicate single or double envelopment.
Extensive artillery preparation.	Offensive built around the striking power and shock of massed artillery. Preparations to ½ to 1 hour normally precede offensive.
Artillery positions well forward and concentrated.	Artillery positions for the attack are well forward, with direct fire weapons, artillery pieces, and large numbers of mortars concentrated.
Dispersal of tanks and SP guns to forward units.	Tanks accompanying leading waves of assault mechanized units. SP guns follow tanks closely by bounds.
Medium air defense guns located in forward areas.	Medium air defense guns displaced forward prior to attack to protect assault forces and to facilitate forward displacement during the attack.

Activity	Explanation
Demonstrations and feints.	Local, small-scale attacks or demonstrations involving mechanized units, tanks, and artillery frequently precede a general attack.
Conducting drills and rehearsals in rear areas.	Major attacks may be preceded by rehearsals. This is particularly true of attacks against fortified positions or strongly defended river lines.
Establishment and strengthening of counterreconnaissance screen.	Counterreconnaissance screens are used to cover possible assembly areas, routes of troop movement, or regrouping of forces to be used in the attack.
Movement of hostile units forward.	Prior to launching an attack, troops may be moved to assembly areas from which they can deploy.
Location of enemy troops in forward assembly areas.	Troops are assembled in areas from which they can launch the attack.
Increased patrolling.	Patrolling by mechanized units usually is more active before an attack.
Increased activity in rear areas.	Before an attack, supply and administrative activities increase in the rear areas.

Location of supply and evacuation installations well forward.	Supply and evacuation installations usually are located well forward for an attack.
Increased air reconnaissance.	Air reconnaissance usually is more active before an attack.
Systematic air bombardment.	Before the attack, the enemy may engage in systematic "softening up" of friendly position by bombardment.
Clearing lanes through obstacles within own position.	Lanes are cleared and marked through mined areas, and ramps and bridges prepared over ditches and trenches within enemy's own position. This is done prior to attack to facilitate forward movement and grouping, particularly at night.
Reconnaissance and destruction of obstacles that are part of friendly defense.	Usually on night preceding attack, enemy patrols reconnoiter friendly obstacle to determine plan for clearing lanes. Patrol destroys only such obstacles as will not disclose direction of main effort.

Attack may be indicated by:

Activity	Explanation
Massing of mechanized elements, tanks, artillery, and logistical support.	Areas of secondary importance are often denuded to mass maximum strength for main effort.
Deployment of combat elements (mechanized, armor, antitank) in echelon.	Normal attack formation provides for the second echelon of the regiment to be located 3 to 6 kilometers in rear of the first echelon on line; division second echelon 6 to 8 kilometers in rear of first echelon; and army second echelon 15 to 25 kilometers in rear of first echelon.
Forward units disposed on relatively narrow fronts.	The actual attack zone of a mechanized regiment is about 4 kilometers within an assigned frontage which varies from 5 to 8 kilometers.

Defense may be indicated by:

Activity	Explanation
Preparation of battalion and company defense areas.	Defense is based on stubborn defense of battalion defensive areas, and counterattacks by tank heavy forces.
Extensive preparation of field fortifications.	The enemy makes extensive use of trenches, prepared positions, and overhead cover in defensive operations.
Formation of antitank strongpoints.	Antitank strongpoints are formed along logical avenues of approach for armor. These are made up of mechanized engineer, and antitank gun units with positions strengthened by mines, ditches, and other obstacles.
Attachment of additional antitank units to frontline defensive positions.	In areas where there is a serious armored threat, the enemy will concentrate as many as 25 antitank guns for every 1,000 meters of front.
Preparation of alternate artillery positions.	In normal defensive operations, three positions are prepared for each firing battery.
Employment of roving artillery.	Roving guns are part of normal defensive operations.
Large tank units located in assembly areas to the rear.	Tank units are held in assembly areas for employment in counterattack roles.
Preparation and occupation of successive defense lines.	In the defense, separate and distinct defense lines are prepared and occupied.
Presence of demolitions, contaminated areas, obstacles, and minefields.	Demolitions and minefields and other obstacles are placed to cover approaches to the position.

Deployment of mechanized units on good defensive positions.	Dominating terrain that has good fields of fire and is relatively inaccessible to tanks usually is selected for a defensive position.
Dumping ammunition and engineer supplies and equipment and fortifying buildings.	Engineer tools and equipment may be used to dig trenches and to erect obstacles.
Entrenching and erecting bands of wire.	Digging of trenches and the erection of wire indicate preparations to hold the position.

Reinforcement may be indicated by:

Activity	Explanation
Movement of additional troops toward the front.	This action could increase enemy's present strength.
Increased traffic toward present position.	This increased traffic may bring up additional troops and supplies.
Identification of new units in combat zone.	The presence of new units in addition to units already present will increase enemy's strength.
Additional command posts and supply and evacuation installations.	Presence of additional units would cause an increase in number of these installations.

Delaying action may be indicated by:

Activity	Explanation
Withdrawal from defensive position before becoming heavily engaged.	In delaying action, units avoid becoming decisively engaged.
Successive local counterattacks with limited objectives.	Counterattacks are employed to assist in disengaging first echelon units rather than to restore position.
Counterattacks broken off before position is restored.	Same.
Maximum firepower positioned forward; firing initiated at long range.	Long-range fires facilitate the delaying action.
Frontages up to four times that normally assigned to units on the defensive.	Forces conducting a delaying action are normally assigned frontages in excess of that normal for enemy units on the defense.
Use of prepositioned nuclear weapons.	Prepositioned nuclear weapons facilitate the delaying action.

Indications for withdrawal are generally the same as those for delaying action with the addition of the following:

Activity	Explanation
Rearward movement of long-range artillery and supply echelons.	In withdrawal, the first units to be withdrawn are long-range artillery and the supply echelons which move back under cover of darkness 1 or 2 days before main withdrawals.
Systematic destruction of bridges, communication facilities and other military assets in enemy-held territory.	Deliberate demolition and scorched earth tactics may be employed in general withdrawals.

Presence of nuclear delivery systems may be indicated:

Activity	Explanation
Heavily guarded movement of supplies, equipment and material.	Movement of supplies, equipment, and material of nuclear nature requires special security measures.
Heavily guarded installations.	Sites for storage of nuclear supplies and the locations of delivery units are heavily guarded.

Preparation of very heavy artillery positions.	Primary and alternate positions for nuclear delivery artillery are prepared prior to movement of the units.
Movement or detection of SP launchers.	NERONO and KOLOSSO, free rockets, and TONDRO, and FULMO, surface-to-surface missiles have tracked SP launchers.
Presence of radars and other electronic equipment.	Surface-to-surface missile systems employ the DIREKTO radar for control.

Activity	Explanation
Sudden increase in communication and electronic activities.	Enemy nuclear delivery units are heavily equipped with radios and electronic devices.
Movement of small, heavily guarded convoys, including closed vans with a high percentage of automatic weapons.	Nuclear warheads are moved under heavy security, usually in closed vans. Escort vehicles are equipped with machineguns.
Light aircraft circling over moving convoy.	Nuclear warhead convoys often use aerial radio relays to maintain communication.
Movement of small groups of heavily armed helicopters escorted by tactical fighters.	Nuclear warheads may be moved by helicopters, with guards and armed helicopters as escort. Tactical aircraft may provide air cover.
Movement of pole trailers with rockets or missile bodies.	Pole trailers are used to resupply missile and rocket units.
Presence of heavy and very heavy artillery.	203mm gun-howitzer, 310mm gun SP, and 400mm mortar SP have nuclear delivery capabilities.
Identification of tall slender objects, such as towers, chimneys, or narrow trees, not previously in area.	Ballistic missiles may be camouflaged as towers, chimneys, or narrow trees, such as poplars.
Large, well-guarded complexes including tank-trucks, radars, electronic equipment, generators, and maintenance tents, located well to the rear.	Surface-to-surface missile units require extensive ground handling equipment.
Heavily guarded closed vans.	Nuclear warheads normally are carried in closed vans that are heavily guarded.
Evacuation or exclusion of civilians from specific areas suitable for nuclear storage or delivery sites.	Civilians may be evacuated from areas selected for nuclear storage or delivery sites.

Use of nuclear weapons may be indicated by:

Activity	Explanation
Location of missile and/or free rocket units within striking range.	Missile and free rocket units are located within one-third maximum range from the line of contact on the offense, and one-half on the defense.
Use of missiles and/or free rockets with high explosive warheads.	Missiles or free rockets may be used to deliver high-explosive warheads either in a normal support role or a registration.
Location of very heavy artillery within supporting distance of frontlines.	Nuclear delivery artillery is located within one-third of its maximum range from the line of contact on the offense, and one-half on the defense.
Registration of very heavy artillery.	Registration may be required, using smoke, low charge, or high explosive projectile, prior to firing a nuclear projectile.
Special or unusual activity by frontline troops.	Frontline troops may construct special positions, usually deep or covered foxholes, prior to enemy use of nuclear weapons.

Limited withdrawal of frontline units without apparent tactical reason.	Frontline units may withdraw for a limited distance to avoid casualties from close-in nuclear explosives.

Activity	Explanation
Sudden increase in communications and electronic activity.	Increase may be incident to delivery of nuclear weapons, for example, last-minute orders and warnings, and use of electronic guidance and control.
Use of smoke cover on frontline troops.	Smoke may be used to protect troops against thermal effects of weapons used in close support.
Disappearance of known enemy agents from specific areas.	Prior to nuclear attack of an area, agents may be ordered to leave the area.
Increased or unusual air activity.	Delivery of nuclear weapons by air may require a temporary degree of local air superiority, special photo missions, and/or practice flight pattern runs by the delivery aircraft.
Sudden and energetic digging in enemy areas.	Prior to use of nuclear weapons, frontline units may be ordered to dig deeper foxholes or take other individual protective measures.
Large concentrations of radios, radars and other electronic equipment located in the vicinity of suitable sites for guided missile launching.	Concentration of equipment is necessary to guide and control guided missiles, and must be located in close proximity of the launching site.

Whether conducting a reconnaissance or combat mission, certain data must be collected as part of the overall intelligence acquisition effort. The degree of detail and extent of investigation will vary based on the primary purpose of the mission. However, the following information should be collected in as much detail as time and situation permits. On a prisoner snatch mission, for example, it may only amount to noting that "yes, that bridge is there."

1. Note the width of roads, whether or not they have shoulders, and if they are firm and wide enough to support vehicles. The existence, width, and depth of any drainage ditches should also be noted. Corners should be checked for their radius. Detours and bypasses should be recorded, along with the reason for their existence. Adjacent terrain should be described as to its passability by vehicle, and so on. The existence and type of fences and guard rails must also be noted.
2. Bridges must be described by type, length, height above water or ground, details of approach, length of each span when there is more than one, type and dimensions of bridge supports, usable width, overhead obstructions, condition, and whether or not it is guarded.
3. Tunnels must be described by height, length, and width. If the tunnel has a curved roof, draw a sketch to show how much it narrows, etc.
4. Possible obstructions near bridges, roads, and tunnels should also be noted. These may consist of overhanging cliffs, tall trees, and power lines. Heights and a general description should be recorded, along with the distance and alignment with the road, bridge, or tunnel.
5. The ground surface of roads, bridges, and tunnels must also be recorded. Try to appraise the general condition of the surface, and possible effects that weather may have on it.
6. Note likely ambush sites, vehicle parks, refueling points, and so on. All areas that can provide adequate cover and concealment should be clearly noted, along with the size of the force that could occupy them.
7. Gradients of hills and slopes do not often need to be specified. However, those that are particularly steep or that would present difficulty in negotiating should be recorded, along with the estimated degree of slope.
8. Information on rivers, streams, and lakes must include estimated widths, depth, water-flow velocity, and so on. Particular attention should be given to conditions of the banks, cover, concealment, and approaches.
9. Density, height, and other aspects of area vegetation should be noted, along with the height and diameter of trees.
10. Possible landing zones for airborne and airmobile operations should be clearly noted, with particular attention to the condition of

the ground surface and height of surrounding obstacles.

11. Enemy personnel sightings should note not only their uniform and equipment, but also their morale and physical appearance. Do they look healthy? Clean and well groomed? Sloppy and lazy? Joking and in general good cheer? Quiet and somber? Do they look professional?

Conducting reconnaissance of a future target would require specifically recording the following essential data:

1. Approach and withdrawal routes, and alternate routes to include the availability of fields of observation and fire; concealment and cover; obstacles and key terrain; capability of dispersion and maneuver; and trafficability. Include bearings, useful landmarks, rally points, and reference points.
2. Key terrain and suitable positions for security elements to cut off reinforcement routes and lines of communications, or similar functions.
3. Known or suspected enemy sentry locations, observation and listening posts, defensive positions, and so on. Evaluate the physical strength, weapons, capabilities, and functions of enemy defensive and security positions. Record general impressions about the enemy: morale, health, professionalism, etc.
4. Observe for weak points, dead areas, obstacles, and personnel routines.
5. Prepare a sketch detailing as much intelligence information as possible, including key targets such as command posts, ammunition and fuel dumps, communications centers, and troop quarters.

The terrain data collection effort should examine how the terrain would affect the ability of the team or other unit to perform its mission. The elements of the environment that will influence movement, acquisition of targets, concealment, and employment of weapons, and affect communications capabilities are important factors to address. These factors must be addressed not only in the way they may affect the team, but also how they would affect the enemy's operations. This terrain data can be categorized as:

- Terrain configuration or masking.
- Horizontal and vertical visibility through vegetation and canopies.
- Cross-country movement potential and load class of roads.
- Effects of topography on radio transmissions.
- Potential barrier and ambush sites.
- Choke points and built-up areas.
- Stream and river characteristics.
- Bridge and ford data.
- Suitability of areas for airborne and airmobile operations.
- Locations of railroads, airfields, and other transportation points.
- Location of power, telephone, and pipe lines.

SELECTING TARGETS

Whether a team is conducting ambush operations, sniper missions, or a prisoner snatch, it is important that it be able to select a target that will either provide the most intelligence, hamper enemy operations the most, or degrade the enemy's combat capability. The following categories and characteristics should be considered when selecting a target:

Unit leaders (officers and noncommissioned officers), usually distinguishable by their uniform and equipment, are more knowledgeable of troop dispositions, codes, and other intelligence data, and would make valuable prisoners. As sniper or ambush targets, their elimination may slow or hamper the enemy's response, as they may be the only members of the enemy force capable of requesting reinforcements or supporting fires.

Communications personnel must be primary targets for any operation. Their knowledge and communications equipment are excellent sources of intelligence data and their early elimination will help safeguard the team. In many instances unit leaders will either be located with or near the communications equipment, which will allow engagement of both at the same time. The equipment as well as the operator should be considered a target.

Snipers, scouts, trackers, and crew-served weapons crews are primary threats to the team and must be considered critical targets. They can generally be identified by their equipment and/or actions, and should be eliminated whenever possible. Crew-served weapons themselves must also be targeted, as elimination of the crew may only temporarily suspend the weapon's use.

Disruption of communications systems such as telephone lines, remote antennas, and other equipment, can lure enemy communications personnel to an ambush' site and further disrupt enemy operations.

HIDES AND OBSERVATION POSTS

For the purpose of LRP operations, hides and observation posts serve the same function and are established to accomplish surveillance. A hide is established when the team will be conducting detailed deliberate surveillance of a specific target or area for more than 24 hours, while an observation post (OP) is established when the planned period of surveillance will be less than 24 hours or is conducted as a hasty reconnaissance, or an adequate hide position is not available. An OP is basically a temporary surveillance position, while a hide could be considered a permanent or long-term surveillance position. However, whenever the situation and time permit, a well-concealed hide should be constructed.

Although normally only engaging the enemy in self-defense while occupying the OP or hide, the team may also employ long-range supporting fires and air support to harass, impede, and destroy observed forces.

The type of mission and the map study made during planning will generally dictate the approximate location of the OP or hide. However, it will actually be selected only after seeing the terrain firsthand. The site must offer a concealed route of approach, adequate field of view, cover and concealment, and a route of escape, and must avoid being near a landmark. Normally, a site higher than most of the surrounding terrain will be selected to obtain a wide and deep view. The hide or OP should be located well off the beaten path and away from conspicuous terrain features. All-around observation from the hide will usually not be possible, which will require additional concern when selecting its location.

A careful reconnaissance of the area is essential and must be conducted prior to the team moving into and occupying the position. It should also contain many of the same features as a patrol base (see Chapter 14) and be established in much the same manner.

Depending on the nature of the terrain, time available, and other factors, it may be necessary to construct a small two-man observation hide, with a separate patrol base located nearby. The team then occupies the hide in shifts. The patrol base must be located in an overwatch position to provide added security and support.

The best opportunity to employ a hide position is when a team is being deployed using the stay-behind mode of insertion. Local engineer units should be used to provide assistance in constructing the hide whenever possible.

A hide should allow a certain amount of movement without fear of detection, protection from the weather and enemy fire, and as much comfort as possible to enhance the team's efficiency. Considerable attention must be given to proper camouflage, with a goal of minimum maintenance and upkeep, and with natural camouflage materials used as much as possible. Team and individual equipment required for construction will include entrenching tools, cable saw, sandbags or similar items to haul away unneeded dirt, and possibly a machete. Considerable care must be taken during construction to ensure the team's position is not compromised. A number of possible hide designs are provided in the accompanying illustrations. Hide construction must be stressed during training to allow development of skills and speed.

Adequate plans must be made and rehearsed regarding emergency and end-of-mission withdrawal from the hide in order to ensure safety and security of the team.

Once the hide or OP is established, movement in and around the position must be extremely limited. However, depending on the enemy's RDF capability, it may prove essential to leave the position for periodic transmission of observation reports to avoid location compromise.

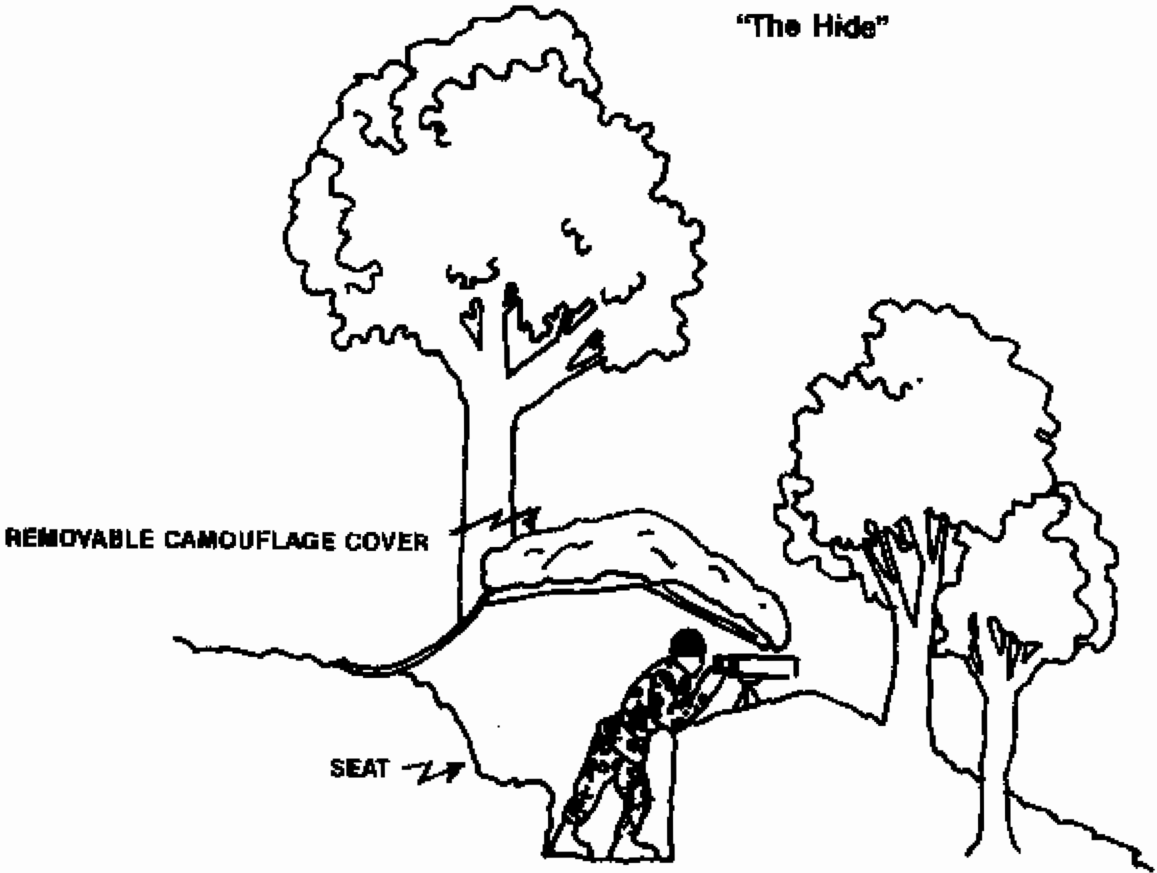
Activities in the hide or OP must be well planned, and should include not only how the mission aspects will be accomplished, but also procedures and methods of rest for short and long periods; movement within the position; methods of exercise during prolonged occupation; control and disposal of waste; eating; and obtaining water.

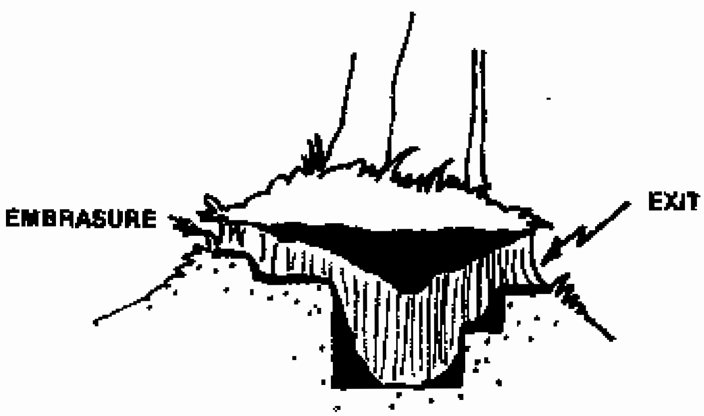
TECHNIQUES OF OBSERVATION

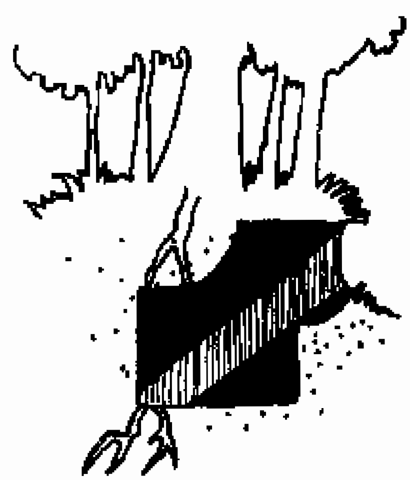
Observation skills are the cornerstone of LRP operations and require constant training and practice. Personnel must be familiar with both the capabilities and limitations of visual powers.

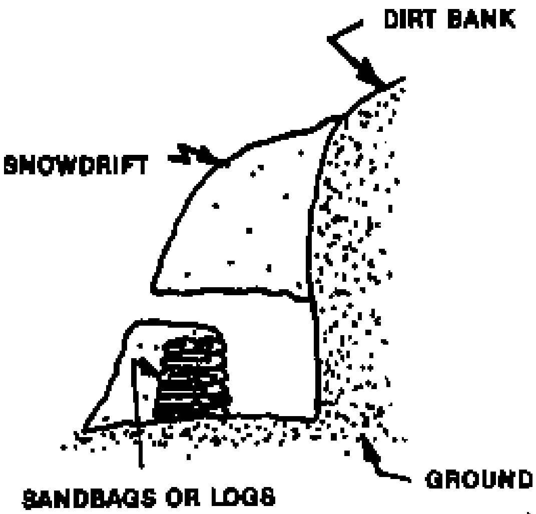
The process of observation must be planned and systematic. When first establishing an observation position, the first consideration must be discovering and identifying any immediate threats. This is initially accomplished by conducting a hasty search, followed by a slow, deliberate observation called a detailed search. During continued occupation of the position, the observer alternates hasty and detailed search methods as the situation warrants. Surveillance of an area should be conducted using teamwork. One man may observe the entire

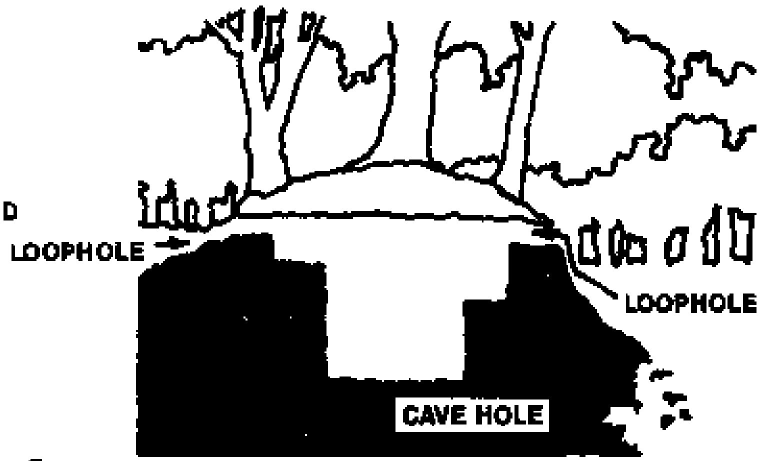
"The Hide"

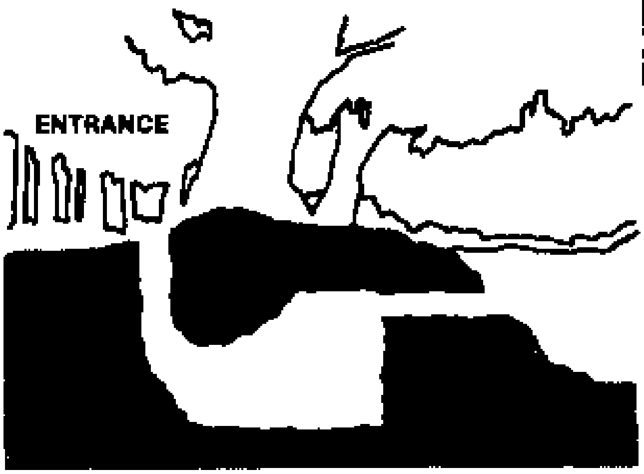




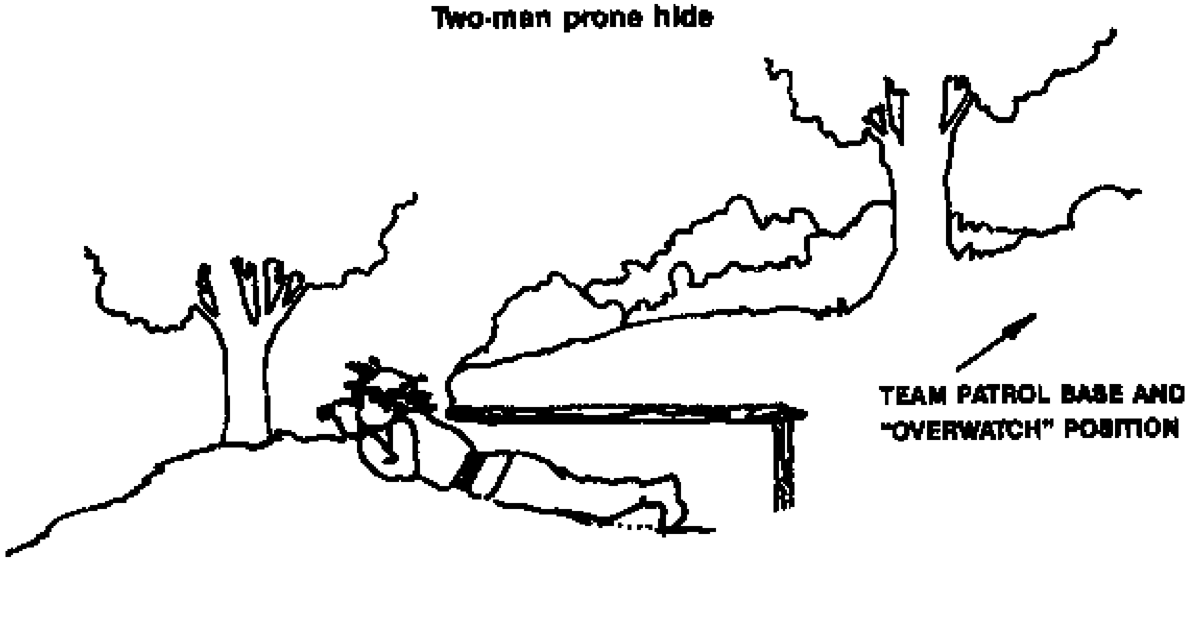


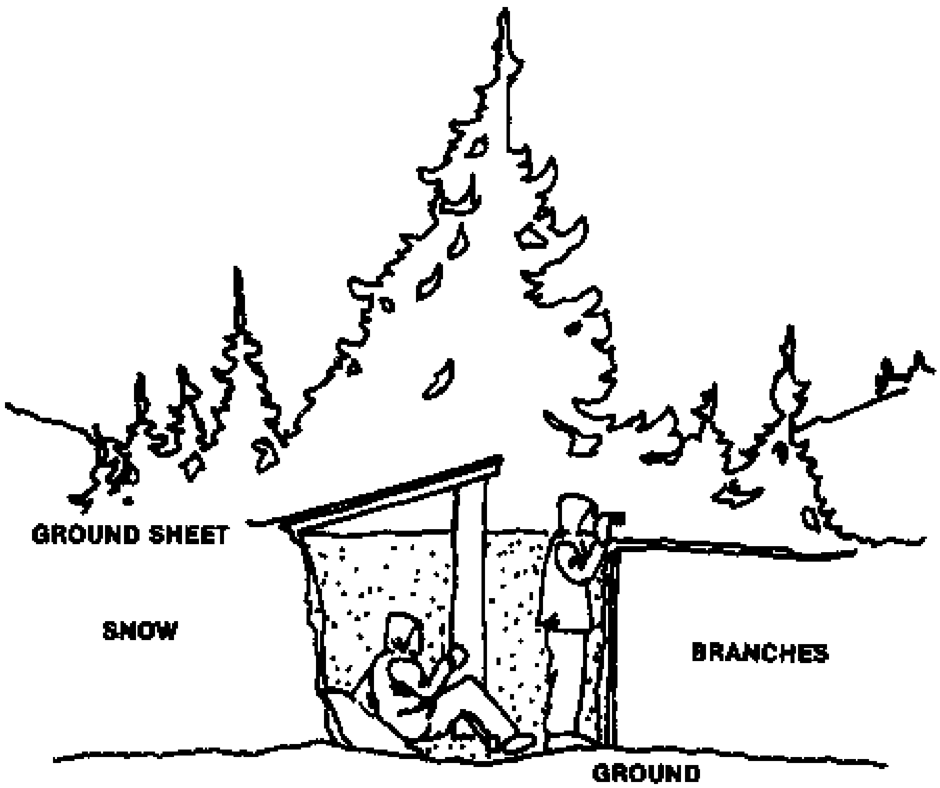


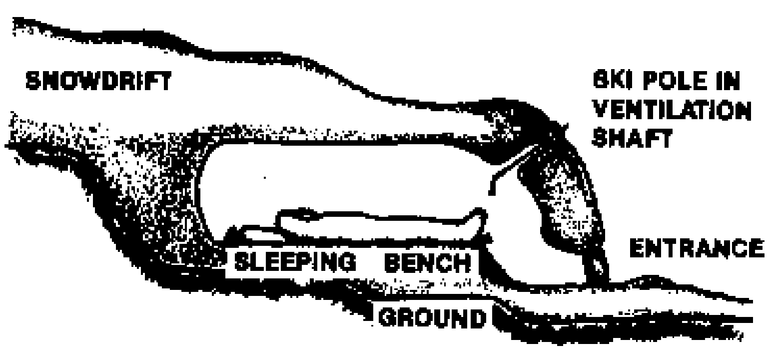


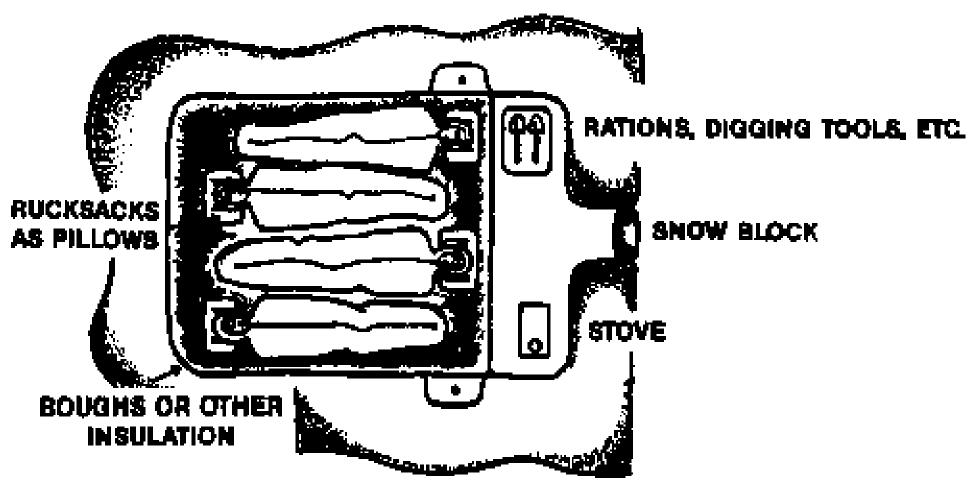


Two-man prone hide




GROUND SHEET
SNOW
BRANCHES
GROUND


SNOWDRIFT
SKI POLE IN
VENTILATION
SHAFT
ENTRANCE
SLEEPING BENCH
GROUND


RATIONS, DIGGING TOOLS, ETC.
RUCKSACKS
AS PILLOWS
SNOW BLOCK
STOVE
BOUGHS OR OTHER
INSULATION

area for movement using a hasty search, while another systematically searches with binoculars or other vision aids.

The hasty search consists of a very rapid check for enemy activity and is conducted in about thirty seconds. It is accomplished by making quick glances at specific points throughout the area, not by making a sweeping glance across the area of observation, which does little in the way of spotting the enemy. Eye movement must actually stop, at least for a fraction of a second, for the eyes to actually see anything. These quick glances take advantage of the eyes' sensitivity to even slight movements occurring within a wide arc of the point of focus. This sensitivity comes from what is called "side vision" or "seeing out the corner of the eye." The eyes must momentarily focus on a point to obtain this sensitivity.

The detailed search is a systematic examination known as a 50-meter overlapping strip search. The search begins with the area nearest the observer and progresses out in overlapping strips, approximately 50 meters wide, as far as the observer can see. It must be accomplished systematically from one flank to the other, with a slow deliberate spot-by-spot search. Again, the eyes must actually pause and focus on specific points.

In maintaining effective observation of an area, the observer must devise a set sequence of searching to ensure coverage of all terrain. Prominent terrain features, manmade structures, and obstacles to observation must be noted during each phase of the search. A hasty search should be conducted with these features, followed by a detailed search any time the observer's attention is distracted. The observer must be constantly alert for target evidence such as sound, movement, and improper camouflage.

If several targets are spotted in separate locations at the same time, the observer must remember their locations by the use of reference points to allow shifting of his attention from target to target until the most critical, or important, target is identified. This can be effectively accomplished by employing sniper techniques, whereby aiming points and reference points are used. Factors such as exposure time, the number of targets, their spacing, and whether good reference or aiming points are available, will all affect the efficiency of the observer.

A map must be constantly available and oriented with the observer's field of view. This will enhance the recording and reporting of information and the use of indirect fires.

Day Observation and Scanning

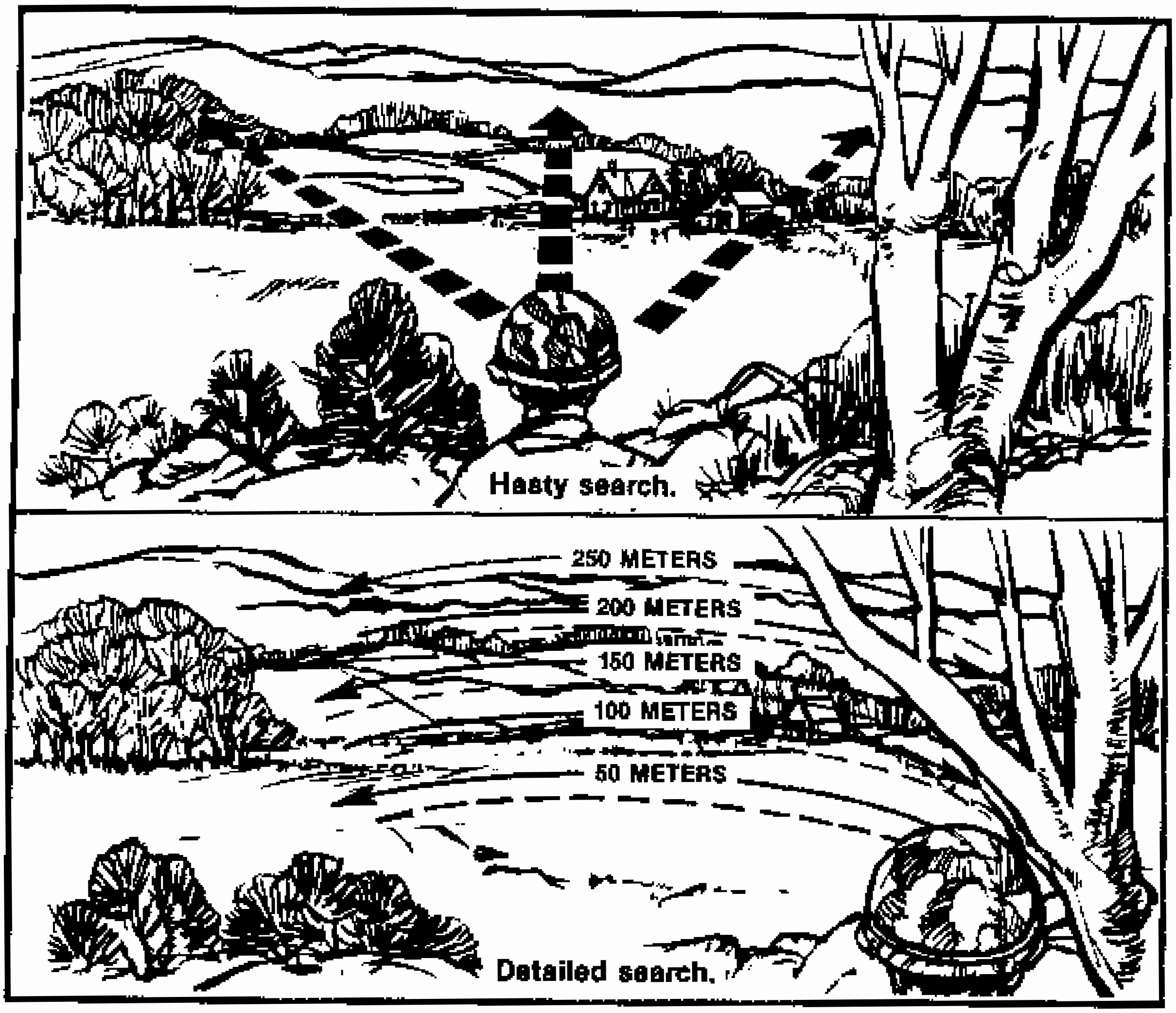
A routine scanning pattern should be used. The eyes should move and pause for each three to four degrees of lateral and/or vertical distance at a rate that will cover about ten degrees of the area per second. A sighting is most likely to occur in an area limited by a five degree radius in all directions from the point at which the eyes are focused. The good observer does not jump his eyes too far between fixations, and pauses only briefly between fixations when conducting the daylight search.

Periods of twilight, during dawn and dusk, often create a false sense of security and must be considered prime periods of increased observation and security. Visual aids should be used to the maximum extent possible. Contrast is reduced, with the resulting effect similar to staring into the snow or sand. The observer should periodically refocus on a point offering considerable contrast, even if within his own position, in order to maintain proper focus.

Night Observation and Scanning

Personnel must also be familiar with offset vision techniques, the use of binoculars, scopes, and other aids to enhance their night vision. With the proper use of observation aids, it is possible to observe and identify targets out to ranges of 600 to 800 meters, depending on ambient light levels. Some people see a lot better in the dark than others. In fact, those of us with the best night vision can see ten times better at night than those of us with the poorest night vision. With training and practice and some understanding of the basics, most people can double their night-vision efficiency. The use of scanning techniques will considerably enhance night observation.

Scanning is the act of moving the eyes in short, abrupt, irregular changes of focus around the object of interest. The eyes must stop momentarily at each point, since they cannot actually see clearly while moving. Offset, or off-center, vision techniques involve viewing the object by looking 10 degrees above, below, or to the left or right of the object. However, even when using this method, the object will tend to fade after only a few seconds, requiring you to refocus. The observer must also periodically rest his eyes by closing them for a



period of five seconds to avoid eyestrain.

It normally takes the eyes about thirty minutes to adjust to darkness. During this period, vision is less reliable due to the expanding of the pupils. The wearing of red-lensed glasses or goggles can aid in the adaption process. An important fact to keep in mind is that continuous exposure to intense sunlight for several hours can cause your dark adaptation threshold to rise. This effect is cumulative and takes several hours to wear off.

The retina of the eye is more sensitive to lack of oxygen than any other part of the body. In addition, blood circulation in the rod area is less efficient than in the center cone section. Because of this, hypoxia, smoking, and alcohol all affect night vision.

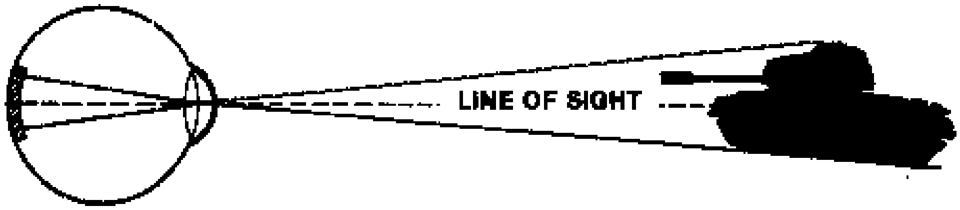
A minor degree of hypoxia which would not affect your vision in the daytime can diminish it considerably at night. There is a 20 percent loss of night vision at 10,000 feet if oxygen is not used. Immediately following a night HAHO/HALO jump, the observer's night vision will be severely reduced.

Smoking reduces the amount of oxygen available to the eyes because blood cells take up carbon monoxide much more readily than oxygen. The more carbon monoxide in the bloodstream, the less oxygen there is, resulting in diminished night vision. Chain-smoking three cigarettes produces a carbon monoxide blood saturation level of 5 percent, the equivalent of raising your physiological altitude to 8,000 feet. This effect is not something that can wear off overnight, or be prevented by smoking your last cigarette prior to the start of a mission. It is a semi-permanent condition that will take a great deal of time to reverse if you have been smoking for a number of years.

Alcohol produces a similar effect by making the body tissues less receptive to oxygen in the blood. One authority reports that a study has shown that after ingesting two ounces of alcohol, the sensitivity of the eye was so impaired that a light had to be doubled in brightness for it to be seen.

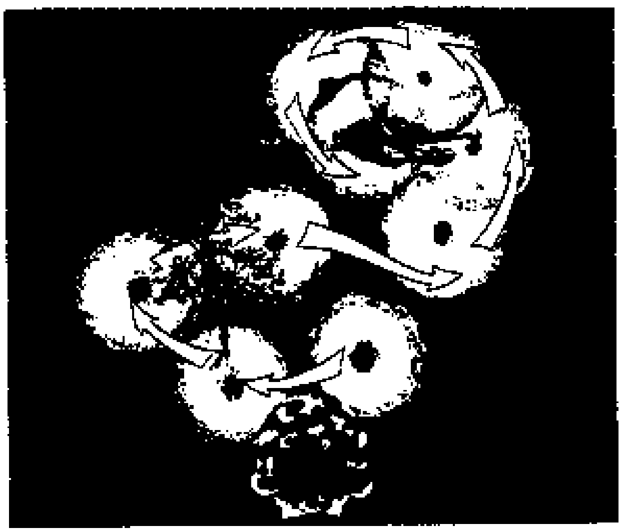
Fatigue and vitamin A deficiency will also considerably reduce night vision. The only solution here is to maintain a proper diet, get sufficient rest, and maintain a high state of physical fitness.

The following illustrations graphically portray scanning, searching, and vision techniques that can greatly improve observation efforts for the LRP.

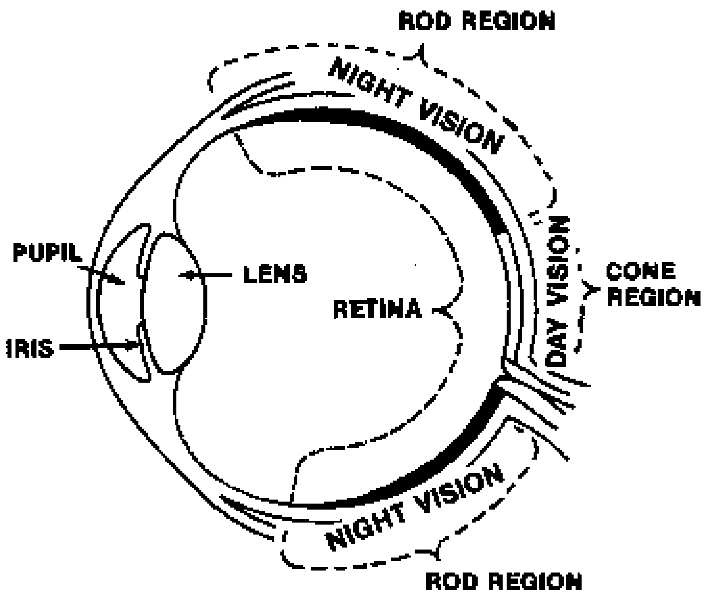


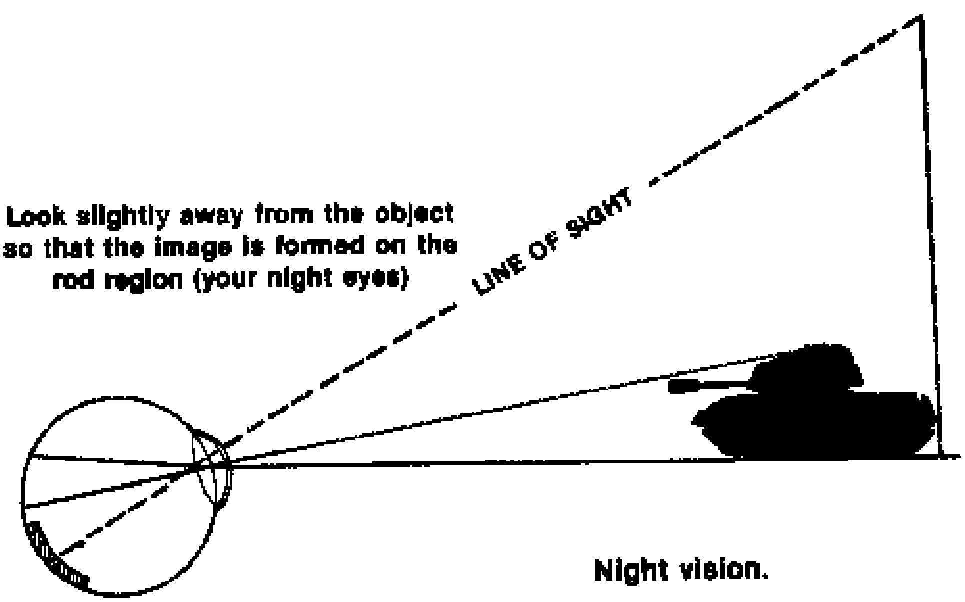
Look directly at the object so that the image is formed on the cone region (your day eyes).

Day vision.



At night, scan in short, abrupt movements.





Look slightly away from the object so that the image is formed on the rod region (your night eyes)

Night vision.

STANO EQUIPMENT

STANO, or surveillance, target acquisition, and night-observation equipment, has steadily become more sophisticated over the years, and can be either a threat or a benefit to the LRP team. It enhances the team's ability to conduct surveillance and acquire targets in the operational area, while at the same time its use by the enemy increases the danger of the team's detection. When using any type of scope, shade it from direct sunlight. If necessary, a sunshade can be fashioned from cardboard to shield the lens or a hooded lens cover used.

Binoculars and observation telescopes are far superior to the naked eye in daytime, and at night when ambient light (moonlight, flares, searchlights, etc.) exists. However, you cannot see through smoke, dust, or precipitation. While useful for long-range observation, they can also make a good field-expedient telephoto lens when taking pictures. Binoculars should be held lightly, with the monocoles resting on and supported by the heels of the hands. The thumbs should be placed alongside the eyepieces to block out light. The eyepieces are held lightly to the eye to avoid transmission of body movement. Whenever possible, a stationary rest should support the elbows. To effectively adjust the focus, you must adjust for each eye individually. Eye fatigue is a major problem when using binoculars or observation scopes. Periods of individual observation should be limited to thirty minutes followed by fifteen minutes of eye rest to ensure maximum efficiency. Binoculars are also available with built-in compasses and even with night-use illumination. State-of-the-art models are coated with rubberized armor and are waterproof to a depth of about thirty feet. When selecting the best size binocular or scope, it helps to understand some of the technical factors that determine how well you can see with them.

All are labeled with two numbers separated by an "×," such as 7 × 35. The first number is the power or magnification. A "7 ×" makes something 70 feet away appear to be only 10 feet away. The second number is the objective diameter of the lens in millimeters. This tells you how large it is and gives you an idea as to its light-gathering ability and weight. The larger the objective, the more light it gathers and the better you can see at night or in dim light.

Dividing the power into the objective lens diameter will give you the size of the exit pupil. Your pupil contracts to around 2.5mm during the day, and expands to around 7mm at night. A 7 × 50 will give you a 7mm exit pupil diameter that allows full use of the eye pupil at night and makes alignment easier during the day.

Twilight factors give you a numerical gauge to determine how well it will work at night or in dim light. To find the twilight factor, multiply the objective lens diameter by the magnification, and take the square root of the result. For a 7 × 35 you would wind up with a twilight factor of 15.6. As a rough guide, a twilight factor of less than 10 works well only in bright daylight; 10 to 12.3 in general daylight; 12.3 to 14.1 in dark shade; 14.1 to 17.3 at dusk or dawn; 17.3 to 20 in bright moonlight; and 20-plus at night.

As a general rule, the higher the magnification, the wider the field of view. For maximum effectiveness, systems should be used one wide, one narrow.

Cameras. A good 35mm camera is extremely useful to back up intelligence reports and provide details that may have been initially overlooked. When taking pictures, include a common unit of measurement to show size if possible. This might consist of a person in the picture, a cigarette, a weapon, and so on. Include prominent terrain features whenever possible to help in verifying exact locations. Take notes for each picture and include time taken, azimuth direction, and other clarifying data. Although quality may suffer, it is possible to take pictures through the lenses of binoculars and observation telescopes when telephoto lenses are not available. Zoom telephoto lenses will be essential for LRP operations and are available in a wide range of sizes. For other less-sophisticated uses and close-range photographs, Minolta makes an excellent waterproof camera similar to an Instamatic. It's lightweight, fits in a shirt pocket, and is waterproof to a depth of 115 feet—and it floats. The one drawback is its bright yellow color; however, a little bit of paint could easily solve the problem.

Telescopic rifle sights provide extreme accuracy when aiming and allow ready detection of otherwise hidden or camouflaged targets. Telescopic sights also improve accuracy during periods of reduced visibility, and provide better observation of the battle area and rapid aiming along a clear focal plane. Regardless of the nature of the mission, at least one team member's weapon should be equipped with a telescopic sight and noise suppressor.

An infrared metascope is an infrared light source that is detectable by other STANO devices. It is used for reading at close range, detecting enemy personnel, and signaling. It is handheld, with two sections: a transmitter and a receiver (viewer). It weighs four pounds and has a battery life of eight hours.

Although active infrared is dangerous to use on defensive lines these days due to the ease of detection, it is still useful to the LRP. Passive infrared scopes are also available, and are not as easy to detect. Generally speaking, the LRP team would not be subject to detection when using infrared equipment deep in enemy territory due to the prolific use of infrared for driving lights and auxiliary fighting lights. A team should be equipped with detection equipment to detect enemy vehicle lights and other infrared equipment. An infrared viewer should be considered for use when the ambient light level will be too low to effectively use passive Starlight systems. Although an old system by today's standards, it still has its uses.

Starlight scopes (image intensifiers) depend on ambient light levels, which are magnified and intensified by the scope. They are battery-operated, passive devices; no light signal is put out. U.S. Starlight scopes range in weight from 1.9 to 34 pounds, with effective ranges of 150 to 2,000 meters. Low light levels, rain, fog, smoke, and dust greatly reduce effectiveness. Dense vegetation and trees will also hamper performance by reducing available light. Infrared light can be used to increase the effectiveness of image intensifiers, as will artificial illumination such as flares and searchlights. However, looking directly at a visible light source, such as a searchlight, will cause the device to shut off. A Starlight scope does not provide width, depth, or clarity of vision, but is certainly an improvement over staring into the dark. It does allow you to aim and fire your weapon with some accuracy at night, observe the effect of fire, the terrain, and the enemy.

As with any observation device, eye fatigue becomes a problem and must be compensated for. When using the Starlight scope, personnel should learn to alternate eyes, since eye fatigue will usually occur after only five to ten minutes' use. Users quickly develop eye fatigue and lose night vision. Use for up to six hours without eye fatigue is possible, when short rest breaks (five to ten minutes) are given every thirty minutes. The preferred method would be to use two operators and alternate every thirty minutes. Alternating eyes will serve to decrease eye fatigue to at least some degree.

Thermal imagery devices are true limited visibility devices that penetrate fog, smoke, dust, and light foliage, as well as darkness. Current systems are generally too heavy for most LRP operations, except for stationary surveillance and stay-behind missions that involve minimum ground movement. Portable systems weigh from 12 to 48 pounds, and have an effective range of from 400 to 3,500 meters.

Portable listening or sound detection equipment. There are a number of devices capable of detecting whispers at 100 meters. They can be effectively employed to eavesdrop on conversations or detect movement at night. They weigh only two pounds and are battery-powered.

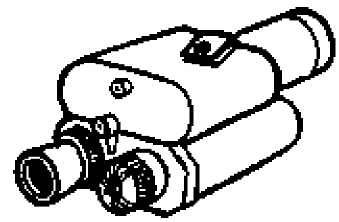
Radar detection. Some of the more state-of-the-art, pocket-size, radar-detection devices available commercially can be modified for LRP team use, and can allow the detection of enemy ground surveillance radars before they can detect the team.

Unattended Ground Sensors

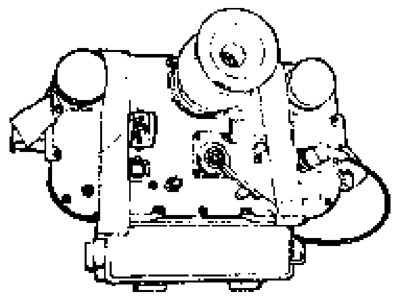
Technology advances in unattended ground sensors (UGS) over the years have made them a vital part of the intelligence collection effort. They can provide early warning, target acquisition, surveillance, and economy of force. LRP teams can be employed to emplace sensors at critical areas in the enemy's rear area, while visual monitoring of the sensor location can enhance their overall effectiveness. Sensors should be of minimal bulk and weight.

UGS are critical when visibility is limited. They can be employed along likely avenues of march or approach and in dead spaces. They have a limited sensor-to-target range and must be positioned carefully to exploit their capabilities. When positioned parallel to an avenue of march or approach, it is possible to approximate the number of troops or vehicles passing the sensors and their rate of march. Although the UGS is sensitive to animal traffic such as deer and dogs, animals rarely move in a deliberate fashion parallel to the sensor field. Well-trained soldiers monitoring the sensors can sometimes differentiate between animals and troops. However, when combined with vision devices used by the LRP team, the sensor can be used to alert the team for detailed visual observa-

Six metascopes are authorized per mechanized infantry company. They use an infrared light source that is detectable by other STANO devices. They are used for reading at close range, detecting, and signaling. They are handheld with two separate sections, one transmitter and one receiver. Each weighs two pounds and has an eight-hour battery life.

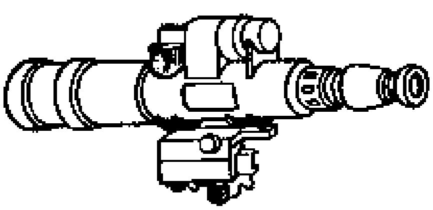


AN/PAS-6 Metascope.



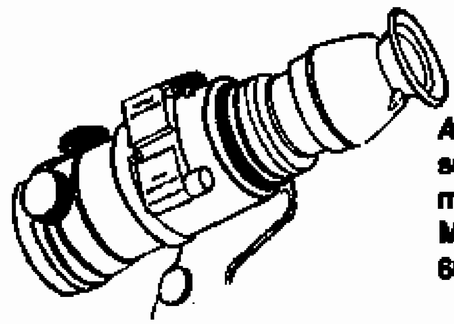
The *AN/PAS-7* is a handheld thermal viewer weighing 12 pounds. It can detect troops out to 400 meters and recognize vehicles out to 1,000 meters. It can also detect the presence of mines and some boobytraps by their heat.

AN/PAS-7.



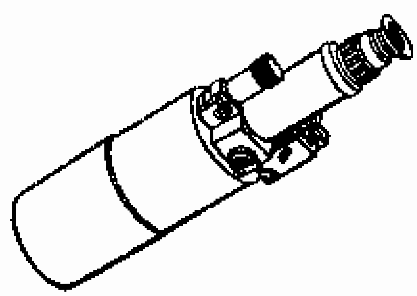
AN/PVS-2 Equipment may be mounted on M60 machine gun or M16 rifle. Range is 200 to 400 meters depending on ambient light; 18 are authorized in a mechanized infantry company. It weighs six pounds with 4x magnification. This model of the starlight scope replaces the AN/PVS-1.

AN/PVS-2.



AN/PVS-4 is a small lightweight telescope-type sight which will replace the AN/PVS-2. It can be mounted on the M14, M16, M60, M72A1, and M203. The range for man-size targets is 400 to 600 meters. It weighs 3.7 pounds.

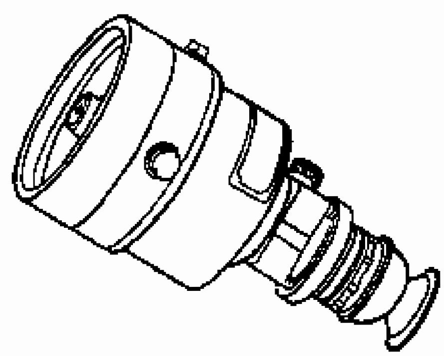
AN/PVS-4.



AN/TVS-2. Crew served, it may be mounted on cal .50 machine guns. Range 800 to 1100 meters, depending on ambient light. There are 21 in a mechanized infantry company (7x magnification, 15 pounds). May be used with a tripod.

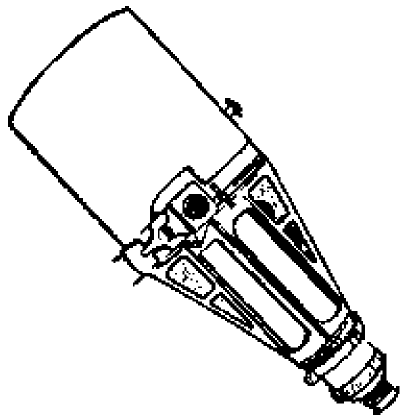
AN/TVS-2.

AN/TVS-5 is a lightweight battery powered, electro-optical, telescope-type sight which will replace the AN/TVS-2. It may be mounted on the cal .50 machine gun, M139, 20-mm cannon, and the 106-mm RCLR. The range for vehicle-size targets is 1000 to 1200 meters. The sight will provide firing accuracy equal to that which can be achieved during daytime. It weighs 7 pounds 11 ounces.



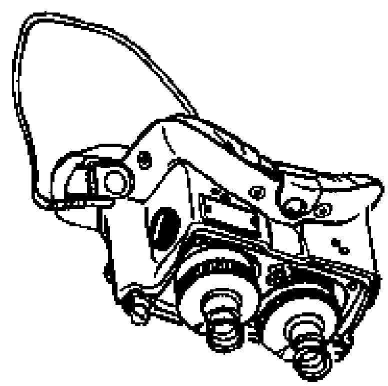
AN/TVS-5.

***AN/TVS-4* Night Vision Device is a tripod or vehicle mounted, battery-powered passive viewing device that utilizes starlight and/or moonlight to enhance night viewing. Range is 1200 meters (starlight), 2000 meters (moonlight). The device weighs 34 pounds (viewer only; less tripod), and has 7x magnification. There is one per mechanized infantry company.**



AN/TVS-4.

***AN/PVS-5* Night Vision Goggle (NVG) is a lightweight, face-mounted passive night-vision device for performing tasks at night. It is designed for short range—close-in viewing, driving vehicles, reading maps, administering medical aid, maintenance, and similar tasks. It weighs 1.9 pounds and has a near range of 150 meters.**



AN/PVS-5.

tion of a particular area or point. There are six basic types of UGS: seismic, acoustic, magnetic, infrared, pressure, and disturbance.

Acoustic devices operate on the same principle as a microphone and FM transmitter. The U.S. Army uses a device called an Acoustic Buoy (ACOUBUOY) that is designed to be hung in trees and has a detection range of 300 to 400 meters, which is about the same as human hearing.

Seismic detectors are comparable to the seismograph used to record vibrations caused by earthquakes or atomic detonations. They fall basically into two categories, air (ADSID) or ground delivered (GSID), and are designed to pick up vibrations in the earth caused by a man walking or vehicles moving. Some devices can detect a man walking at a range of 30 meters or a vehicle moving at a range of 300 meters. The U.S. Army currently has a lightweight Patrol Seismic Intrusion Device (PSID) suitable for use by the LRP team. It can effectively detect movement up to about 130 meters away, has variable sensitivity settings, and can be deployed in about five minutes. The team can monitor the sensors from a position up to 1,800 meters away. My experience with the systems indicates that with practice and experimentation, it can be quite effective. If implanted in a wooded area when it is windy, you may adjust the sensitivity setting to compensate for the tree and tree root movement caused by the wind.

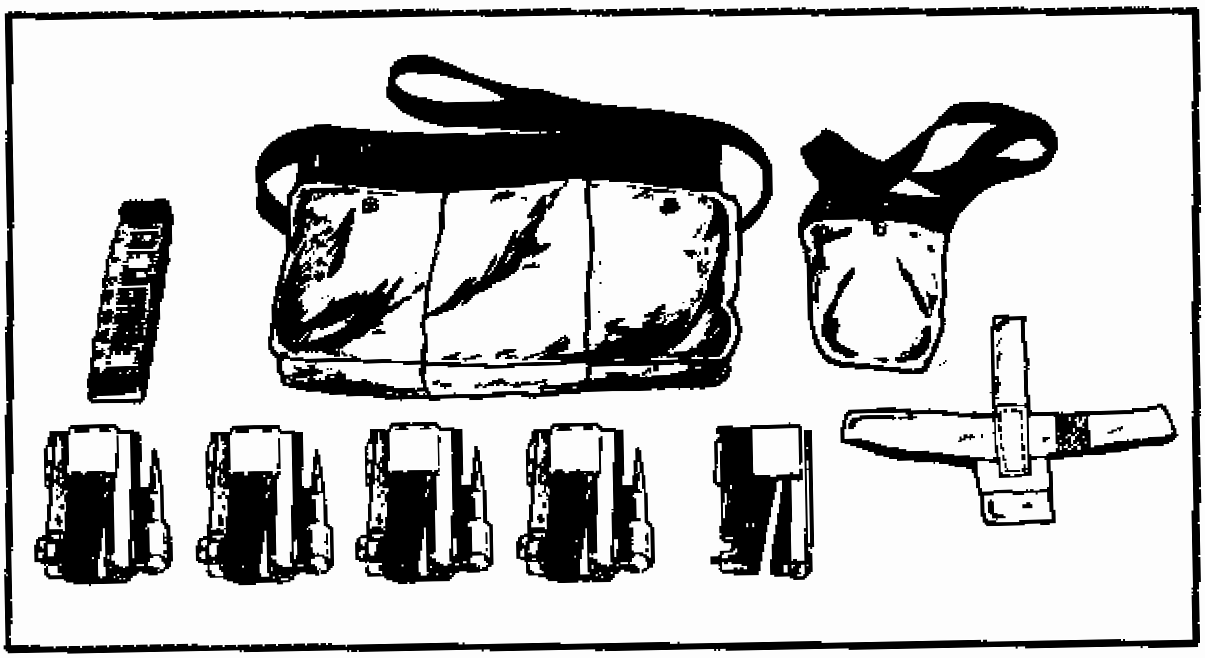
Magnetic sensors, also referred to as Remote Electromagnetic Sensors (REMS), work on the same principle as a metal detector, setting off an alarm when a ferrous metal object, such as a rifle or vehicle, moves within its detection range, which is generally around 15 meters. The U.S. Army AN/TRS-2 Platoon Early Warning System (PEWS) can easily be transported and employed by a LRP team and has a transmitting range of 1,500 meters. The PEWS can be used to enhance security and as an early warning for ambush operations. A commercial system, known as Buried Line Intrusion Device (BLID), is a lightweight system that can be effectively employed by a LRP team and includes a remote signal transmitting capability. However, the requirement to bury the sensors 18 inches below ground will make it impractical in many instances.

Infrared systems are either active or passive. The active sensor works on the same principle as an automatic door opener; when its beam is broken, the device is activated and an alarm is sounded at the monitoring station. It is generally a line-of-sight device with a coverage of approximately 1,000 meters. The passive system works on the same principle as a thermostat. When there is a sudden change in temperature, the device will activate. They are sensitive enough to be activated at ranges of up to 15 meters by normal human body temperatures.

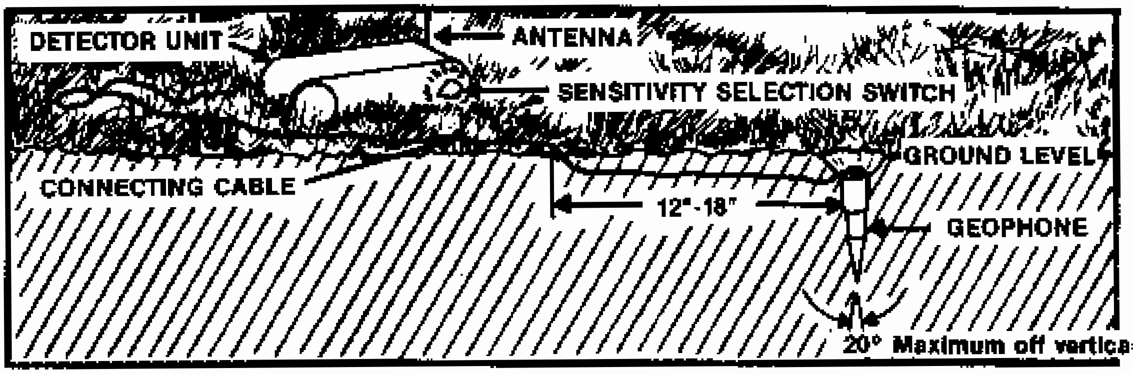
Pressure systems work on the basis of pressure placed on the earth's surface. A basic system consists of two water-filled hoses buried approximately 18 inches underground and parallel to each other. When pressure is placed on the ground near the hoses, an alarm is activated at the monitoring station.

Disturbance sensors work on the principle of the sensor actually being moved or disturbed. One military version is the Noiseless Button Bomblet (NBB), which looks like stones or twigs. When moved as little as 1/32nd of an inch, it sends out a sweeping radio signal, which in turn alerts the monitoring station. A commercially available system called Night Watch works on a disturbance activation basis and is small enough for LRP team usage. It uses an extremely thin line that, when broken, sets off the monitor alarm.

When a number of UGS devices are used together, it is possible to determine the direction and rate of movement, identification of the intruder, and size of the force involved.



Alarm set, anti-intrusion (PSID).



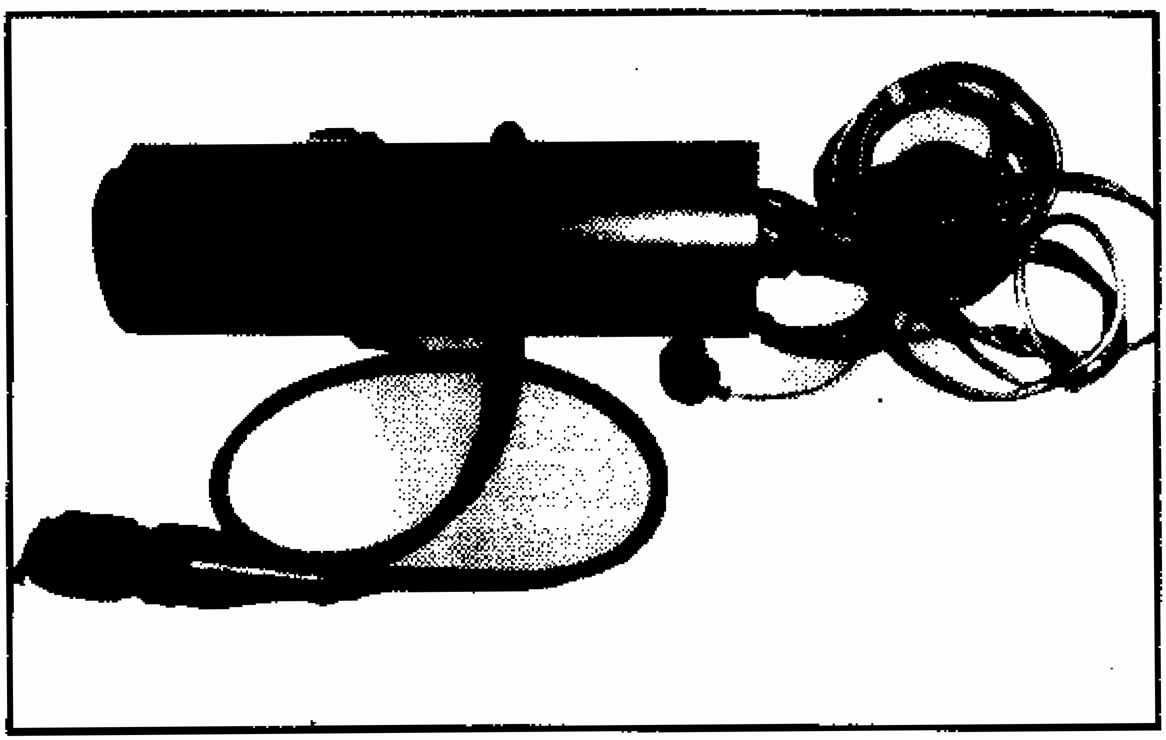
PSID emplacement.

ADD-ON AUDIO UNIT (AAU) DT-383/GSQ

TECHNICAL CHARACTERISTICS

Physical Dimensions:	9"×3" in diameter
Weight:	7 pounds
Type Sensing:	Acoustic following three consecutive seismic transmissions by the MINISID III
Detection Range:	Same as the human ear
Type of Battery:	One BA-1546
Battery Life:	45 days minimum
Disable Criteria:	Hand emplaced
Reference:	AAU PIMO Manual, TM 5-6350-255-13

The AAU is an ancillary sensor to the MINISID III. It consists of an external microphone and a logic case. Following three consecutive seismic activations within 28 seconds, the MINISID III activates the AAU which supplies a 15-second audio transmission. A diurnal switch is located in the microphone housing which can be used for night-only operation.



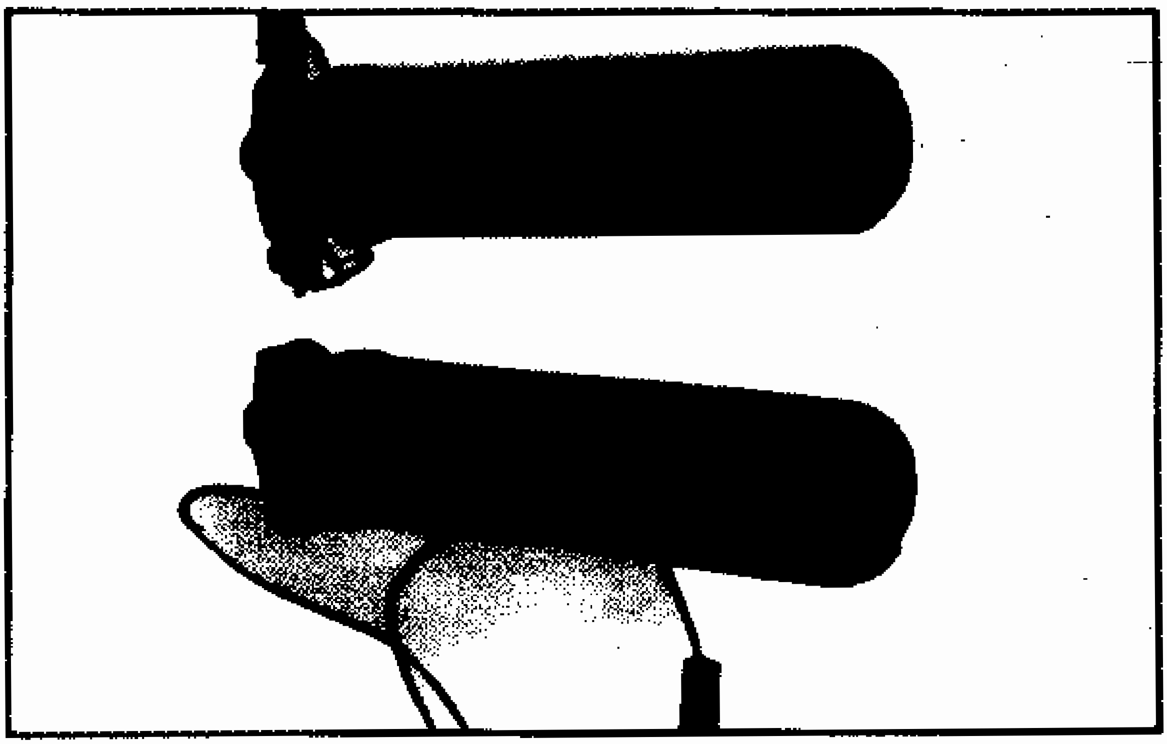
AAU DT-383/GSQ.

MAGNETIC INTRUSION DETECTOR (MAGID) MODEL T-4, DT-516/GSQ

TECHNICAL CHARACTERISTICS

Physical	
Dimensions:	12.5" × 2.5"
Weight:	3.5 pounds
Type Sensing:	Magnetic
Detection Range:	Personnel—3 to 4 meters Vehicles—20 to 25 meters
Disable Criteria:	None
Delivery Means:	Hand emplaced
Reference:	MAGID Coil PIMO Technical Manual TM 5-6350-260-10

The MAGID is a solenoid attached directly to the MINISID III by a 6-meter cable. This type of attachment permits use of the BOTH mode, i.e., both seismic and magnetic detection criteria must be met before the MINISID will transmit an alarm. An auxiliary solenoid is attached to the MAGID solenoid when a magnetic only detection criteria is desired. In this configuration, the MINISID III acts only as a transmitter.



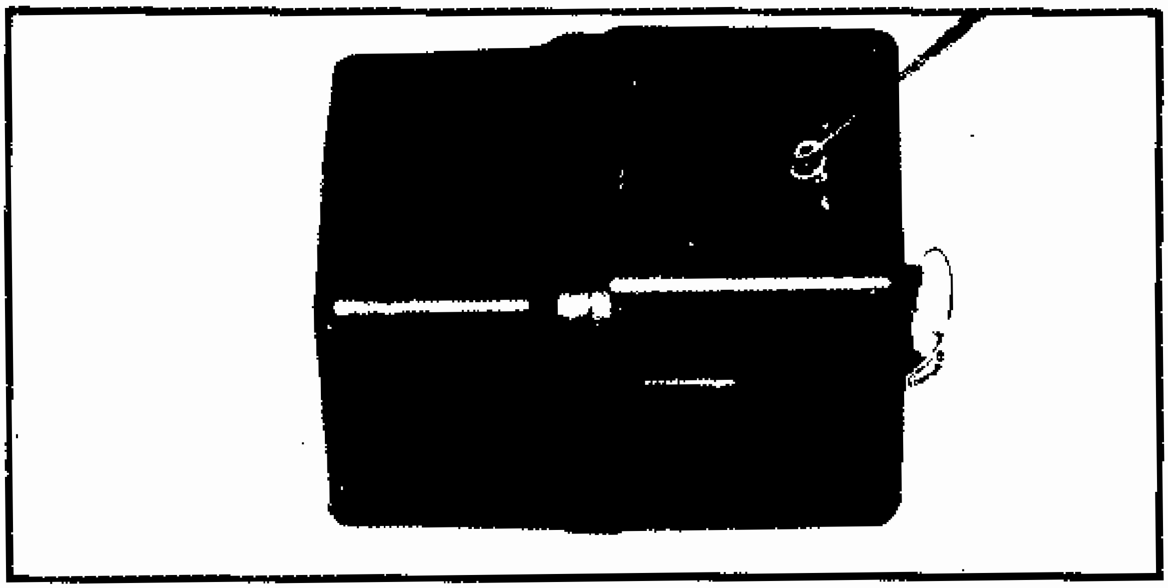
MAGID T-4, DT-516/GSQ.

DISPOSABLE SEISMIC INTRUSION DETECTOR (DSID) AN/GSQ-156

TECHNICAL CHARACTERISTICS

Physical	
Dimensions:	3.3″×5.2″×6.1″
Weight:	4.5 pounds
Type Sensing:	Seismic
Detection Range:	Personnel—30 meters Vehicles—100 meters
Type Battery:	Power pack, FSN 6350-182-7621 (two types): Old type 0 to 3999 and new type 4000 and up.
Battery Life:	7 to 65 days, end of life (programmed)
Disable Criteria:	Battery run-down, tamper, and end of programmed life.
Delivery Means:	Hand emplaced
Reference:	TM 5-6350-253-10

The DSID is a nonrecoverable seismic sensor designed for use with Phase III equipment. The new power pack allows the operator to program the battery life. This ability does not exist in the old power pack.



DSID AN/GSQ-159.

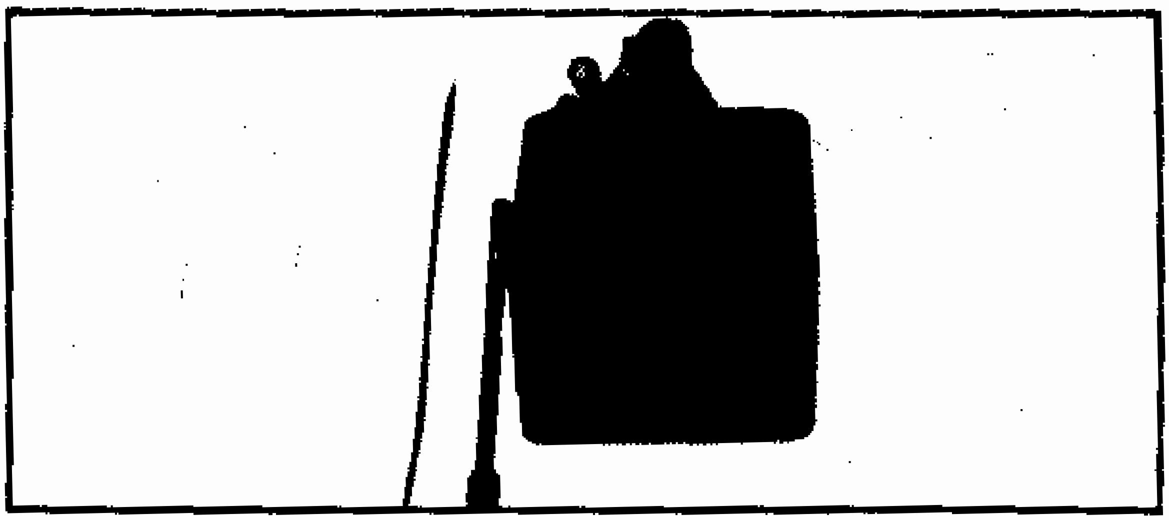
ELECTROMAGNETIC INTRUSION DETECTOR (EMID) AN/GSQ-160

TECHNICAL CHARACTERISTICS

Physical

Dimensions:	7.5"×7.5"×5.75"
Weight:	14 pounds
Type Sensing:	Electromagnetic
Detection Range:	Personnel—40 meters Vehicles—40 meters
Type of Battery:	BA-1549/U
Battery Life:	Continuous—45 days Night only—90 days
Disable Criteria:	Tamper, battery run-down, and incorrect recovery techniques
Delivery Means:	Hand emplaced
Reference:	TM 11-5840-352-14

The EMID is a Phase III recoverable electromagnetic sensor which uses common modules and incorporates a diurnal switch for optional night only use. It radiates a continuous RF signal on two frequencies and senses changes in the reflected energy which occur when there is movement nearby. It is particularly suited for use in swampy and marshy areas where seismic sensors may not operate. It is submersible and can be successfully employed in areas subjected to periodic tidal flooding.



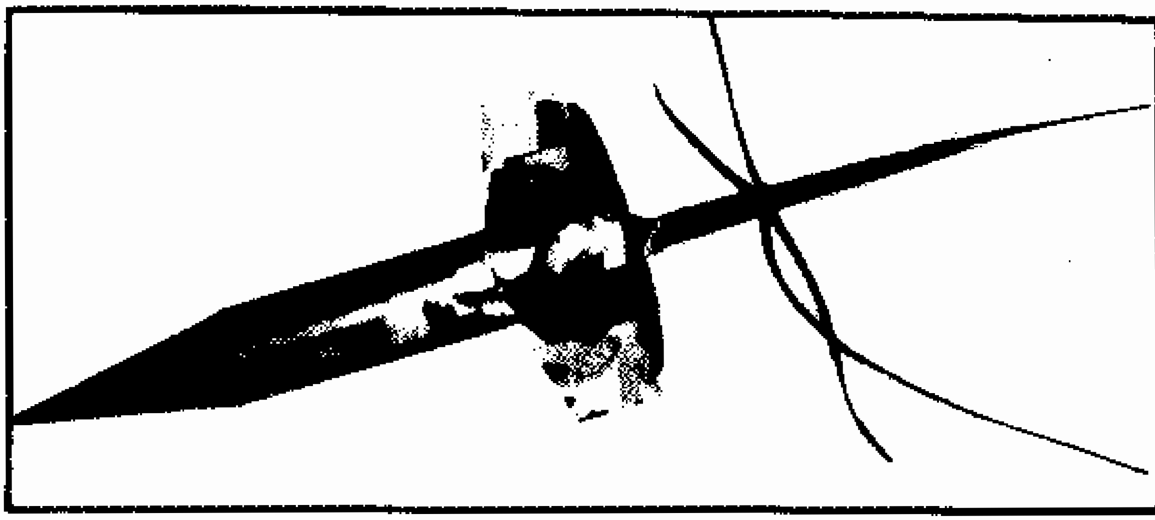
EMID AN/GSQ-160.

AIR-DELIVERED SEISMIC INTRUSION DETECTOR/SHORT (ADSID/S) AN/GSQ-176

TECHNICAL CHARACTERISTICS

Physical Dimensions:	20″×3″ in diameter (9-inch diameter tail fin)
Weight:	13 pounds
Type Sensing:	Seismic
Detection Range:	Personnel—30 meters Vehicles—100 meters
Type of Battery:	BA-1542
Battery Life:	150 days
Disable Criteria:	Self-disable is, in effect, 15 seconds after implant force arms the device, tilt greater than 60 degrees from vertical, tamper battery run-down, and end of programmed life (7-14-28-45-60-90 and OFF position)
Delivery Means:	Air emplaced
Reference:	Sandia Manual MA-37, ADSID III/S

The ADSID/S is a Phase III, nonrecoverable seismic sensor using common modules. It is designed for delivery by rotary-wing or low-performance fixed-wing aircraft. It becomes armed ou impact.



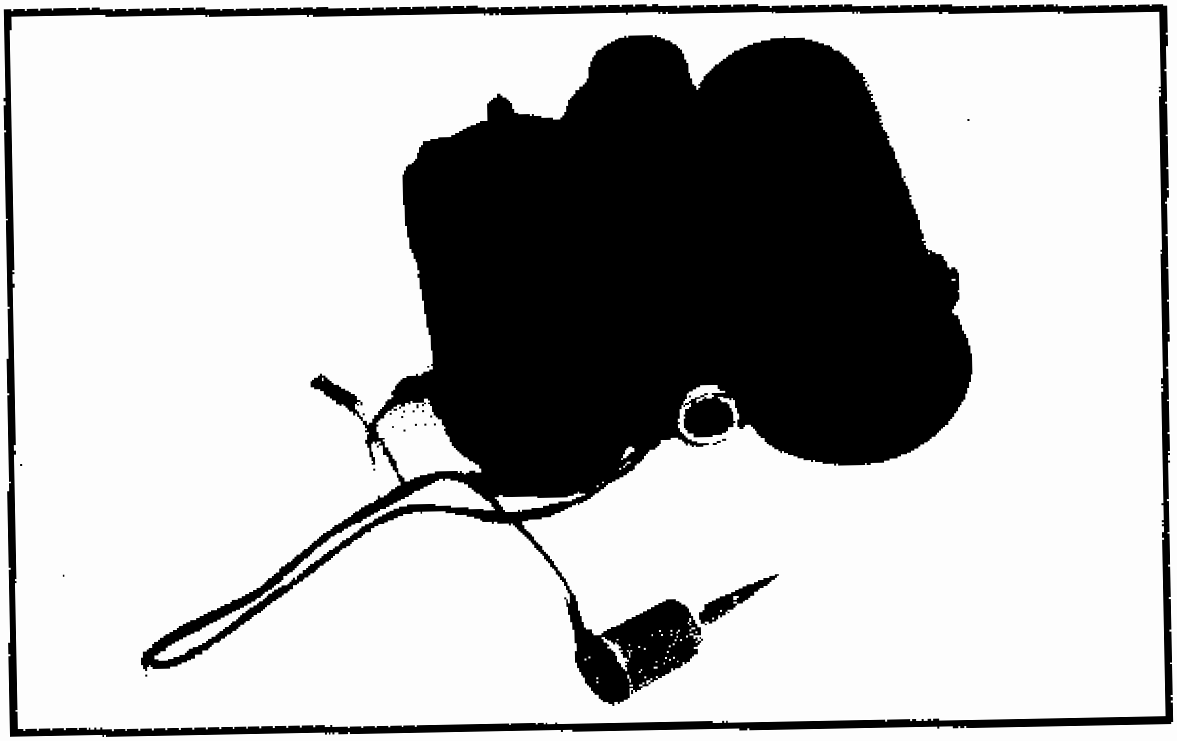
ADSID/S AN/GSQ-176.

MINIATURIZED SEISMIC INTRUSION DETECTOR (MINISID) AN/GSQ-154(v)

TECHNICAL CHARACTERISTICS

Physical	
Dimensions:	7.5" x 7.5" x 3.25"
Weight:	9 pounds
Type Sensing:	Seismic
Detection Range:	Personnel—30 meters Vehicles—100 meters
Type of Battery:	One BA-1546
Battery Life:	30 days minimum
Delivery Means:	Hand emplaced
Reference:	TM 5-6350-255-13

The MINISID III is a Phase III recoverable seismic sensor using common modules. It is equipped with an external geophone to reduce nontargetable activations caused by environmental disturbances. It can also be used in conjunction with external sensors to increase flexibility and capability of the sensor.



MINISID III AN/GSQ-154

RANGE ESTIMATION

Range estimation is a critical skill for the LRP team, and efficiency will enhance the quality and accuracy of intelligence data and allow more effective employment of supporting fires and increased accuracy of sniper and other fires. It is essential that all LRP team members be well versed in estimating ranges, map and terrain reading, and adjustment of supporting fires. The same skills used in adjusting fires are of equal importance in determining the accurate location of intelligence sightings and employment of small arms or sniper fires.

Range and location estimations can be enhanced through such measures as making reasonably accurate terrain sketches and range cards upon occupation of hides and observation posts, learning to quickly determine lateral distances, and observer to target (OT) distances.

Range finders should be made available whenever possible. Small, lightweight, handheld range finders are useful for measuring obstacle size, distances to targets, and so on. Each team should have at least one. Long-distance laser range finders, one per team, would also be useful. The battery-powered AN/GVS-5 laser range finder is held and sighted like a pair of binoculars. The operator looks through a single 7 × 50mm eyepiece to locate and range targets. Distance is displayed in meters.

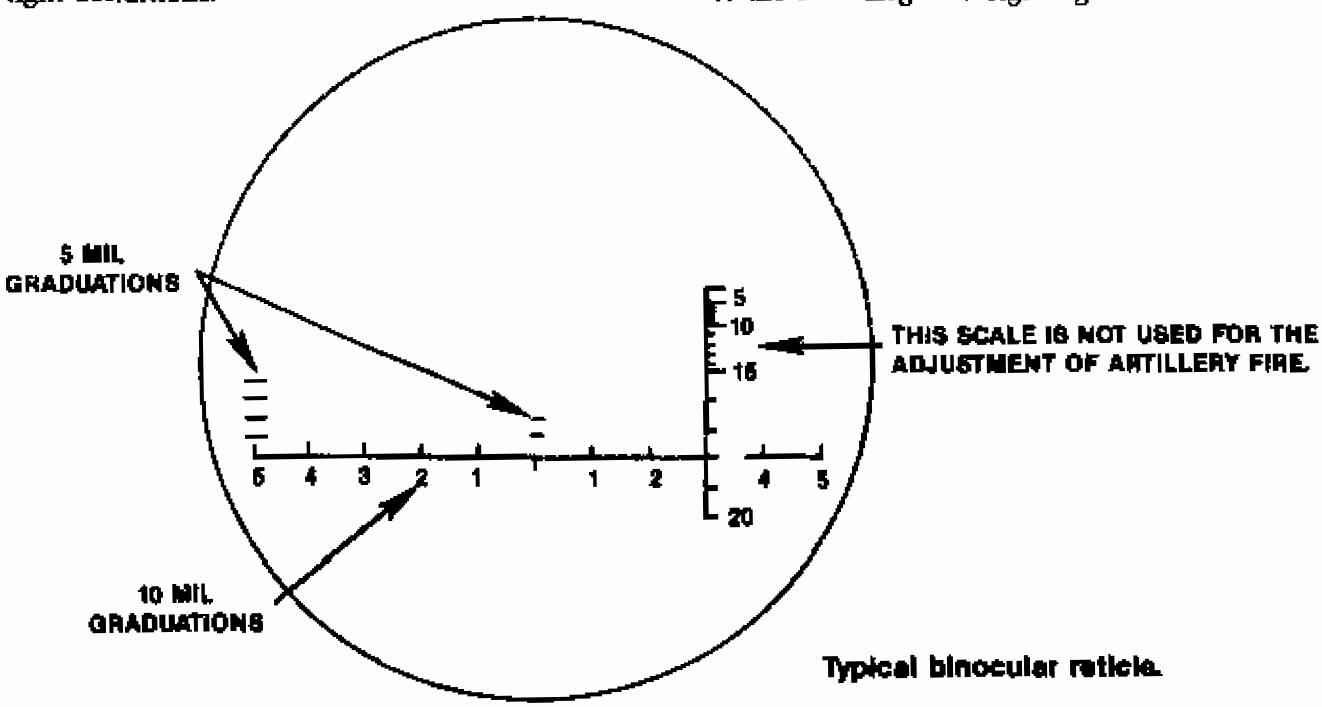
When visually estimating the range to a target, consider the nature of the target, the terrain, and light conditions.

An object of regular outline, such as a house, will appear closer than one of irregular outline, such as a clump of trees. A target that contrasts with its background will appear to be closer than it actually is, while a partially hidden target will appear more distant than it actually is.

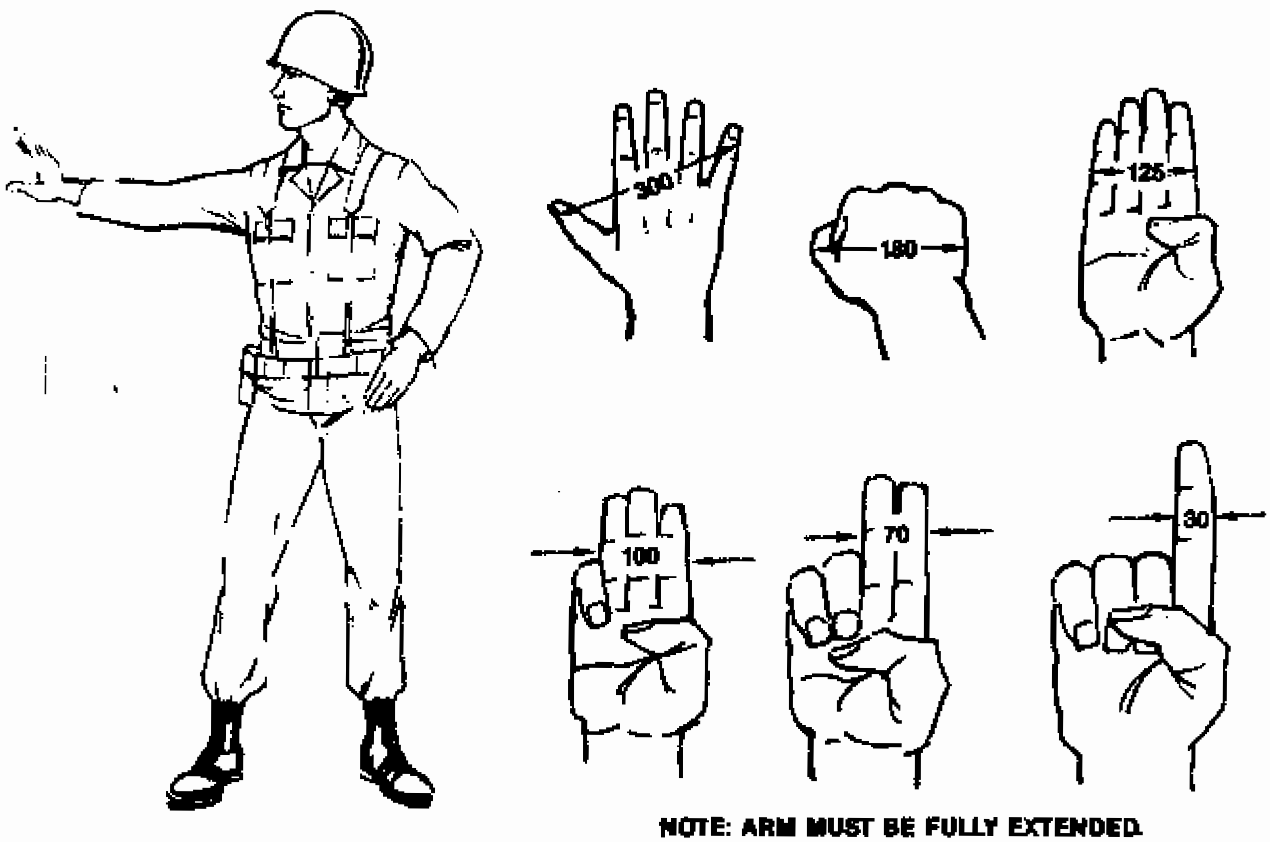
The observer's eye follows the irregularities of terrain, causing him to tend to overestimate distances. However, over such smooth terrain as sand, water, or snow, the tendency will be to underestimate.

The more clearly a target can be seen, the closer it will appear to be. When obscured by smoke, fog, or rain, the target will appear more distant. Low light levels at dawn and dusk will also tend to make the observer overestimate the distance; when the sun is behind the observer, the target appears closer, while the reverse is true if the light is behind the target.

A rapid method useful for estimating lateral distances is shown in the accompanying illustrations. The soldier can use binoculars to measure the distance in mils, or he can use his hand and fingers held at arm's length. Each time the observer uses the hand method, he must extend his hand and fingers the same distance from his eye. Each individual should practice and determine the various measurements of his own hand during training. Using a known reference point, multiply the range to the known point times the measurement in mils to determine the estimated location of the new target or sighting.

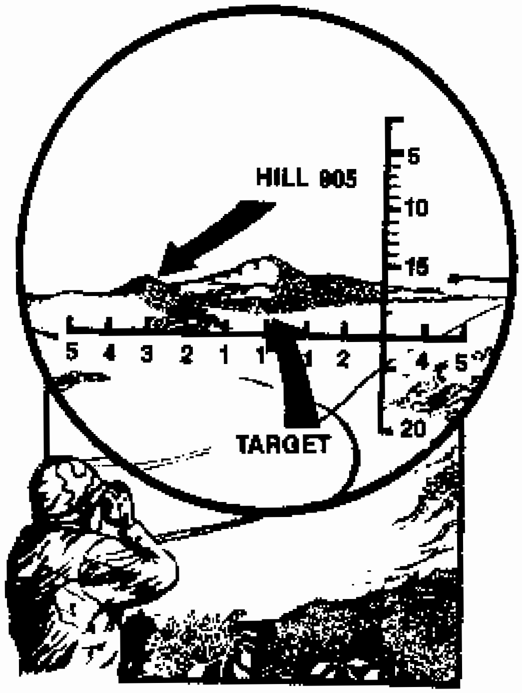


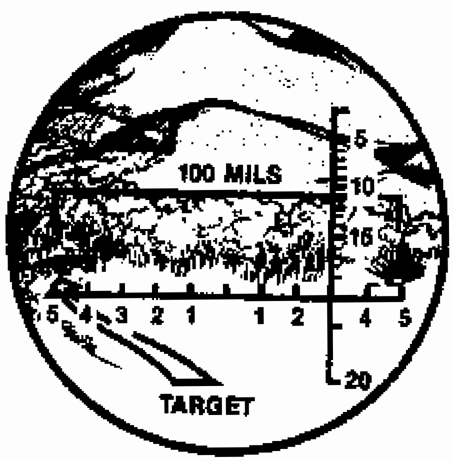
Typical binocular reticle.

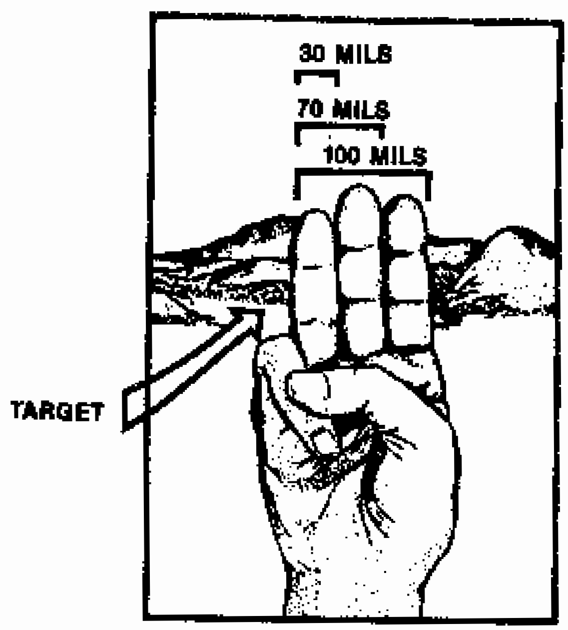


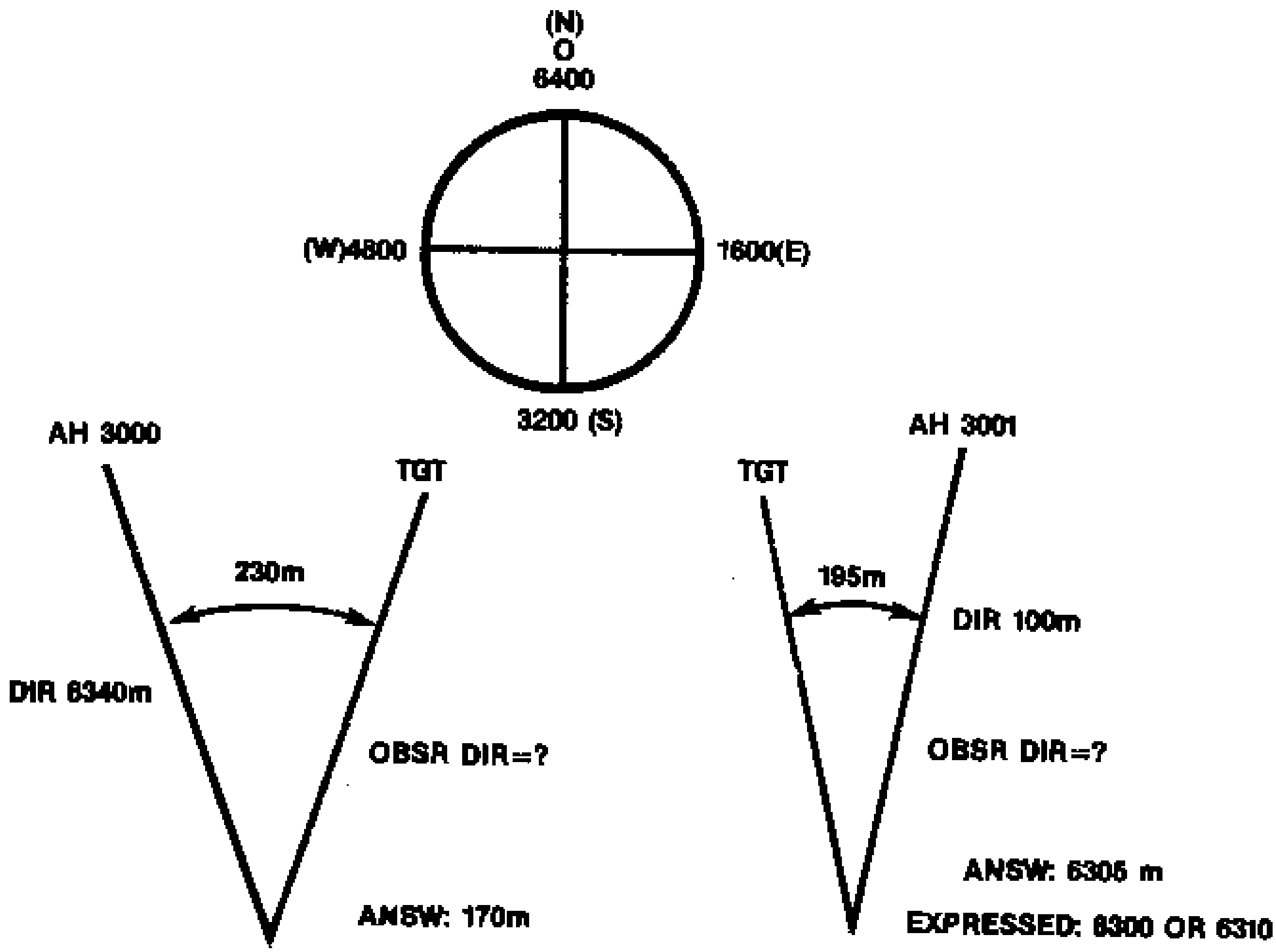
Example of estimating angles with the hand (angles shown are in mils.)

FACTORS AFFECTING THE APPEARANCE OF OBJECTS		
Factors to be considered in determining range by eye:	**Objects appear nearer than they really are:**	**Objects appear more distant than they really are:**
The target—its clearness of outline and details	• when most of the target is visible and offers a clear outline.	• when only a small part of the target may be seen or is small in relation to its surroundings.
Nature of the terrain or position of the observer	• when looking across a depression, most of which is hidden from view. • when looking downward from high ground. • when looking down a straight, open road or along a railroad track.	• when looking across a depression, all of which is visible. • when looking from low ground toward high ground. • when field of vision is narrowly confined as in twisted streets, draws or forest trails.
Light and atmosphere	• when looking over uniform surfaces like water, snow, desert, or grain fields. • In bright light or when the sun is shining from behind the observer. • when the target is in sharp contrast with the background or is silhouetted by reason of size, shape, or color. • when seen in the clear atmosphere of high altitudes.	• in poor light such as dawn and dusk. In rain, snow, or fog, or when the sun is in the observer's eyes. • when the target blends into the background or terrain.

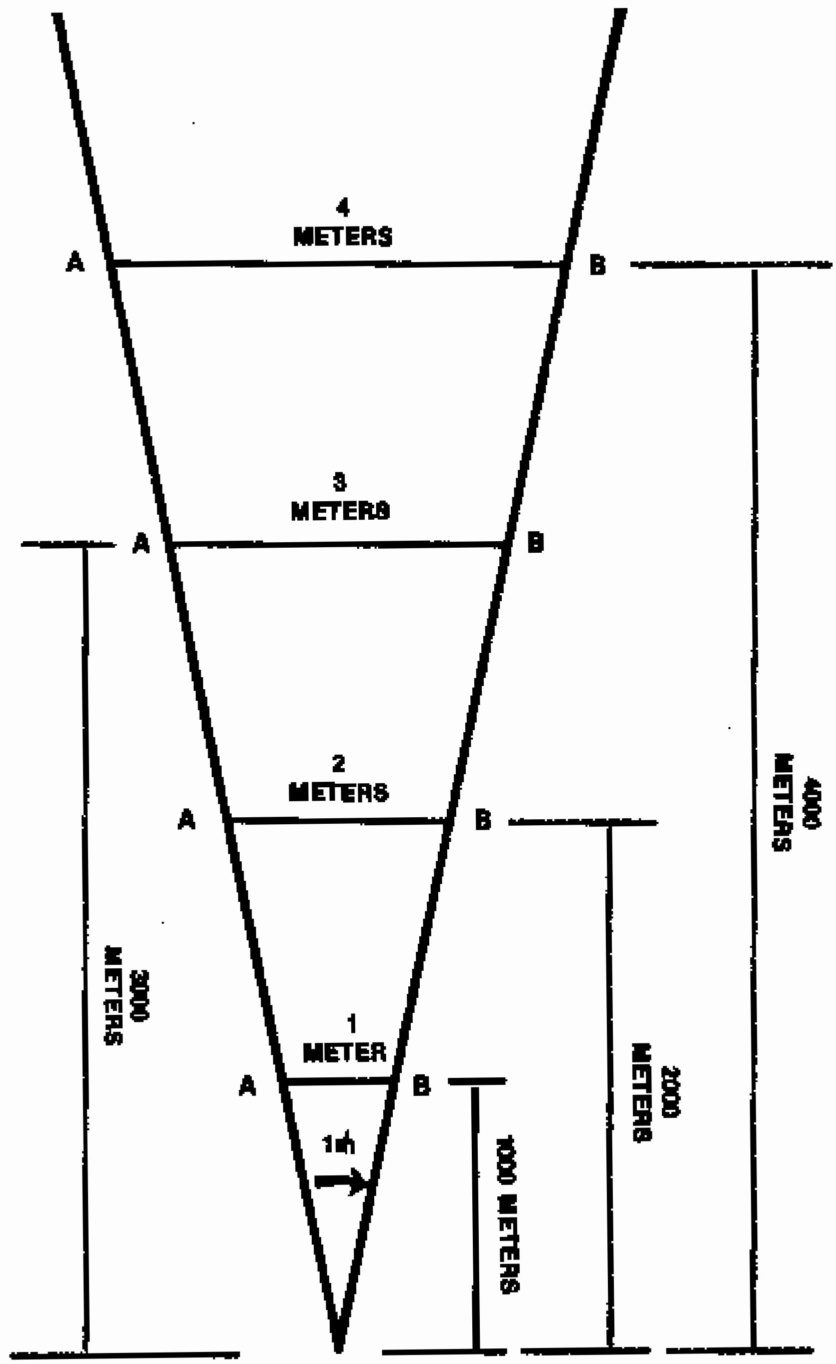

HILL 905
TARGET


100 MILS
TARGET

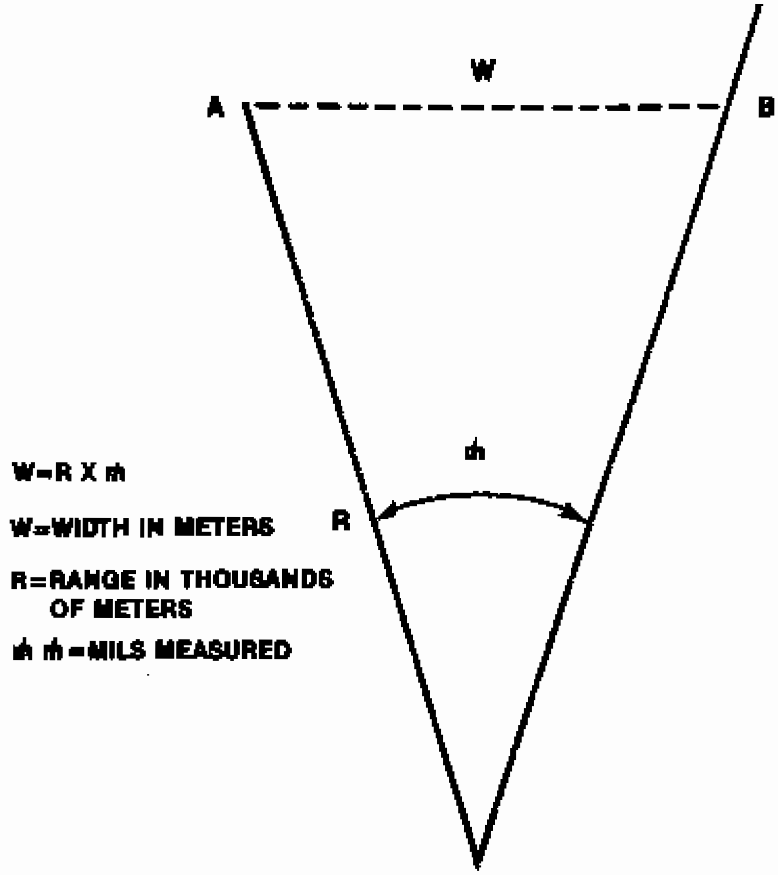

30 MILS
70 MILS
100 MILS
TARGET



Measure from known direction.



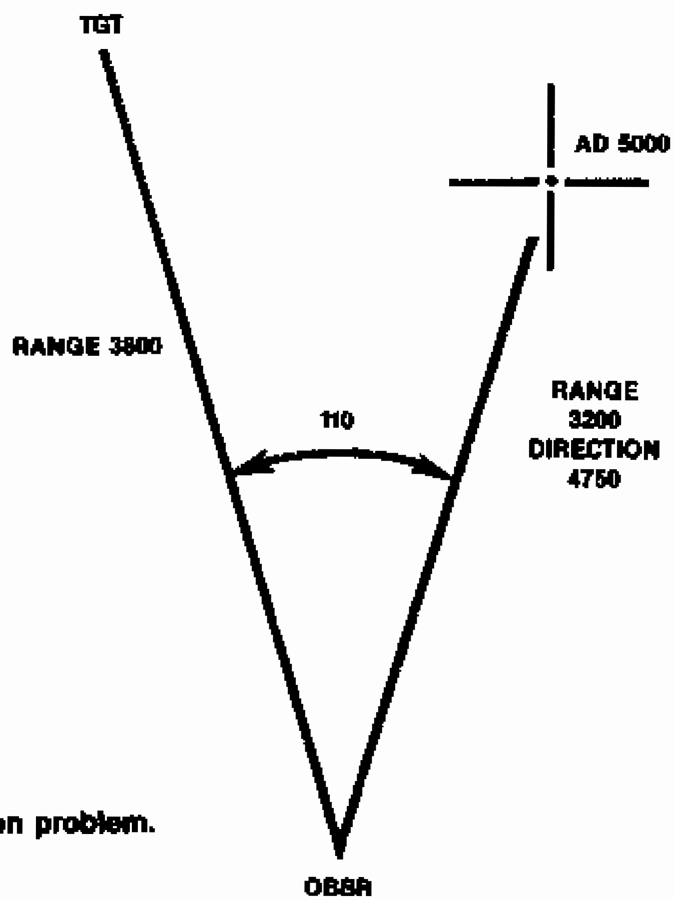
Mil relation theory.



Mil relation formula.

W=WIDTH IN METERS
R=RANGE IN THOUSANDS OF METERS
m=MILS MEASURED

$$\frac{W}{R \times m}$$

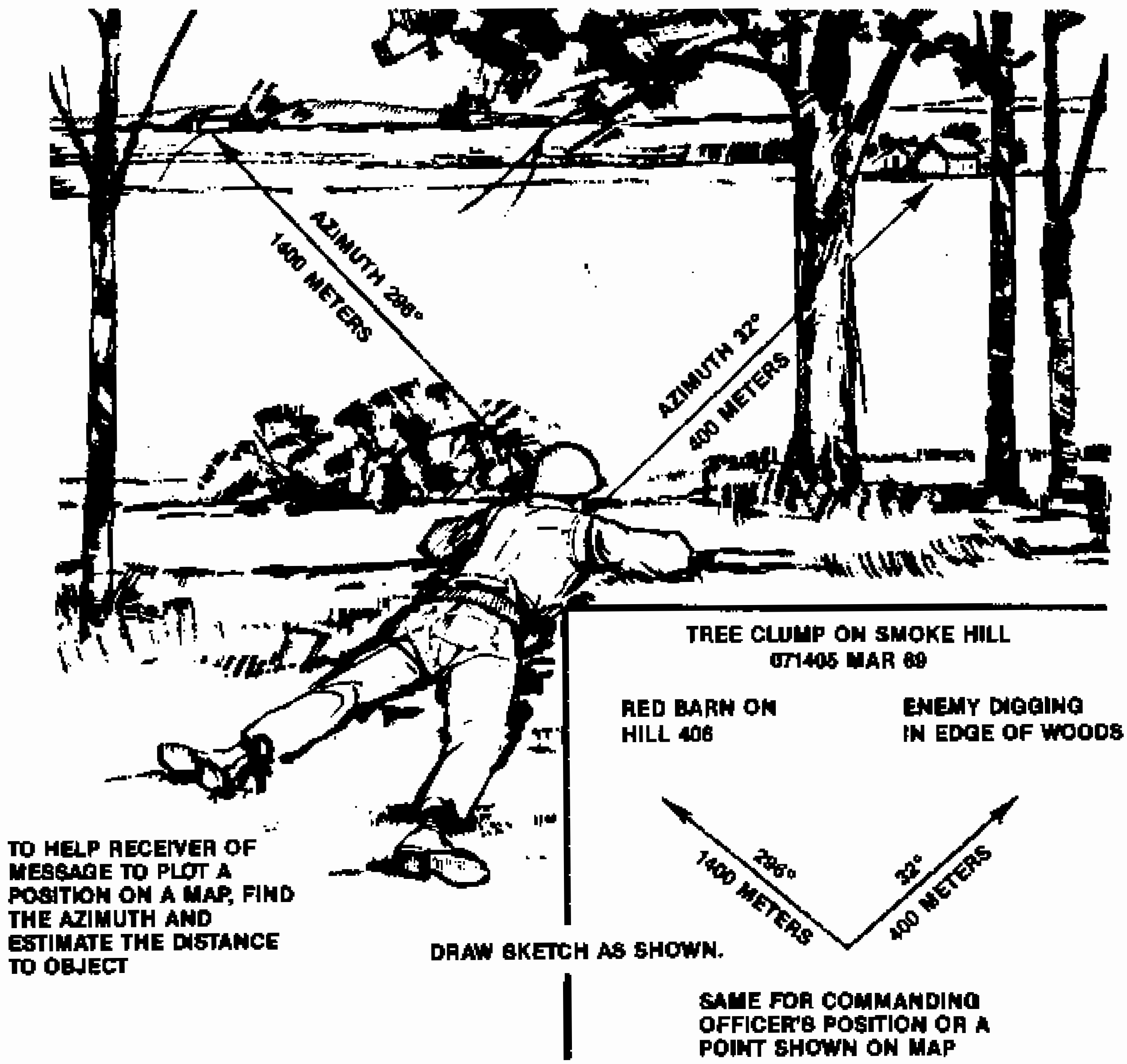


Mil relation problem.

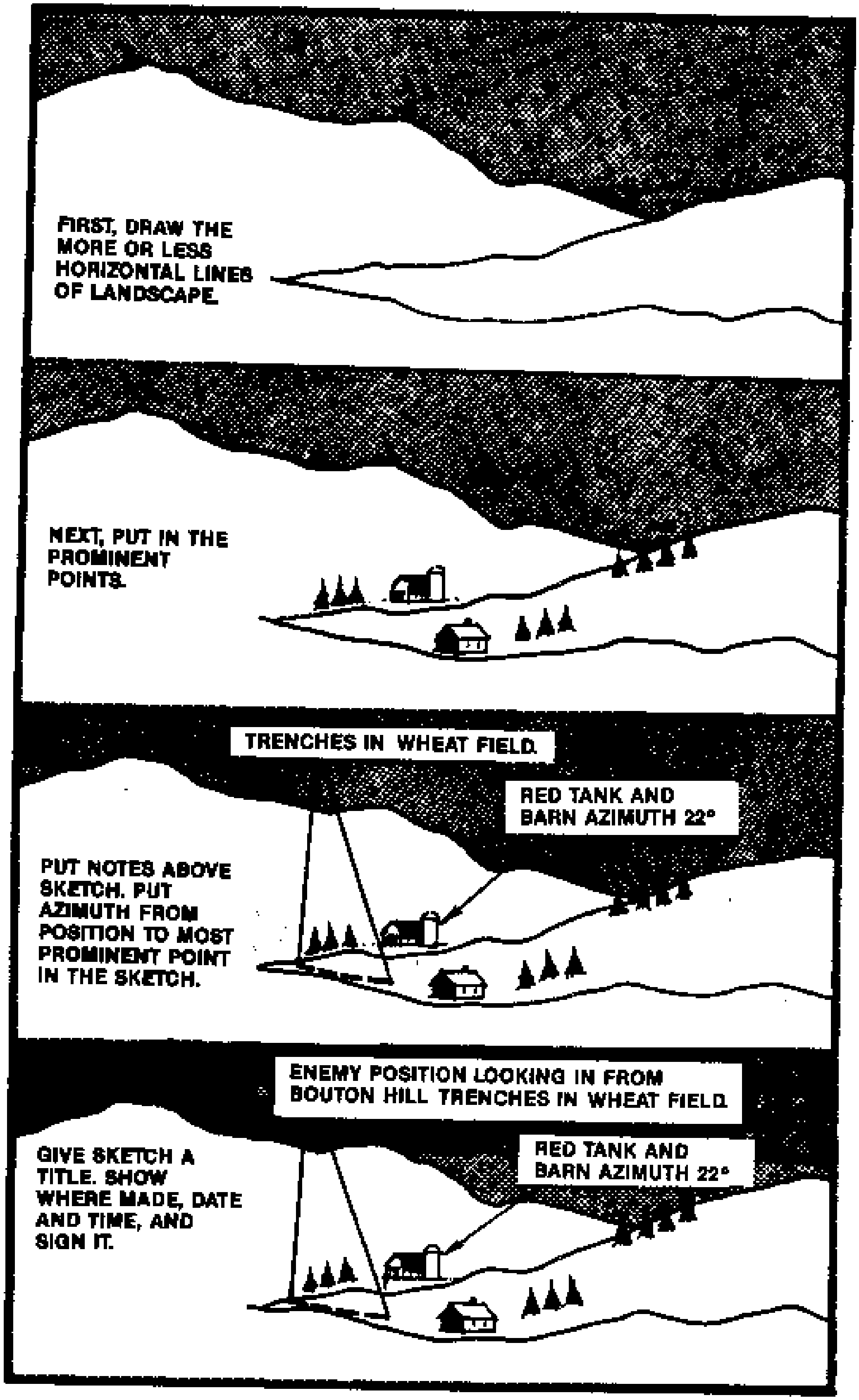
Once a team has occupied a position for observation, ambush, or other reasons, the members should immediately orient themselves in relationship to the map and actual terrain and begin augmenting their map data. Terrain sketches, range cards, and similar items should be prepared. The actual map should be augmented with lines of direction radiating out from the team's position. These direction lines should then be intersected with range marks. Information not appearing on the map, but appearing on the ground, should be added, as well as reference points, registration points, and likely locations of enemy activity. This should be an ongoing process until the team relocates, and then be started again. To aid in this effort, the team should be provided 1:20,000 or larger scale maps whenever possible. An accurately augmented map and terrain sketch, coupled with accurate reporting of the team's position, can allow use of "shift from a known point" and "polar plot" methods of targeting, thereby increasing overall accuracy and timeliness of targeting and engagement.

Separate target and observation sketches should be prepared whenever practical to further enhance the overall intelligence collection effort and aid in clarifying sightings.

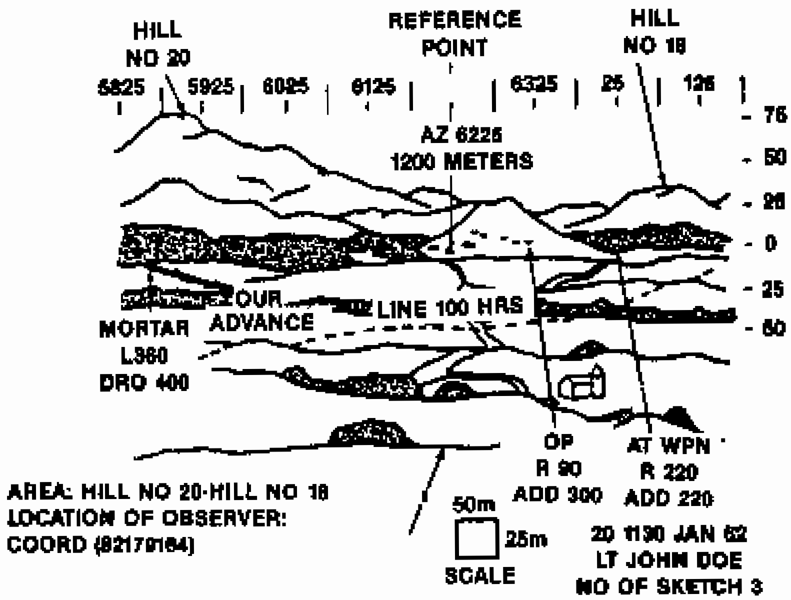
In addition to field sketches, the LRP team must be familiar with map symbols and the preparation of overlays to accurately record intelligence data. A sample of possible symbols that can be used is provided in the accompanying illustrations.



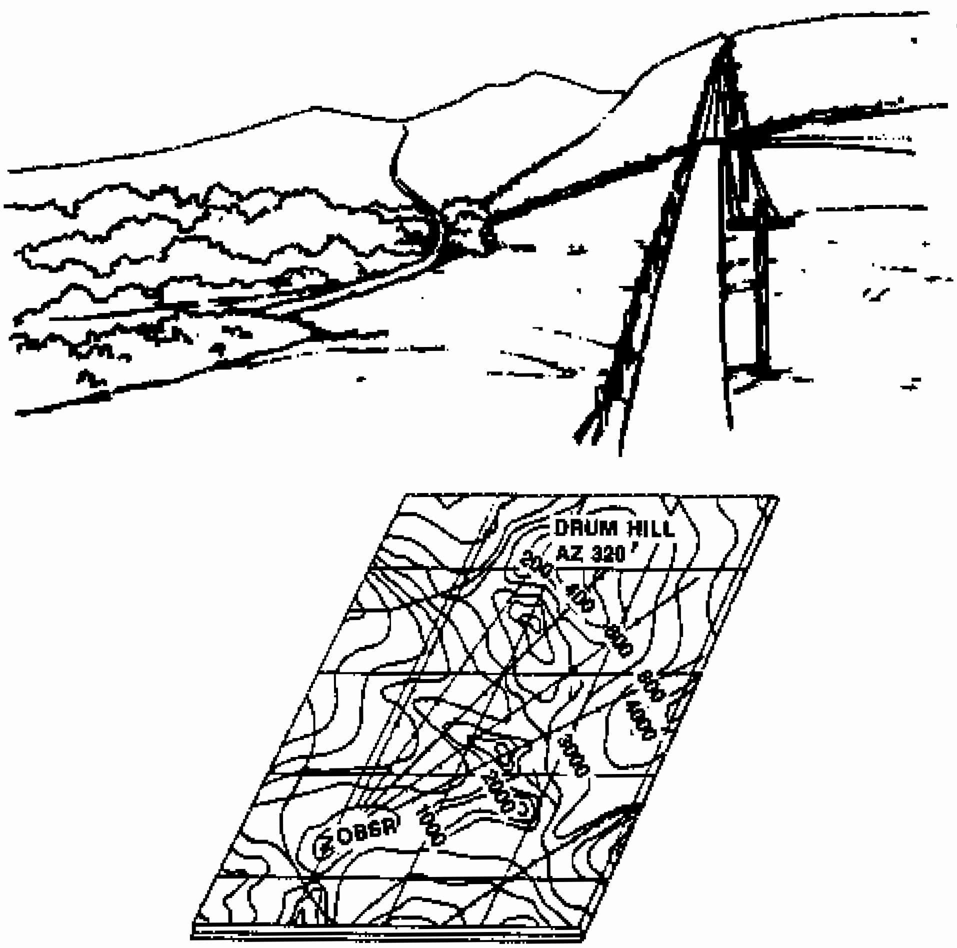
Topographic sketch.



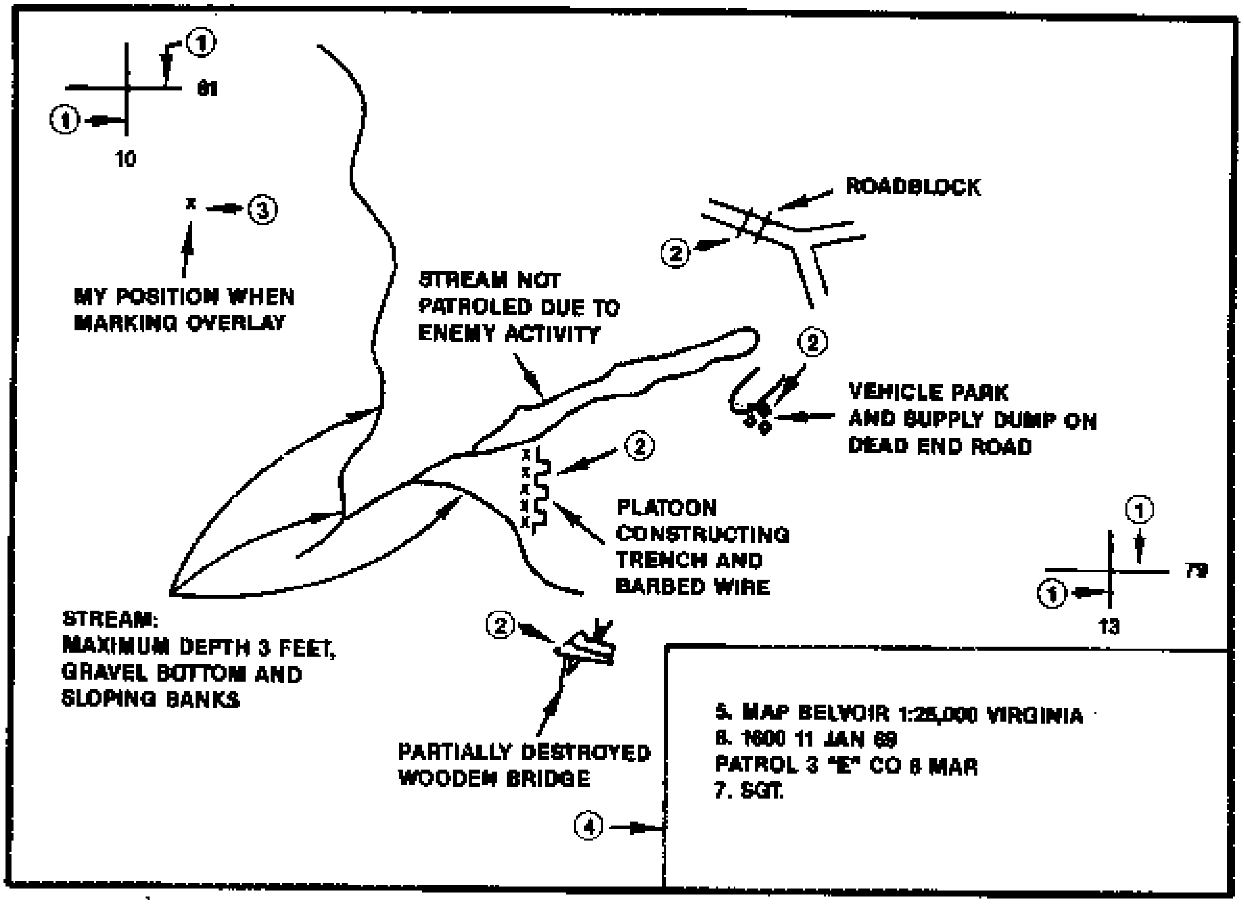
Simple panoramic sketch.



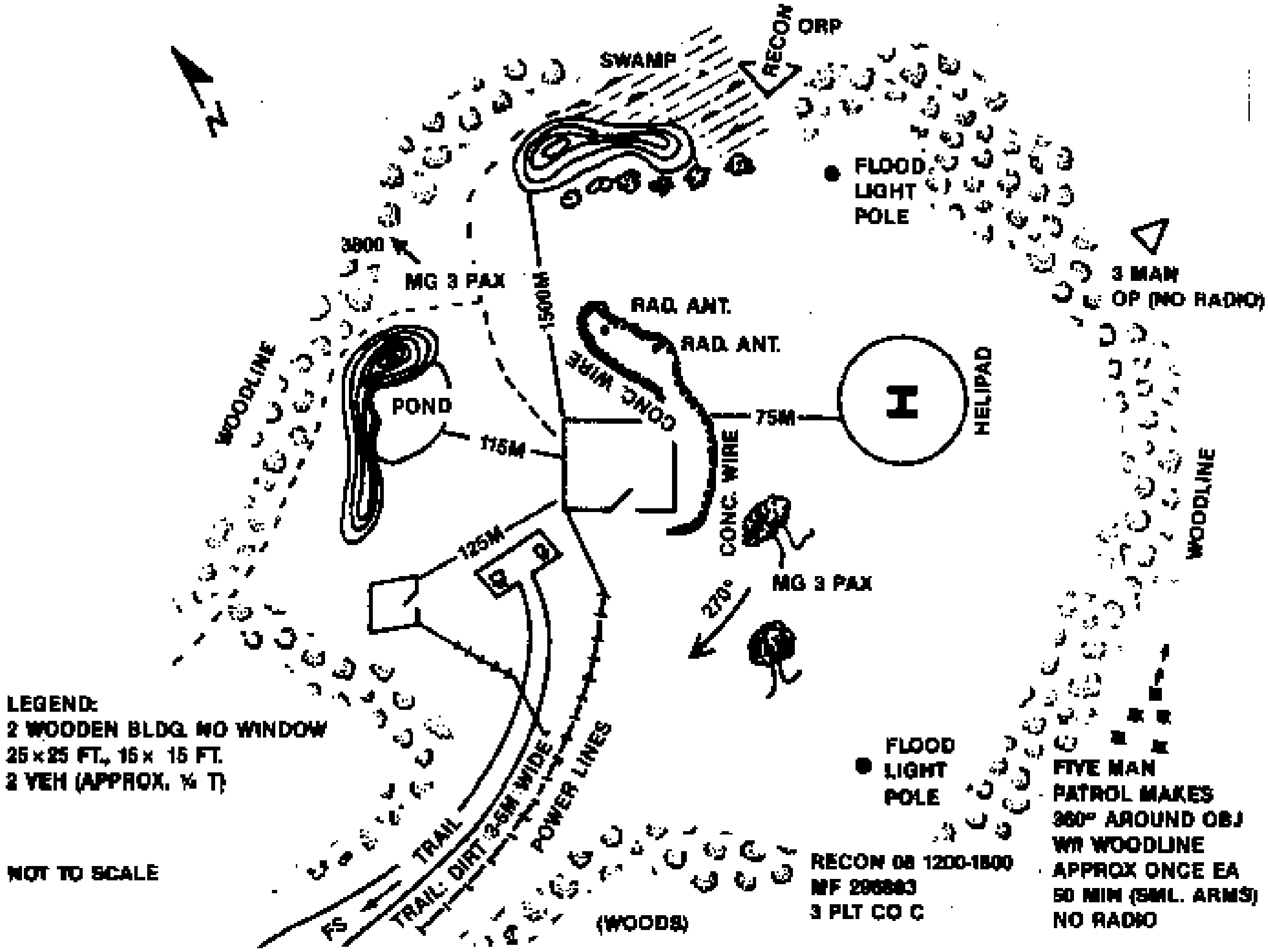
Terrain sketch.



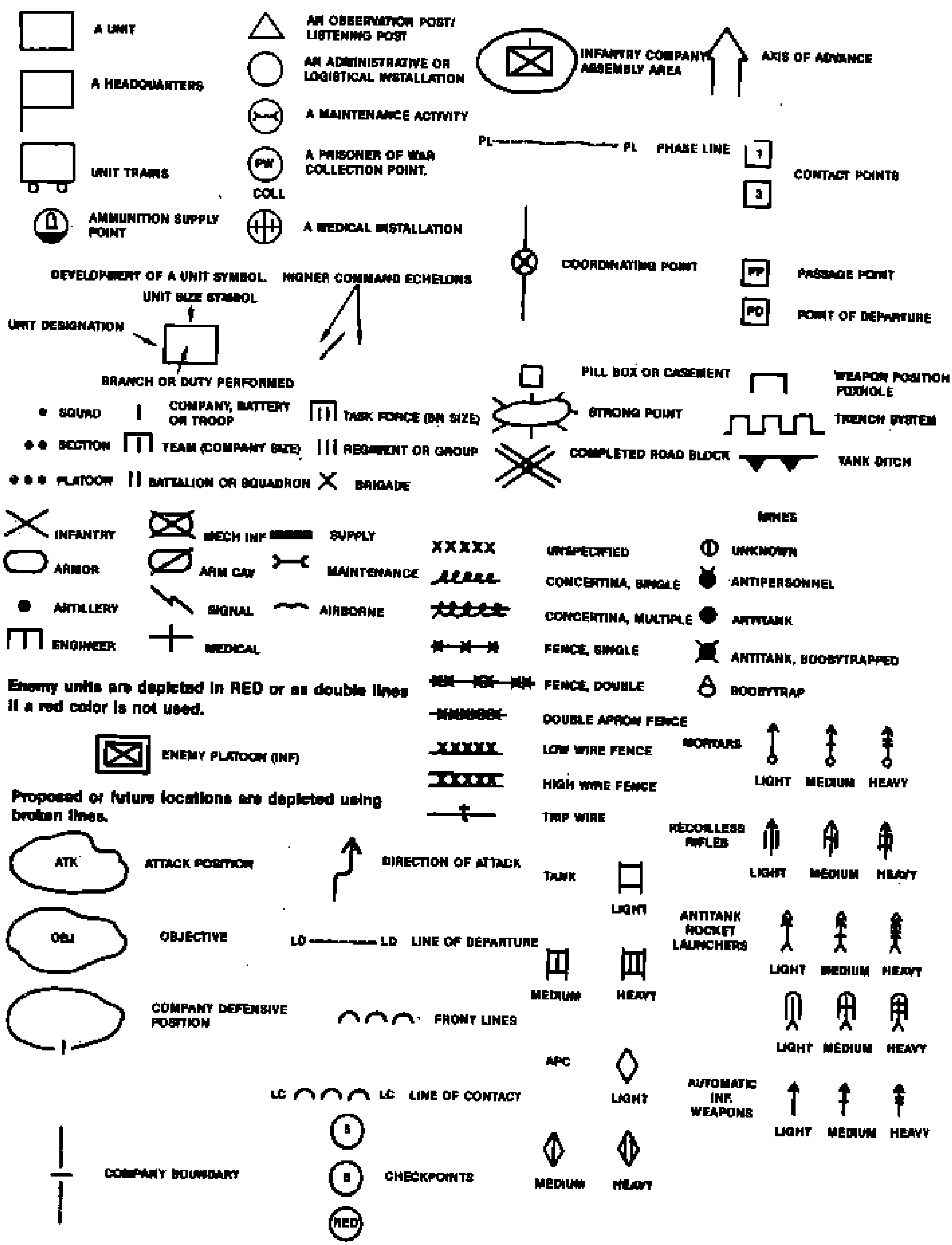
Map augmented to show lines of direction and distances from observer's position.

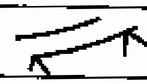
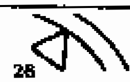
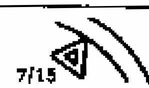
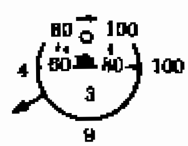
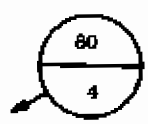


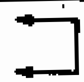
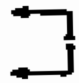
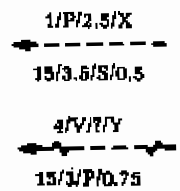
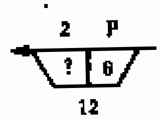
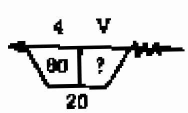
① 81
① 10
x ③
MY POSITION WHEN MARKING OVERLAY
STREAM NOT PATROLED DUE TO ENEMY ACTIVITY
ROADBLOCK
②
②
VEHICLE PARK AND SUPPLY DUMP ON DEAD END ROAD
②
PLATOON CONSTRUCTING TRENCH AND BARBED WIRE
① 79
① 13
STREAM: MAXIMUM DEPTH 3 FEET, GRAVEL BOTTOM AND SLOPING BANKS
②
PARTIALLY DESTROYED WOODEN BRIDGE
④
5. MAP BELVOIR 1:25,000 VIRGINIA
6. 1600 11 JAN 69
PATROL 3 "E" CO 6 MAR
7. SGT.

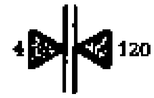
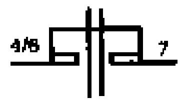
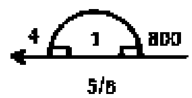
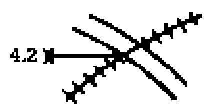
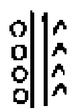
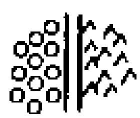


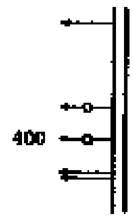
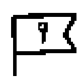
N
SWAMP
RECON
ORP
FLOOD LIGHT POLE
3800
MG 3 PAX
3 MAN OP (NO RADIO)
1500M
RAD. ANT.
RAD. ANT.
CONC WIRE
WOODLINE
POND
75M
HELIPAD
115M
CONC. WIRE
WOODLINE
125M
MG 3 PAX
270°
LEGEND:
2 WOODEN BLDG. NO WINDOW
25 × 25 FT., 15 × 15 FT.
2 VEH (APPROX. ¼ T)
FLOOD LIGHT POLE
FIVE MAN PATROL MAKES 360° AROUND OBJ WR WOODLINE APPROX ONCE EA 50 MIN (SML. ARMS) NO RADIO
NOT TO SCALE
TRAIL
TRAIL: DIRT 3.5M WIDE
POWER LINES
FS
(WOODS)
RECON 08 1200-1800
MF 296883
3 PLT CO C


A UNIT
A HEADQUARTERS
UNIT TRAINS
AMMUNITION SUPPLY POINT
AN OBSERVATION POST/ LISTENING POST
AN ADMINISTRATIVE OR LOGISTICAL INSTALLATION
A MAINTENANCE ACTIVITY
PW
A PRISONER OF WAR COLLECTION POINT.
COLL
A MEDICAL INSTALLATION
INFANTRY COMPANY ASSEMBLY AREA
AXIS OF ADVANCE
PL
PL
PHASE LINE
1
3
CONTACT POINTS
COORDINATING POINT
PP
PASSAGE POINT
PD
POINT OF DEPARTURE
DEVELOPMENT OF A UNIT SYMBOL.
UNIT SIZE SYMBOL
UNIT DESIGNATION
BRANCH OR DUTY PERFORMED
HIGHER COMMAND ECHELONS
SQUAD
SECTION
PLATOON
COMPANY, BATTERY OR TROOP
TEAM (COMPANY SIZE)
BATTALION OR SQUADRON
TASK FORCE (BN SIZE)
REGIMENT OR GROUP
BRIGADE
PILL BOX OR CASEMENT
STRONG POINT
COMPLETED ROAD BLOCK
WEAPON POSITION FOXHOLE
TRENCH SYSTEM
TANK DITCH
INFANTRY
ARMOR
ARTILLERY
ENGINEER
MECH INF
ARM CAV
SIGNAL
MEDICAL
SUPPLY
MAINTENANCE
AIRBORNE
XXXXX
UNSPECIFIED
CONCERTINA, SINGLE
CONCERTINA, MULTIPLE
FENCE, SINGLE
FENCE, DOUBLE
DOUBLE APRON FENCE
LOW WIRE FENCE
HIGH WIRE FENCE
TRIP WIRE
MINES
UNKNOWN
ANTIPERSONNEL
ANTITANK
ANTITANK, BOOBYTRAPPED
BOOBYTRAP
Enemy units are depicted in RED or as double lines if a red color is not used.
ENEMY PLATOON (INF)
Proposed or future locations are depicted using broken lines.
MORTARS
LIGHT
MEDIUM
HEAVY
RECOILLESS RIFLES
LIGHT
MEDIUM
HEAVY
ATK
ATTACK POSITION
DIRECTION OF ATTACK
TANK
LIGHT
MEDIUM
HEAVY
OBJ
OBJECTIVE
LD
LD
LINE OF DEPARTURE
ANTITANK ROCKET LAUNCHERS
LIGHT
MEDIUM
HEAVY
LIGHT
MEDIUM
HEAVY
COMPANY DEFENSIVE POSITION
FRONT LINES
APC
LIGHT
MEDIUM
HEAVY
LC
LC
LINE OF CONTACT
AUTOMATIC INF. WEAPONS
LIGHT
MEDIUM
HEAVY
5
8
RED
CHECKPOINTS
COMPANY BOUNDARY

Serial No.	Explanation	Symbol	Remarks
1.	Civil or military route designation		Designation written in parentheses along route.
2.	Critical point		To be numbered and described in legend. Critical points may be used to point out features not adequately covered in other reconnaissance symbols.
3.	Limits of sector		Limits of reconnoitered sector of route.
4.	Route classification formula	10.5m × 120 6mZ 8 (OB) 9mY 20 (OB)(W)	Expressed in order of: width, type, military load classification, obstructions, if present, and regular flooding or snow blockage: X—all weather route Y—all weather route (limited traffic) Z—fair weather route (T)—regular snow blockage (W)—regular flooding
5.	Grades		Arrows point in uphill direction; to the right of symbol is shown the actual per-cent of slope; length of arrow represents length of grade if map scale permits.
6.	Sharp curve		Vertex of triangle points to map location of curve. Figure indicates radius in meters.
7.	Series of sharp curves		Left figure indicates number of curves; right figure, the radius in meters of the sharpest curve.
8.	Full bridge symbol		Arrow extends to map location of bridge; minimum width is placed below, over-head clearance to the left, and overall length to the right of basic symbol. Lower portion of symbol indicates bridge serial number; upper portion, military load classification data. Underlined values are those below minimum standard. All linear distances are in meters.
9.	Abbreviated bridge symbol		Arrow extends to map location of bridge. Lower portion of symbol indicates bridge serial number; upper portion, military load classification. Class number must be underlined if width or overhead clearance is below minimum standard.

Serial No.	Explanation	Symbol	Remarks
10.	Bypass easy		Used in conjunction with bridge and tunnel reconnaissance symbols.
11.	Bypass difficult		Used in conjunction with bridge and tunnel reconnaissance symbols.
12.	Bypass impossible		Used in conjunction with bridge and tunnel reconnaissance symbols.
13.	Ford		Arrow extends to ford location. Data above the line expressed in order of serial number, ford type, stream velocity (in meters per second), and seasonal limitations. Data below the line expressed in order of length (meters), width (meters), bottom type, and depth (meters). Question marks indicate unknown information. Difficult approaches are represented by zigzag lines corresponding in position to shore where approach is located. FORD TYPE: V—vehicular; P—pedestrian SEASONAL LIMITING FACTORS: X—none; Y—significant BOTTOM TYPE M—mud C—clay S—sand G—gravel R—rock P—artificial paving
14.	Ferry		Arrow extends to map location. Data above symbol is expressed in order of military load class of deck and dead weight capacity in tons; data below symbol is turn around time in minutes. Question mark indicates unknown information. Difficult approaches are represented by zigzag lines corresponding in position to shore where approach is located. FERRY TYPE V—vehicular P—pedestrian

Serial No.	Explanation	Symbol	Remarks
15.	Width constriction		Route constriction. The figure to the left indicates the width of the constriction; that to the right the total constricted length; both dimensions are in meters.
16.	Arch underpass constriction		Width to left of symbol, overhead clearance to the right, both in meters. Both minimum and maximum overhead clearances, if different, will be given.
17.	Rectangular underpass constriction with sidewalks		Width of traveled way followed by total width including sidewalk to left of symbol, overhead clearance to right, dimensions in meters.
18.	Tunnel with sidewalks		Arrow extends to map location. Serial number is placed inside the symbol. The width of the travelled way followed by total width including sidewalks (in meters) is placed below the symbol. Overhead clearance is placed to the left of the symbol and total tunnel length to the right, both in meters. A question mark represents unknown information. Bypasses are shown by standard symbol notations.
19.	Railroad grade crossing		Level crossing; passing trains will interrupt traffic flow. The figure indicates height, in meters of power line (if any) above the ground.
20.	Concealment		Road lined with trees; deciduous trees (left) and evergreen trees (right).
21.	Concealment		Woods bordering road; deciduous trees (left) and evergreen trees (right).

Serial No.	Explanation	Symbol	Remarks
22.	Possibility of driving off road. The symbol may be amplified as follows: a. Wheeled vehicle b. Tracked vehicle c. A length of road exceeding 1km where driving off is possible		Arrow indicates direction of turnoff. The figure indicates the length in meters of the turnoff.
23.	Roadblock, craters, and blown bridges a. Proposed b. Prepared but passable c. Completed		Center of the symbol indicates position of block.
24.	Lateral route	- - - - (32)	Broken lines; identified by even number.
25.	Axial route	——— (57)	Solid line; identified by odd number.
26.	Unknown or doubtful information	?	
27.	Parking area		
28.	Traffic control post		
29.	Traffic control headquarters		

OPERATING FACILITIES

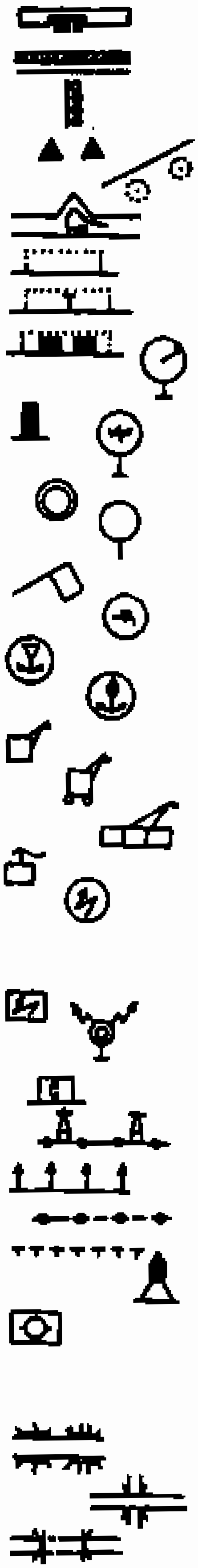
1. Slipway, Shipyard
2. Tow path
3. Bumping posts
4. Icebreaker
5. Mooring poles
6. Shipturning point
7. Alongside berth
8. Tanker berth
9. Lighter berth
10. Water level indicator
11. Water gauge
12. Recording tide gauge
13. Highwater mark gauge
14. Kilometer stone
15. Warning station
16. Drinking water supply
17. Fueling station
18. Coaling station
19. Crane
20. Traveling crane
21. Loading berth
22. Elevator for oil
23. Electricity supply point

AUXILIARY SERVICES

24. Transformer
25. Radar station
26. Phone booth
27. High tension line
28. Telephone overhead line
29. High-tension cable
30. Telephone cable
31. Waterworks
32. Pumping station

WATERWAY CONSTRUCTION AND CHARACTERISTICS

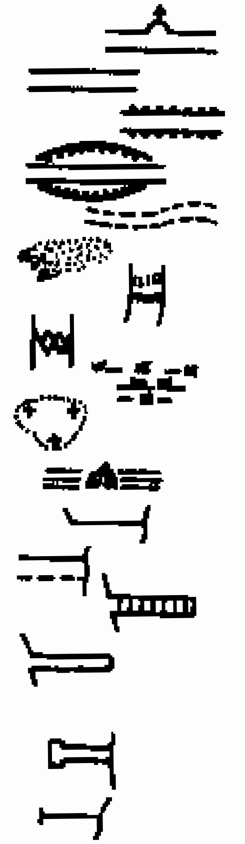
33. Aqueduct
34. Culvert
35. Syphon



36. Sewer
37. Navigable canal
38. Raised canal
39. Canal cut
40. Fairway
41. Dry river bed
42. Cataract, rapids
43. Waterfall
44. Reeds
45. Single stones or rocks
46. Rock or reef
47. Breakwater
48. Groins
49. Stone mole or pier
50. Wooden mole or pier

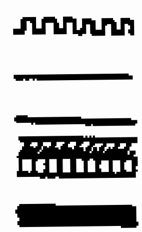
LANDING STAGES

51. —for vehicles
52. —for passengers



BANK CONSTRUCTION

53. Iron
54. Brick work or concrete up to 5m width
55. Brick work or concrete over 5m width
56. Wattle work (fascine filling) or grit layer
57. Paving



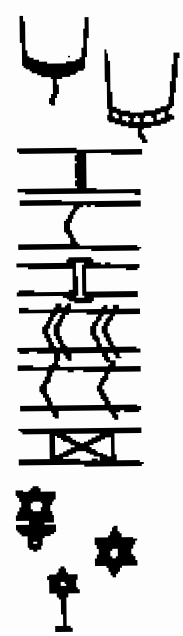
DAMS

Dam across a valley

58. —of earth or rock filling
59. —of masonry or concrete
60. Weir
61. Sliding-, Safety-, Guard- or Tide-lock
62. Emergency gate
63. Harbor lock
64. Lock
65. Ship-lift

NAVIGATION SYMBOLS

66. Lighthip
67. Lighthouse
68. Light beacon



69. Light beacon (coordinated)

70. Storm signal mast

71. Signal post

72. Beacon

73. Floating beacon

74. Deviation beacon

75. Buoys

76. Mooring buoy

77. Broom (brush)

78. Wind indicator, and combined wind indicator and water gauge

79. Presignal for swingbridge

80. Mooring prohibited

81. Free anchorage area

82. Wreck, trunk visible

83. Wreck, dangerous to surface navigation

84. Wreck, not considered dangerous to surface navigation

MISCELLANEOUS

85. Section mark

86. Extremely variable water level

(Vertical clearance)

87. Limit of navigability for vessels with indicated dimensions expressed in meters

(Length) 10 9 3 1.5 (Width)

(Draft)

88. Direction of flow

89. River port

90. River port connected to a railway

91. Canal—green

92. River—blue

93. Improvement

94. Planned

95. *Canal class O

96. *Canal class I

97. *Canal class II

98. *Canal class III

99. *Canal class IV

100. *Canal class V

*Canal Class	SHIP DIMENSIONS			
	Tonnage	Length	Width	Maximum Draft
O	300T	—	—	—
I	300T	38.50m	5.00m	3.55m
II	600T	50.00m	6.60m	4.20m
III	1,000T	67.00m	8.20m	3.05m
IV	1,350T	80.00m	9.50m	4.40m
V	2,000T	95.00m	11.50m	6.70m

1. Sawmill

2. Lumber yard

3. Stone

4. Aggregate (including gravel, slag, etc.)

5. Sand

6. Cement concrete products

7. Stocks of bricks and other clay products

8. Iron and steel stock

9. Wire stock

10. Paint

11. Glass stock

12. Gypsum and lime products

13. Asphalt and bituminous stock

14. Stocks of roof covering

15. Building hardware

16. Industrial gases

17. Cordage, nets, yarns

18. Civil engineering firms

19. Building contractors

20. Factories

21. The factory symbol may be used in connection with other symbols to indicate a factory or plant producing (as a main product) the represented material

22. Steel rolling mills and foundries

23. Engineering workshops

24. Mobile heavy construction equipment

25. Forestry equipment

26. Quarrying equipment 

27. Stores handling and transportation equipment 

28. Powered hand tools 

29. Water purification equipment (civilian) 

30. Electrical supply equipment 

31. Military water point 

FIELD INTELLIGENCE DATA CALCULATIONS

It will be essential for the LRP team to be able to calculate such field data as river current velocity, slope angles, and so on. Although in some cases special equipment is available to assist in this effort, the team will frequently have to rely on field-expedient measures.

Each team should have at least one digital stopwatch for timing enemy movements, river water velocity, etc. A digital stopwatch can be used at night and during periods of limited visibility.

It may prove useful for each team to carry one pocket altimeter to verify terrain heights. An excellent one made by Thommen, a Swiss company, is accurate within 30 feet, temperature compensated, and shock resistant; it has a separate scale for measuring barometric pressure. It weighs only 3.2 ounces with carrying case. Various models are available, with varying ranges in feet. Other necessary equipment includes a lensatic compass, a tape measure, or knotted measured length of cord, and a camera.

River Current Velocity

The desired maximum current velocity of river-crossing operations is 1.5 meters per second. This velocity would compare to the "quick time" rate of march of 120 (30-inch) steps per minute, 5 feet per second, 3.5 miles per hour, or 5.5 kilometers per hour. The current of a river is critical to effective and safe crossing operations. For reconnaissance purposes, it can be reasonably estimated by measuring a distance along the bank (measure off at least 15 feet for accuracy in timing) and noting the time a floating object takes to travel the same distance. Dividing the distance by the time provides the water's speed. Although this information may be helpful for LRP team river-crossing operations, it is primarily intended for collection of terrain intelligence data, to evaluate enemy or friendly capabilities of crossing the obstacle.

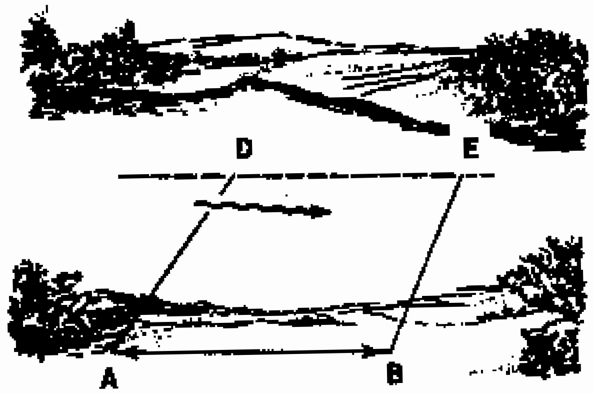
Downstream Drift

It is possible, and desirable when locating an exit point, to calculate the amount of downstream drift. This can be done as long as you know the water velocity, river width, and expected crossing speed. The crossing speed will, of course, vary based on the type of vehicle or boat that will be making the crossing. Amphibious vehicles, manpowered boats or rafts, and swimmers, will, of course, experience the greatest amount of drift and will generally have a speed of under two meters per second.

Slope or Gradient Estimation

Whether selecting a landing zone, route of march in rugged terrain, or river crossing site, it will at times be necessary for the LRP team to be able to estimate the degree, or gradient, of a slope. The slope of terrain is significant, with slopes in excess of seven percent requiring slow movement to negotiate by vehicle. The slope is usually expressed as a percentage, and is the amount of change in elevation (rise or fall) over a horizontal ground distance. Vehicle ability to climb or descend terrain is commonly expressed in percent of slope (i.e., tanks can negotiate slopes of 60 percent). This is based on ideal conditions, such as a dry, hard surface. Rocks, stumps, and loose soil degrade capabilities and must also be considered. Wheeled vehicles are generally limited to a maximum slope of 33 percent. There are a number of ways to determine percent of slope.

Map contour line method. Measure the horizontal distance along the desired route. Determine the



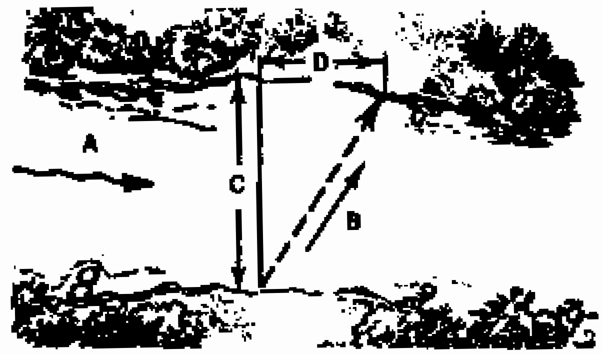
Measure AB. Throw floating object (e.g., a stick) upstream of the start point. Record time for object to float from D to E.

$$\text{Current} = \frac{\text{Distance AB (meters)}}{\text{Time DE (seconds)}}$$

The amount of downstream drift may be estimated as follows:

$$\frac{\text{River speed (A)}}{\text{Crossing speed (B)}} \times \text{River Width (C)}$$

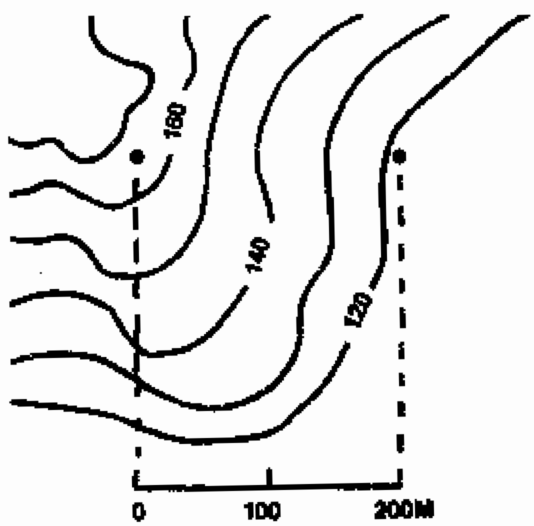
$$= \text{Downstream Drift (D)}$$



All measurements must be in the same unit of measure (e.g. meters, feet, etc.)

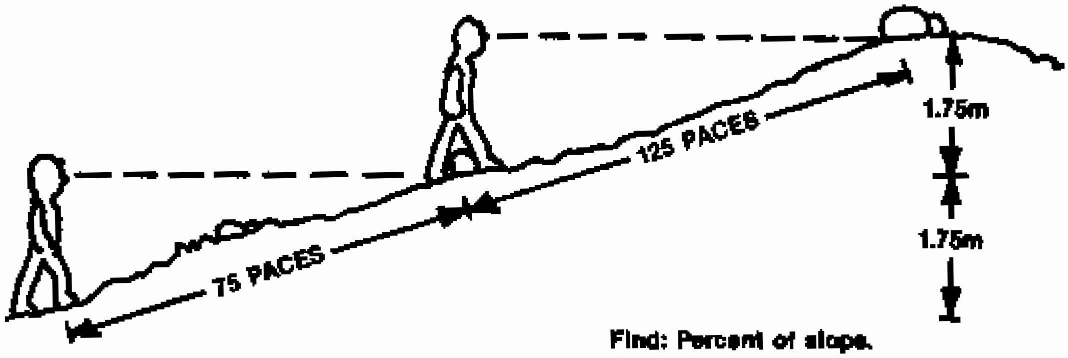
difference in elevation between the start and end points of the route. Ensure both figures are the same unit of measure (feet, meters, etc.), then divide the elevation (rise) by the distance (run), and multiply by 100 to get the percentage of slope. Of course, this information should be determined during the pre-mission planning stages, to the extent possible, to select the most probable route if conducting a route reconnaissance.

Line of sight and pace method. For this method



Rise = 165-120 = 45 meters
Run = 200 meters

$$\%\ \text{slope} = \frac{45}{200} \times 100 = 22.5\%$$



Find: Percent of slope.
Given: Eye level height = 1.75 m
Pace = .75 m

Answer: Vertical Distance = 2 × 1.75 m
= 3.50 m
Horizontal Distance = (75 paces + 125 paces) × .75
= 150 meters

$$\text{Percent of Slope} = \frac{\text{Vertical Distance (Vd)}}{\text{Horizontal Distance (Hd)}} \times 100$$

$$= \frac{3.50}{150} \times 100$$

$$= +2.34\%$$

Determining percent of slope using line of sight and pace method.

you must know your pace length and eye level height above ground. While standing at the bottom of the slope, the individual picks a spot on the slope while keeping his eyes level. The distance to the spot is then paced. The procedure is then repeated until the top of the slope is reached. The vertical and horizontal distances are then added to provide the total rise and run. For exceptionally long slopes that are fairly uniform, you need only check the first leg, not the entire slope.

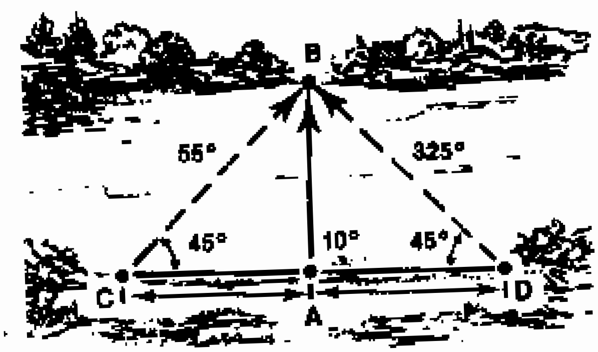
The amount of the slope may also be expressed in degrees; however, this is an angular method and is not commonly used because the relationships are more complex for field use. However, for some uses it will be necessary to convert the percentage of slope to degree of slope. The following reflect the relationship of percent and degree of slope:

CONVERSION OF DEGREES AND MILS TO PERCENT OF SLOPE

Degrees of Slope	Mils of Slope	Percent of Slope
1	18	1.7
2	36	3.5
3	53	5.2
4	71	7.0
5	89	8.7
10	178	17.6
15	267	26.7
20	356	36.4
25	444	46.6
30	533	57.7
35	622	70.0
40	711	83.9
45	800	100.0
50	889	108.7
55	978	117.6
60	1067	126.7

MEASURING WIDTH

Similar in some respects to range estimation, but more exacting, this method could also be used to determine the distance to a target, obstacle, or other location with some modification. Although excellent devices are now made for measuring distances, it is very possible you will have to rely on a less sophisticated field-expedient method. The width of virtually any object, road, river, landing zone, and so on can be readily measured using a pace count and two compass readings. Stand close to one edge of the area to be measured and sight on a point on the opposite side with a compass. Note the azimuth. Then move parallel, left or right, until the azimuth to that same point is 45 degrees different from the original azimuth. The distance across is equal to the distance between the points where you made the two compass readings.



Original observation from A to B reveals 10° azimuth. Move toward either C or D, when azimuth is 45 degrees different, the distance AC or AD equals AB (the river width).

To determine distance, height, or width:

The distance from an observer to a reference object can be determined if a dimension of the object is known from previous observation, or from a map or other source. The only equipment required is a pencil or other small straight object.

a = Distance between the pupils of the eyes.

b = Distance from eye to hand-held pencil.

r = b/a used as a constant. An approximation of 10 is often used.

A = Height or width of reference object.

c·c' = The numerical relation between the height (or width) of the reference object and the distance it appears to move during sighting (as shown in sketch), when observer changes his sighting eye.

Unknown:

B = Distance from observer to reference object.

Procedure:

a. Using right eye, sight pencil on reference object.

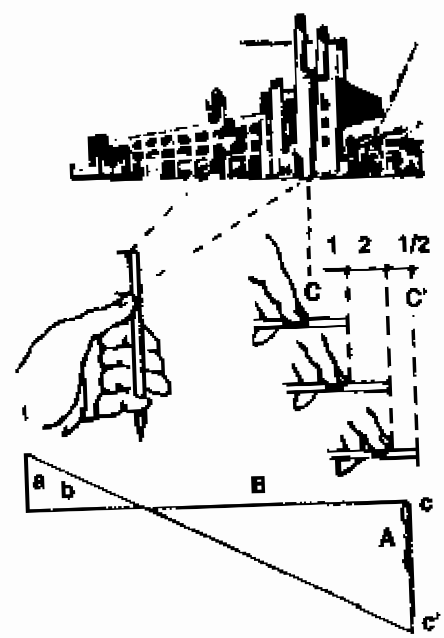
b. Slide thumbnail along pencil until the distance between it and the pencil end intercepts the known height or width of the reference object. The distance on the pencil is your measuring unit.

c. Without moving the pencil, close right eye and sight with left eye.

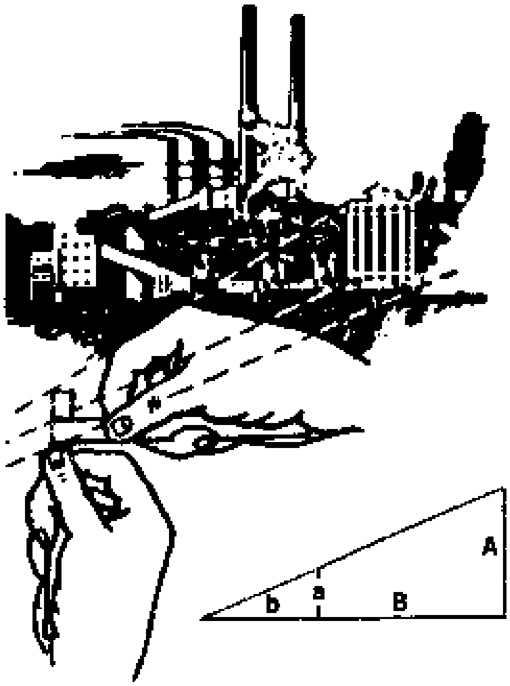
d. The pencil will appear to move to the right from c to c'.

e. Turn pencil and estimate c·c' in terms of the measuring unit. (In the sketch, c·c' is shown as 2½ units.)

f. Substitute known values in formula and solve; for example; r = b/a, usually 10; B = Ar (c·c')
If a = 84 ft., c·c' = 2.5, and r = 10,
then B = 84 ft. × 10 × 2.5
Therefore, B = 2100 ft.



Determining distance, height, or width.



To determine an unknown measurement:

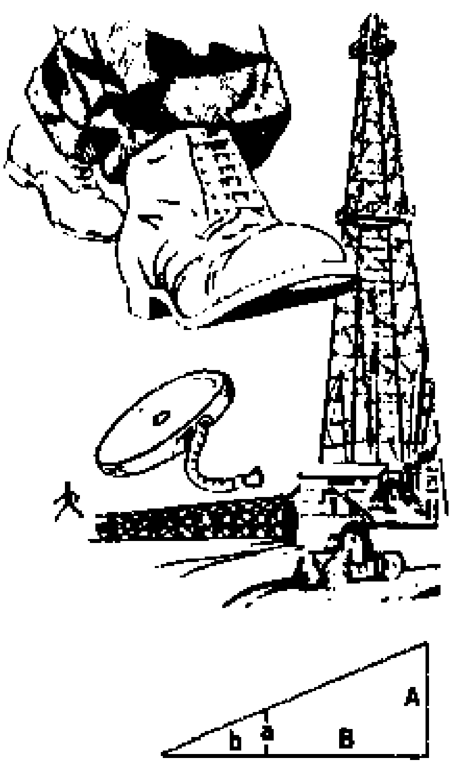
By using simple proportions, an unknown measurement can be determined if the three other values in the proportion are known or measurable. This method is useful in determining heights and widths of inaccessible objects. However, if a measurement of the object is known, it can be used instead to determine distance. The only equipment required is a 6-inch scale or other measuring unit. Known or measurable:

a = Length sighted on measuring unit in inches.
b = Distance from eye to sight on measuring unit in inches.
B = Distance in feet from observer to object (or A = Measurement of object in feet).
Unknown: A = Measurement of object in feet (or B = Distance in feet from observer to object).

Procedure:

a. Sight object as shown in sketch and determine a.
b. Pace, or otherwise measure B, e.g., use map of area.
c. Substitute known values in formula and solve; for example, $\frac{a}{b} = \frac{A \times 12}{B \times 12}$
If a = 1.5 in., b = 21 in., and B = 980 ft.,
then $\frac{1.5}{21} = \frac{A \times 12}{980 \times 12}$
Therefore, A = 70 ft.

Determining an unknown measurement.



To determine height:

The unknown height of an object can be determined by using the principle of proportional triangles. The shadow cast by the object can be measured; the height and shadow of a measuring unit can be determined.

The problem can then be solved by simple ratio. The only equipment required is a 6-inch scale or other measuring unit. Known or measurable:

a = Height of measuring unit in inches.
b = Length of measuring unit in inches.
B = Length of shadow of object in feet.
Unknown: A = Height of object in feet.

Procedure:

a. Pace or otherwise measure the shadow, B.
b. Set up the vertical measuring unit, a, and measure its cast shadow, b.
c. Or note the time and determine a and b elsewhere the next day at the same time.
d. Or measure the shadow of the observer.
e. Substitute known values in formula and solve, for example, $\frac{a}{b} = \frac{A \times 12}{B \times 12}$
If a = 6 in., b = 9 in., and B = 125 ft.,
then $\frac{6}{9} = \frac{A \times 12}{126 \times 12}$, or
If height of observer is 6 ft., and shadow is 9 ft., then 6/9 = A/126
Therefore, A = 84 ft.

Determining height.

Wind Velocity

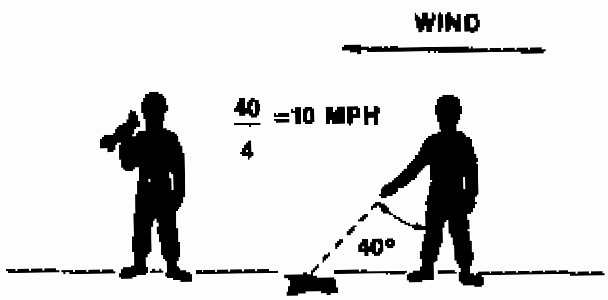
Although in many cases not an obvious skill, being able to determine wind velocity for the LRP has numerous advantages and uses. Whether you are performing sniper operations, calling in artillery smoke or CS rounds, selecting a drop zone or air landing site, or tracking, it can be useful and at times essential. During operations involving aerial extraction, especially in mountainous areas, it may be highly desirable to have a wind gange. Wind gauges are small and lightweight (about two ounces) and have a reading scale of usually 10 to 66 mph. If wind speed is a critical planning factor, it could well be a lifesaver. While a wind gauge is the most accurate method, there are three common field-expedient methods for approximating wind velocities.

Flag method. If you observe a flag or similar material hanging from a pole, you can estimate the angle (in degrees) formed at the juncture of the flagpole, and then divide this number by four for the approximate wind velocity.

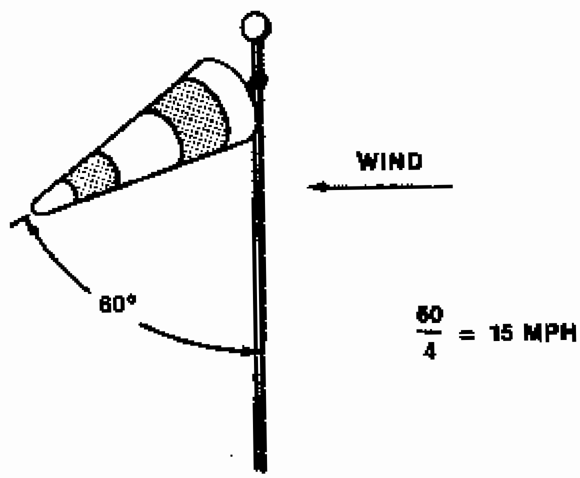
Pointing method. A piece of paper or other light material is dropped from the shoulder. Point to the spot where it lands, estimate the angle in degrees between the arm and body, and divide by four.

Observation method:

- A wind under 3 mph can hardly be felt, but causes smoke to drift.
- A 3 to 5 mph wind is felt lightly on the face.
- A 5 to 8 mph wind keeps trees in constant motion.
- An 8 to 12 mph wind raises dust and loose paper.
- A 12 to 15 mph wind cause small trees to sway.



Wind estimation.



The flag method.

11 Operational Mission Planning and Preparation

INTRODUCTION

Of all LRP operations, the deep penetration mission is the most critical and difficult. By its very nature it precludes the leader from relying on several conventional cardinal principles: responsive reinforcement, fire superiority, ready resupply, and a relatively secured rear or base area to which he can anchor his forces. The LRP force commander and team leaders must take steps to overcome these inherent restrictions by adherence to four principles: thorough, detailed planning; complete, realistic rehearsals; alert, imaginative execution; and precise, cool decisions.

If there is a most critical principle, it would have to be the planning sequence. A conventional operation based on a sound but very general plan has a reasonable possibility of success. The commander's reserve, ability to reinforce, and controlled rear area allow him to influence the course of the battle in many ways. He can approach the battle plan with the idea that he will react as the situation develops rather than thoroughly plan for contingencies. However, the LRP force or team leader who is guilty of such an approach invites disaster. Vastly outnumbered in hostile territory with extremely limited firepower and likelihood of responsive reinforcement, and no secure area on which to anchor his force, the LRP force leader must plan for every conceivable contingency throughout the duration of the mission.

These first critical seconds of action can spell defeat for the LRP team if not envisioned during the planning stage. There is simply no time to devise a plan on the spot and pass out instructions; each and every team member must function according to a predetermined plan of action whenever possible. Whether the area of operations is a high-intensity conflict in Europe or a low-intensity jungle operation in Central America, there is but one way to ensure success, and that is with proper training, organization, planning, and execution. There are no shortcuts.

The specific planning requirements will depend on the nature of the mission. The importance of proper mission preparation cannot be overemphasized. When deploying a small LRP team deep behind enemy lines it would be extremely difficult, if not outright impossible, to correct errors in planning after the fact. To ensure successful accomplishment of the mission, a well-thought-out detailed plan must be formulated in detail.

Mission Objective

The assigned mission objective must be specific and of sufficient value to outweigh the risks of operating deep in the enemy's rear area. The diversity of potential mission roles requires careful planning, coordination, and assignment of LRP assets. The degree of sensitivity and desired results must be measured against the employment environment to establish the priority and suitability of desired missions.

There should normally be only one primary mission objective, although appropriate secondary missions may be assigned when they do not significantly endanger the primary objective, but it must be left to the discretion of the team leader whether or not they can be accomplished. In some instances, follow-on missions may be appropriate. A team could be deployed with an initial stationary surveillance mission with a follow-on area or point reconnaissance mission the last few days prior to extraction, or a limited combat mission on the same basis. Normally a dual-purpose mission should be planned for and assigned prior to deployment. However, it is also possible that analyzed intelligence data may reqnire a change in mission after deployment of the team. Physical endurance and the condition of the team would become a very critical factor for dual-mission planning.

To conduct the wide variety of missions envisioned requires the capability to deploy individual teams, platoon-sized detachments, or company or larger size forces to operate independently or as part of a special operations task force. The LRP force must be task-organized and capable of providing liaison elements to coordinate mission activities with supported forces.

The force must also be capable of exercising individual and unit initiative in the accomplishment of assigned missions. This requires the use of mission-type orders that afford the commander sufficient flexibility to adapt his available resources in such a manner as to best accomplish the assigned task.

Target Selection

A significant aspect of selecting missions is target selection. The very nature of LRP operations, and the inherent support and intelligence requirements, will dictate the establishment of target-selection criteria to ensure LRP assets are used for only the most suitable missions. Operational plans should always include primary and alternate targets whenever possible. The target selection criteria can apply to intelligence or strike missions and will always consider the strategic, tactical, and operational significance of the target, as well as the following factors:

Criticality means that a target's destruction or damage will have a significant impact on the enemy's ability to conduct or support operations, and must be evalnated in relationship to other elements of the target system.

Accessibility is measured by the ability of the LRP team to infiltrate the target area. Consideration must be given to location, infiltration and exfiltration routes, and enemy security and other forces in the area.

Vulnerability is a target's susceptibility to attack and is influenced by the nature of the target and the means of attack available to the LRP team.

Recuperability is the enemy's ability to restore operations after attack by the LRP force, or to supplement the destroyed or damaged target.

Strategic, tactical and special category targets may include any of the following, or similar categories:

—Major enemy headquarters;
—Enemy nuclear, biological, chemical warfare weapons or facilities;
—Enemy indirect fire weapons systems and air defense weapons systems;
—Radio-jamming stations, communications facilities, and equipment;
—Power facilities and logistics operations, facilities, and equipment;
—Research and development and other key facilities;
—War material manufacturing facilities;
—Maintenance and repair facilities;
—Avenues of approach to objective or defensive areas;
—Airfields, bridges, tunnels, dams, roads, and railway lines.

Mission Priorities

A problem that arises during any military operation is the question of who establishes priorities at what point in the mission. For the LRP team this can be a serions problem if not dealt with strenuously. Once a mission is launched, much of the decision-making process and establishment of priorities mnst by nature devolve upon the team leader. To him must belong the options involving the immediate safety and best interest of his team in light of what he knows about the situation.

A typical example would be the requirement to sweep an ambush kill zone and make a body count. Although a legitimate requirement to establish during mission planning, it must ultimately be left to the team leader's discretion when the time comes to act. Again, the basic idea behind the requirement may be sound enough, but if pressed at the wrong time, it can be both dangerous and time-wasting. Tasks such as this are not generally of sufficient importance to warrant taking possibly deadly risks. It is important that priorities not become confused. Emphasizing such things as body counts until they obscure the more legitimate interests of security and mobility will jeopardize the overall success of the mission. The pivotal question is whether the requirement or proposed action is instrumental in achieving the mission objective.

Mission Planning

The LRP force operations and intelligence elements must thoroughly study the mission and consider all possible courses of action and the immediate situation, to include number and size of teams required and available to perform the mission; time available to prepare, rehearse, and deploy the teams required; enemy capabilities and situation; support available; ability to infiltrate and exfiltrate the proposed area(s) of operation; weather and terrain; and the type and number of team missions required to accomplish the desired objective.

There are widely accepted and quite detailed planning procedures in use by every military force in the world, and for this reason we will only look at how LRP operations might require a variance from the norm rather than try to repeat them all here. However, an operations order, patrol warning order, and other checklist-type formats are provided at the end of this chapter.

LRP missions can be generally subdivided into six phases for the purpose of planning and execution:

Phase One:	Mission planning and preparation
Phase Two:	Infiltration and movement to the operational area
Phase Three:	Performance of the designated mission
Phase Four:	Exfiltration and movement from the operational area
Phase Five:	Debriefing
Phase Six:	Rest, recuperation, and refitting

Phase one, mission planning and preparation, can be generally subdivided into the following elements:

1. The need for a LRP mission is identified and the LRP unit tasked. The desired area of operations and general mission concept is formulated by the requesting or supported unit's intelligence and operations staff in coordination with the LRP unit.
2. The LRP force intelligence element begins preparation of a detailed area intelligence briefing for the team(s) to be committed. The LRP force requires the entire spectrum of intelligence support, from national to organic systems. An active interface with all levels of the intelligence system would permit rapid acquisition of information to support mission planning and operations.
3. The LRP force operations element designates and notifies the patrol platoon(s) to perform the mission and begins formulating a detailed operations plan and briefing. Mission planning must start with a very thorough and detailed briefing that provides as much information as possible from which the platoon leader can develop his own plan and select the appropriate team(s).
4. LRP unit commander approves the operational concept and assignment of the mission to the designated patrol platoon(s).
5. LRP patrol platoon leader issues the initial warning order to the selected team(s), and the team leader(s) report for an initial mission briefing by the LRP unit's operations and intelligence section.
6. A visual reconnaissance and/or map study is made of the area of operations by the team leader, with support of the LRP unit staff, and detailed mission planning and coordination is accomplished. Mission rehearsals, inspections, and task-specific training are conducted.
7. Final mission briefing and team briefback is conducted, with final approval and a "go" given by the LRP unit commander if he is satisfied.

MISSION PLANNING, PREPARATION, AND FORCE CONSIDERATIONS

The following specific areas of planning, preparation, and force capabilities must be specifically considered when planning LRP force operational deployments and specific mission objectives.

LRP Operational Theater

The proposed operational theater must be carefully evaluated prior to committing a LRP force to deployment. In this instance the considerations have to do with the terrain, climate, and accessibility. Although a sound operation always considers these factors, for the LRP force they take on new dimensions with additional areas of concern and evaluation. These areas will, to a certain extent, dictate not only the method of operation, but also the limits of the operation. The expected, or existing, climate, accessibility, and terrain conditions in the LRP area of operations (AO) must be evaluated as to their effects on insertion, extraction, observation, communications, rations, equipment, tactics, and physical endurance of the LRP team members.

Accessibility covers a sometimes rather broad range of areas but in general terms means just that: is the intended area of operations accessible to the LRP force and support elements? The following questions must be posed, and answered, to effectively evaluate this mission aspect:

1. Are adequate rehearsal and staging areas available?
2. Are team AOs reachable within a reasonable period of time by supporting ground forces, aviation assets, and communications capabilities?
3. Does adequate control and security of base areas, supply routes, and rehearsal and staging areas exist to allow reasonably unmolested support and planning of operations?
4. Are fire-support systems capable of providing timely and accurate support?

Mission Duration

Due to the distances involved, potential for detection, weather, and other factors, the actual duration of a deep penetration mission may very well be unpredictable. Although planning should call for a length of fourteen days or less, the norm could easily stretch to thirty days or longer. Team members must be ready, willing, and adequately trained for the possibility of being required to walk out, live off the land, and survive on their own if preplanned exfiltration operations become delayed or impossible. This will be an extremely stressful psychological problem that must be fully evaluated prior to commencing operations. The level of stress will increase drastically as the mission length increases.

To routinely plan on conducting missions in excess of seven days offers more disadvantages than advantages. Although in certain situations long-duration missions may be feasible, they will not for the most part achieve the objectives desired. This position is arrived at based on the following aspects of LRP operations:

1. The prolonged practice of stealth techniques required of the team members will weigh more heavily on them each day. The psychological stress will increase each day and will be further compounded by lack of movement, with their effectiveness decreasing at a corresponding rate. Talking in anything more than a whisper, sneezing, coughing, joking, and other such noises would have to be constantly avoided as a danger to the team. Even using a hide may fail to reduce this problem by any substantial degree. It cannot be assumed that the efficiency of the enemy, proximity, or situation will allow for anything else. To expect a team to maintain the level of self-discipline necessary to accomplish this silence for fifteen or even thirty days may be more than is realistic to expect.
2. Weather may affect the duration of the mission. Whether it is extremely cold, hot, or wet will steadily serve to decrease the overall effectiveness of the team. Envision a team during the winter on the European battlefield: no hot food, hot drinks, or heating, and a great deal of inactivity. Although you may say, "They're tough Rangers and can handle it," it does little to improve their effectiveness. They may survive for longer periods of time, but how effective will they be?
3. The amount of supplies required to deploy a team for more than seven days reaches absurd proportions. The team could become virtually immobile just from the weight of their supplies. The other options available also have inherent drawbacks. Resupply of a team on the ground would be a tremendous risk of compromise. If they can be resupplied, they may also be able to be extracted and a fresh team inserted.

Living off the land is seldom practical from other than a pure survival standpoint and is certainly not compatible with stealth and secrecy. While a cache would be used to extend mission length, moving and establishing it after insertion greatly increases the risk of detection, as does returning to it later.

The only situations in which deployment should routinely be planned to exceed seven days would be when the following conditions apply:

1. Stay-behind mode of infiltration, or high-probability of nondetection during insertion by air, land, or water.
2. Insertion into a virtually inaccessible location, such as the top of a steep mountain or hilltop with good fields of observation but well away from expected routes of march, and so on, where the need for stealth is minimal.
3. The weather is not extremely harsh in terms of cold, heat, or dampness.

Infiltration/Exfiltration

The risk of detection during infiltration and exfiltration is extremely high during deep penetration missions. The potential impact of detection during infiltration must be adequately assessed during initial planning. Detection may well nullify the ability of the team to complete the mission successfully. Depending on the mission objective, detection during exfiltration may jeopardize future missions, nullify intelligence gained, and will most certainly alert the enemy to the use of a LRP force. Undetected infiltration and exfiltration provide a considerable advantage since the enemy will be more relaxed when there is no known threat.

The most common method of infiltration and exfiltration is by air, which in many instances will be the most efficient and least risky. Land infiltration, through forward lines, quiet flanks, or neutral or politically supportive neighboring countries, while feasible, must be closely evaluated, since the potential for detection is very high and the long distances involved can be extremely taxing on the team's physical endurance.

The control of air and sea lanes and the expected distance the team must travel to reach their objective must be closely evaluated. Traveling a considerable distance on the ground, especially through populated regions, raises a considerable risk of detection, restricts the weight of individual mission loads, decreases time in the objective area, and reduces team endurance.

To achieve the greatest degree of success requires the availability of dedicated mission-support assets, which is another cost that must be weighed.

Communications Support

A specific communications plan must be established with appropriate backup contingency plans established. Required reporting procedures, times, and other details must be clearly established, along with adequate emergency plans. The need for air, land, or seaborne backup and relay support must be evaluated and appropriate plans established. Normally the team should only report time-sensitive intelligence data during the course of the mission, with all other data being provided during mission debriefings. Randomly scheduled burst transmissions are the most desirable. Random reporting procedures, with contact initiated by the LRP team, are essential to reduce RDF risks. The enemy's electronic countermeasure and RDF capabilities must be thoroughly evaluated, since they may well make communications unreliable at best. Planners must balance mission objectives against available communications support.

Fire Support

Capabilities, limitations, and availability must be extensively evaluated, especially when conducting strike missions. Fire-support briefing information must be provided in extensive detail. Gun to target lines must be known, as well as the maximum ordinate of any planned supporting fire to allow mixing of air and ground supporting fires. Not only must the type of support available be known, but also its expected reaction time, location and capabilities. Whenever possible the team should be briefed by a representative of the supporting elements to ensure all details are cleared up early in the planning phase.

Reinforcement and Team Combat Capabilities

Although the LRP team is too small to engage an enemy force for any lengthy period, their actual combat capabilities are multiplied manifold by their ability to control long-range artillery fires and direct air support. When practical, it is desirable to reinforce a deployed team with special equipment and/or personnel in order to accomplish newly identified mission needs. An example might be a reconnaissance team that identifies a highly sensitive and critical enemy headquarters, radar site, or weapons position. The LRP team could then either be reinforced to raid the position, or function as a pathfinder element and guides for an airborne or airmobile strike force. After completion of this special mission, the LRP team could remain behind, resupplied, by conducting evasion operations out of the immediate area to take up a continued reconnaissance mission.

Personnel

Ensure all personnel are physically and mentally capable and prepared to undertake the mission. Even minor colds and similar illnesses or injuries can jeopardize the mission and must be carefully evaluated.

Weapons and Equipment

During mission planning, consider the type and length of the mission in relationship to the bulk, weight, and availability of weapons, and what is required to accomplish the assigned task. Determine any special-purpose equipment that may be required and its advantages and disadvantages when the overall mission load is taken into account.

The nature of LRP operations requires members to have total mastery of weapons, their own and those of their potential enemies. The use of enemy weapons and equipment should be considered to reduce the need for possible outside resupply and to aid in camouflage efforts (not uniforms though!).

Planning elements must keep abreast of the latest developments in weapons and equipment, discerning where such equipment might be useful and offering suggestions and modifications to manufacturers to make their proposals more efficient.

Rations will be extremely limited and resupply may have to be in the form of living off the land in some instances. However, living off the land and reliance on enemy supplies should normally be considered for survival purposes, not as a preplanned method of operation. Actual availability of food and supplies may be less than anticipated, and the potential for detection is extremely high. The use of hidden resupply caches may be essential for long-duration missions, but also entail added risk of detection. The operational plan with the greatest feasibility is that which allows the mission to be accomplished with the equipment, rations, and weapons team members can carry on their backs. Only an extremely high-priority critical mission warrants the added risks of using caches, living off the land, or relying on the use of captured enemy supplies.

Situation, Enemy and Friendly

Not only must the enemy and friendly situations be reviewed, but also the civilian presence, since stealth and avoiding detection are essential to LRP operations. Specific information regarding the area should include frequency and strength of enemy patrols; radio direction finding and ECM dangers; whether or not tracker or scout dogs are used by the enemy; availability of air and ground-fire support; density and character of local civilian population; past and present operations, friendly and enemy, in and around the AO; expected weather conditions and their possible effects on mission duration; ability to control the air over the AO; and available means of infiltration and exfiltration.

Details of the enemy situation must go beyond identity, strengths, equipment, and apparent courses of action, and also detail the mission, daily activities, methods of operation, morale, and known peculiarities whenever possible, while at the same time realizing that a lack of detailed information may well be the primary reason for the LRP operation.

The sketch of the friendly situation must not only include the identity and planned courses of action of adjacent units, but must also provide information that will assist the team, should escape and evasion from enemy forces become necessary. OP and LP locations and operating areas for other patrols may be of the utmost importance in formulating a viable plan of evasion.

Prisoners

Whenever the opportunity presents itself, the LRP team should take prisoners. The most opportune time is just prior to extraction when minimal movement following capture is required. When treated properly and effectively integrated, prisoners can provide a wealth of information. Although prisoner snatches will be more difficult in other then the counterinsurgency environment, they are not impossible. Ample targets will abound on numerous occasions in the enemy's rear area and should be taken advantage of as often as possible. Excellent targets are lone sentries, road and railway route guards, and couriers.

Team Movement in the Operational Area

There is a wide variety of opinions as to why a team should move, and how often. Some movement is essential, while at other times it is self-defeating because it increases the risk of detection. Actual methods of team movement are covered in Chapter 14. At this point it is essential to cover mission doctrine and planning considerations as to why a team should move at all.

Emplacement of sensors and surveillance equipment. At times it will be useful to deploy special electronic equipment to aid surveillance, but the risk during emplacement is high. To reduce the risk, insert two teams, one to establish a surveillance and monitoring position, and the other to emplace the equipment, move out of the area, and be extracted. If the emplacement team is detected or tracked, its movement away from the area would not jeopardize the surveillance team, and the enemy could be caught off guard by thinking that the team is no longer in the area.

Patrol base operations. Except for rare occasions in stability or counterinsurgency operations, a normal patrol base located behind enemy lines generally has little place in LRP operations, except as a temporary halting place prior to continuing the mission. Always returning to the same location, even if by different routes, invites discovery.

Times when a team should or should not move. Never move simply to satisfy some staff or SOP requirement. Avoid concentrated movement in a confined area, such as around a stationary OP. You do want to move when there is nothing to observe at the planned OP, to evade enemy forces, or to decrease the effectiveness of enemy RDF.

Stationary surveillance versus area/route reconnaissance. Here is where the biggest argument will develop in regards to method of operation for the LRP team. It involves the same question: whether or not to move, and how often. First, it should be accepted that at least to some degree a team will have to be able to move, if for no other reason than to evade the enemy. However, to a certain extent movement must also be held to a minimum and not be done without purpose. A properly trained team can in most instances move about their AO without detection, but it takes patience and work.

For those who advocate operating strictly from an observation post or surveillance hide, let's assume that a team has been inserted to establish a stationary surveillance post to be operated from a hide position. If the team then failed to observe anything after 48 hours, would they be ordered to move by the controlling headquarters? How about after 72 to 96 hours? If the answer is yes to either, then why not plan on moving to start off with, and cease moving when something worth observing is observed? Although the lack of information to report is intelligence of a sort, I seriously doubt that the employing commander will be satisfied with continuous negative reports and will require the team to move. If sent in as a stationary surveillance team, with all sorts of equipment and 30 days' worth of supplies, movement would suddenly become a real nightmare and high-grade risk for the team. The obvious solution is to plan for the potential move, establish individual loads and mission duration accordingly, and then have at it.

Movement plans, preplanned rallying, observation, and patrol base locations must only be considered as planning guidance in most instances. More often than not, situational urgency will not exist. Obstacles along the route may not have been efficiently plotted or analyzed as to their effect on team movement. There is nothing basically wrong with preplotting control points; the error is made when specific arrival times are established or a specific coordinate called for. Each team must be allowed to cope properly with its own movement and route problems based on very general guidance.

Selecting positions in advance when too little thought has been given to the stress and unavoidable delays which may be imposed on the team by natural and manmade obstacles is inviting disaster. So are lengthy waits or detours to avoid enemy forces, and then expecting adherance to these positions. Forced marches in these conditions may not be worth the trouble if the team arrives in a state of exhaustion unable to perform its mission. The rate of march, daily objectives, and other preplanned goals must be adjusted on the actual situation. The team must not become vulnerable or compromised due to needless haste.

The route of march and positions selected by the team must wherever possible take advantage of the terrain and vegetation. Select terrain that requires the enemy to move in close to effectively engage the team, thus limiting their firepower. Tree canopies upward of 40 to 50 feet high not only decrease the effectiveness of aerial spotting, but also reduce the effectiveness of target marking by smoke grenades and WP (white phosphorous). The overhead canopy will also negate the use of mortars due to a lack of overhead clearance. The more difficult the terrain, the harder it will be for the enemy to effectively maneuver forces in pursuit of the LRP team. However, these factors must also be considered as to their effect on the team's use of air and artillery support and possible need for air evacuation. In most instances the team will suffer fewer restrictions than the normally larger enemy force.

Routes should be selected that provide shielding from battlefield radar whenever possible. Use folds in the ground as well as undergrowth, which would then protect against visual as well as electronic surveillance. Merely hiding in the woods can no longer guarantee concealment from the enemy. If moving along below the crest of a ridge, don't forget also to move on the opposite side away from the most likely enemy surveillance threat.

Emergency action plans must be formulated that are "LRP-unique" and include action upon contact during insertion; action upon contact and compromise after insertion; loss of communications with the team; support of evasion plans; action upon sustaining casualties; and action if extraction becomes impossible. Reactions as a result of any of the preceding situations must be immediate if the team is to survive. Whenever possible, standard procedures should be established and used. The trust and reliability of the team leader on the ground becomes essential during these situations, and he should very seldom he overruled. Whenever possible, these plans should be rehearsed.

Map and Terrain Study

A very detailed map and terrain study must be considered essential to ensure that the team will be able to effectively accomplish the desired mission. Whenever possible, this should be combined with a visual overflight (reconnaissence) to verify map and terrain data, select possible insertion points, and get a general feel for the area. The team leader should be the primary player during this phase and be allowed to select his own insertion point whenever possible. Areas of interests should be the terrain and its possible effect on the mission; available cover, concealment, and fields of observation; natural and man-made obstacles; key terrain features; and possible routes of march.

Briefings should be as detailed and thorough as possible. The entire team should be briefed at the same time, not just the team leader. Available aids, terrain models, chalkboards, sandtables, maps, and photographs should be used to the maximum extent possible. All team members must be fully knowledgeable as to the nature, purpose, and details of the mission.

Map study. Perhaps one of the most important actions the team leader should undertake is a thorough and detailed map study. He should memorize the salient features and, if time permits, make a sketch map, and even a terrain model. Virtually every detail of the forthcoming patrol order is derived from the map study. A thorough map study can save time once on the ground by identifying danger areas, obstacles, and general route prior to deployment. The study will also help the team leader to know where he is at once on the ground, improving both confidence and security. The map study should be conducted prior to the visual reconnaissance to allow the team leader to verify and look for specific information rather than just looking the area over. The reconnaissance must be deceptive to avoid compromising the mission.

Terrain information must include a description of the general nature of the area of operations, specifically if the unit has not operated in the area before. The team leader must be as knowledgeable as possible of stream and river conditions, type and density of vegetation, and any map corrections.

Weather data must be provided in extensive detail and cover the entire period of the expected mission duration. Important changes must be provided via radio to the team during the mission. Data should include precipitation, light data, winds, ceilings, visibility, and temperatures.

Team Leader

The team leader studies the mission carefully to ensure that he understands the implied as well as specified tasks; plans the use of available time for preperation, rehearsals, inspections, and briefings; conducts a detailed map and situation study to determine special equipment and personnel needs; clearly establishes a time schedule; and determines the team's organization, special equipment needs, and uniform and equipment common to all. In most instances much of this should be clearly established in team and unit operating SOPs. The team leader also supervises team preparation; assists in planning mission execution; assigns individual duties; determines rations and support requirements; briefs team members; conducts rehearsals and inspections; and, of course, supervises execution of the mission.

Patrol order. The team leader must prepare a detailed and useful patrol order. He must cover even routine functions in sufficient detail to ensure that all team members are clear on their duties, responsibilities, and mission.

Rehearsals of team actions, to include immediate action drills, halt security, and other areas, should be planned for regardless of how routine they may seem. Rehearsals detect errors and clear up misunderstandings before they can jeopardize the mission or team members. As a minimum, each weapon being carried on the mission must be test-fired prior to departure to ensure proper operation and accuracy. When using a rehearsal, it should be over terrain similar to the objective, and should start with a "backward" method rehearsal whereby the actions at the objective are rehearsed first. There should be at least two rehearsals, one slow walk-through, and then one at speed during the same time of day when the mission action will be conducted.

Inspections are a must, regardless of the experience levels involved. At least two inspections should be conducted, the last one just prior to departure. Check specifically for completeness of uniform; condition of weapons, ammunition, and demolitions; overall physical and mental condition of the team; and proper packing of all team equipment. During the conduct of inspections, the team leader can also question team members on special assigned duties for the mission and operational plan details. The final inspection should be conducted within the last hour before deployment.

Coordination with all supporting elements must be done in detail and accomplished throughout the planning and execution of the mission, and is a continuing joint effort by the commander, his staff, and the team leader. Close coordination by the LRP staff with the supported or controlling headquarters, adjacent units, and support elements is also essential throughout the duration of the mission. The area of operation must be cleared of all friendly forces for the duration of the mission, to include air and ground fire unless specifically requested by the team on the ground. Particular care must be taken where areas of operation or control overlap. Specifically, coordination must be accomplished for movement into and out of the AO, whether by air, land, or water; other patrols or units in the immediate adjacent areas; and fire support for the mission.

Adherence to the preceding principles of planning and preparation should result in successful mission accomplishment. Refrain from taking shortcuts or the easy way—it costs lives and results in failed missions. The following checklists can be utilized to enhance mission planning and execution.

PATROL ORDER

1. Situation
   a. Enemy forces: weather, terrain, identification, location, activity, and strength.
   b. Civilian population: density, activity, and intentions.
   c. Friendly forces: mission of the force, locations and planned actions of adjacent units/teams, fire support availability, and supporting actions.
   d. Size and composition of the team.
2. Mission
   A clear and concise statement of the mission to be accomplished.
3. Execution
   a. Concept of the operation, to include duration, method of insertion and extraction.
   b. Specific duties of each team member.
   c. Emergency action plans:
      1. Compromise of mission.
      2. Loss of communications.
      3. Contact with the enemy.
   d. Coordinating instructions:
      1. Infiltration/exfiltration.
      2. Rally points, and action at rally points.
      3. Actions at the objective, if applicable.
      4. Ground, air, and naval support, as applicable.
      5. Rehearsals, inspections, and equipment tests.
      6. Debriefing.
      7. Survival, evasion, rescue, and escape plan.
4. Administration and Logistics
   a. Rations and team supplies.
   b. Arms, ammunition, munitions, and demolitions.
   c. Special equipment.
   d. Handling of wounded and prisoners, medical procedures and evacuation.
5. Command and Signal
   a. Signal instructions, codes to be used, call signs, primary and alternate radio frequencies, method and frequency of reporting, and so on.
   b. Authority for termination or modification of the mission.

PATROL PLANNING STEPS

1. Plan use of time.
2. Study situation.
3. Make map study.
4. Coordinate (continuous throughout).
5. Select personnel, weapons, and equipment.
6. Issue warning order.
7. Make reconnaissance.
8. Complete detailed plans.
9. Issue patrol order.
10. Inspect and rehearse.

PATROL WARNING ORDER

The patrol warning order consists of the following minimum items of information:

1. A brief statement of the enemy and friendly situation.
2. Mission of the patrol.
3. General instructions
   a. General and special organization requirements and individual duties.
   b. Uniform and equipment common to all.
   c. Weapons, ammunition, and equipment the team will carry.
   d. Instructions for obtaining rations, water, weapons, ammunition, demolitions, munitions, and equipment.
   e. A time schedule for the team's guidance. At a minimum include meal times, and the time and place for receiving the patrol order.

LRP MISSION PLANNING PHASES

1. Need for LRP mission identified, and LRP unit tasked.
2. Area of operation and general concept formulated.
3. LRP commander approves concept and assigns mission.
4. LRP patrol platoon leader issues initial warning order to selected teams.
5. Team reports for initial briefing by operations and intelligence section.
6. Visual reconnaissance and map study made of area of operation.
7. Detailed mission planning and coordination accomplished.
8. Mission rehearsals, inspection, and task-specific training conducted.
9. Final mission briefing and team briefback conducted.

EXECUTION AND CONCEPT OF OPERATION

Team organization, weapons, and equipment.

Infiltration:
—Check points and planned routes
—Travel time
—Method of infiltration
—Actions if detected during infiltration

Actions in the area of operations:
—Rally points
—Areas and points of interest
—Alternate and primary routes
—Patrol base locations, ambush positions, and so on

Operations security:
- —During movement
- —Short halts
- —Long halts
- —Radio contacts
- —Night locations

Immediate action drills:
- —Break contact
- —Hasty ambush
- —Action after contact is broken

Emergency action plans:
- —Primary and alternate evasion routes
- —Loss of communication
- —Chance contact
- —Loss of one or more team members (WIA-KIA-illness-injury)
- —Emergency signals
- —Rally points:
  - —How long to wait
  - —Subsequent action

Support available:
- —Artillery support; type, call signs, radio frequencies
- —Air support; type, call signs, radio frequencies
- —Airmobile/Airborne reaction force: type, call sign, radio frequency
- —Medical evacuation support: type, call sign, radio frequency

Exfiltration:
- —Check points and planned routes
- —Travel time
- —Method of exfiltration
- —Actions, if detected during exfiltration and pickup, are aborted

ADMINISTRATION AND LOGISTICS

Amount and types of rations
Water
Special weapons and equipment

COMMAND AND SIGNAL

Type of radios and antennas to be carried
Type and frequency of radio contacts
Air relay flight schedule
Frequencies: base, team, artillery, air support, and so on

BRIEFBACK MAP OVERLAY

Infiltration routes, primary and alternate
Exfiltration routes, primary and alternate
Rally points

Proposed route of movement
Proposed night halts
Proposed ambush, patrol base, or other positions
Evasion route with azimuth and distance
Outline of AO
Team member's names and duties
Team number, designation, and call sign
Preplanned artillery fire

LRP MISSION COORDINATION

THIS DOCUMENT WILL BE CLASSIFIED "SECRET" UPON INITIATION

Date-Time Group (DTG) Coordination Started: ______________________________

Controlling/Supported Headquarters: ______________________________

Mission Statement: ______________________________

____

____

Coordinates of Area of Operation: ______________________________

AO Cleared with TOC, from ______________(DTG) to ______________(DTG)

LRP Team Tasked: ______________

BRIEFINGS SCHEDULE

G2-G3/S2-S3, DTG ______________, Location______________

Warning Order, Issued (DTG) ______________, Issued to______________

LRP Unit Pre-Brief, DTG ______________, Location______________

Team Briefback, DTG ______________, Location______________

Debriefing/Post Action Critique, DTG ______________, Location______________

SPECIAL INSTRUCTIONS: Copies of all notes, mission orders, map overlays, coordination requests, and other documents generated during the course of mission preparation, execution, and debriefing will be added to, and become a permanent part of this document.

LIAISON VISITS AND SUPPORT BRIEFINGS

Insertion support elements

Organization:______________________________

Liaison visit and briefing DTG______________, Location______________

Radio frequency:______________ Call sign:______________

Method of insertion: ______________________________

DTG of insertion: ______________________________

Coordinates of insertion point:______________________________

Extraction support elements

Organization: ____________________

Liaison visit and briefing DTG ____________, Location ____________

Radio frequency: ____________ Call sign: ____________

Method of extraction: ____________________

DTG of extraction: ____________________

Coordinates of extraction point: ____________________

Fire support coordination

Organization: ____________________ Type: ________

Liaison visit and briefing DTG ____________, Location ____________

Radio frequency: ____________ Call sign: ____________

Response time: ____________ Preplotted fires: YES/NO

Organization: ____________________ Type: ________

Liaison visit and briefing DTG ____________, Location ____________

Radio frequency: ____________ Call sign: ____________

Response time: ____________ Preplotted fires: YES/NO

Organization: ____________________ Type: ________

Liaison visit and briefing DTG ____________, Location ____________

Radio frequency: ____________ Call sign: ____________

Response time: ____________ Preplotted fires: YES/NO

Reaction/reserve force coordination

Organization: ____________________ Type: ________

Liaison visit and briefing DTG ____________, Location ____________

Radio frequency: ____________ Call sign: ____________

Response time: ____________ Preplotted fires: YES/NO

COMMUNICATIONS SUPPORT

LRP commo team: ____________________

Radio frequency: Primary ____________ Alternate ____________

Call sign: ____________________

Location: ____________________

Airborne relay: ____________________

Radio frequency: ____________ Call sign: ____________

Response time: ____________________

Team call sign: ______________________________

Primary frequency: ______________________________

Alternate frequency: ______________________________

MEDEVAC: ______________________________

Radio frequency: ______________ Call sign: ______________

Response time: ______________________________

EMERGENCY ACTION PLAN COORDINATION

Insertion: ______________________________

____

Extraction: ______________________________

____

Lost commo: ______________________________

____

Chance contact: ______________________________

____

KIA-WIA-CIA: ______________________________

____

Primary evasion route

Azimuth: ______________________________

Distance: ______________________________

Rally point coordinates: ______________ Alternate: ______________

Alternate evasion route:

Azimuth: ______________________________

Distance: ______________________________

Rally point coordinates: ______________ Alternate: ______________

Action at rally point during evasion: ______________________________

____

____

APPROVED: **DTG** ______________

______________ ______________ ______________

Team Leader | Operations OIC | Commander

12 End-of-Mission Debriefing and Intelligence Reporting

POST ACTION CRITIQUE, OR MISSION DEBRIEFING

A debriefing can be classically defined as an interrogation to obtain useful information. This is basically true; however, we should not be so shortsighted as to limit our interest in the debriefing only to the after operation debriefing report. The debriefing must realistically be a part of the operation from the start. Questions must be developed during the mission planning phase that the commander wants answers to, whether about the enemy or the terrain. These essential elements of information should to some extent form the basis of the mission. There should be no lock-step debriefing format; it should be flexible and geared to each individual mission, with only key portions being the same.

The standard military debriefing format and procedures may be considered sufficient for most, but using a military historian-oriented Post-Action Critique (PAC) would be far more useful. In using the PAC, a group interview is conducted wherein the mission is reconstructed in the fullest possible detail, including logistical and intelligence data, employment of weapons and explosives, timing of all phases of the operation, complete review of casualties to include the type and location of wounds, and so on.

This process could take less than an hour, or a full day, and should not be rushed. Throughout the process, the team should be quarantined, but at the same time allowed to relax and enjoy refreshments. Do not have the team sit down and write a report. The goal should be to interview, discuss, and question until all details are known. Nothing must be considered unimportant or trivial.

There is no particular art to the process; so long as exact chronology is maintained in developing the "story" of the mission, and so long as the men feel confident that the interviewer seeks nothing from them but the truth, the results will come.

When possible, specific training as a combat historian should be made available for accomplishing this work. Special rewards come to the unit commander who diligently uses this system. The process, especially if accomplished by the commander, or at least the platoon leader, will create a closer bond with the men. Not until this process is used will you truly know what the men did in the field.

The PAC serves as a powerful stimulant for unit morale, strengthens each soldier's appreciation of his fellows, and enables the team members to gain a better understanding of the mission as a whole. It also results in improved subsequent performance. The seasoning of a combat unit comes fundamentally from men working together under stress growing in knowledge of one another.

Mistakes will be brought out during the critique. Their revelation should not be allowed to unduly hurt the team or its members. Getting it out in the open is one way, and probably the only way, to relieve feelings and clear the air, provided the dignity of all present is maintained throughout the critique. Should the need for a personal admonition or advice become necessary, it should be reserved for later in a private session with the member concerned.

Far more important, acts of heroism and high merit, possibly unknown until that hour, become known to all. From this knowledge will come an improved awards system that will be based on a standard of justice that will be commonly acknowledged. Men not previously recognized as possessing qualities of leadership may come to light and be moved toward eventual promotion that all will know is well deserved.

The revelations from this critique must not be kept a secret. The lessons learned are essential for the improvement of all LRP operations and must be disseminated to not only the personnel in the immediate unit, but also throughout LRP channels. The information must flow freely up, down, and across the LRP force; only then will the debriefing process become worthwhile.

To assist in this process, all team members must take cryptic notes when on operation, and whenever the situation permits, compare them. It is usually a good idea for the team leader to designate specific recording functions within the team to avoid excessive duplication. One man could be designated to record information about the vegetation, another termin features, and another man-made structures. However, the point-man and rear security scout should usually be restricted to making end-of-day notes on their general observations of the day. Their duties are far too restrictive to attempt to take notes during movement.

Particular attention should be paid to the type of vegetation encountered, size of trees, density of undergrowth and tree cover. Detailed information on roads, trails, open fields, streams, rivers, lakes and ponds, and other terrain data should also be collected. Record any variations in map data with the actual terrain, and so on.

When searching enemy personnel after an ambush or similar operation, always check pockets and equipment for notes and other useful items. In counterinsurgency operations, the condition of their uniforms may be more important than the weapons they are carrying. If possible, collect every piece of clothing and equipment for evacuation. If not, record detailed information on condition and types of equipment and clothing, e.g. new fatigues, new ammunition pouches, and so on.

Information on the enemy's field techniques and habits must be rapidly disseminated to all unit members. How they move, operate, carry their weapons, and similar data keeps the LRP team alive for their next mission. They must learn to think like their enemy and anticipate his every move. The information obtained during the PAC will be a tremendous aid in accomplishing this goal.

Detailed information regarding team equipment must also be collected. Specific attention should be given to how well it performed and problems encountered, even if considered minor; what improvements the team felt are needed to improve it; and what equipment they did not take along that they later felt that they should have.

State every problem encountered during the operation that was a direct result of the type or level of training, or the equipment used or needed: what went well, and what didn't, and why. This portion should be as complete as possible to assist in either planning future training requirements, or making equipment adjustments through reissue, deletion, or improvement recommendations.

Each team must also learn to keep its own list of tips and lessons learned, and add to them after each operation. The mission debriefing should help in this effort. Evaluate all phases of the operation, from the receipt of the initial warning order up until the return to the base camp. Leave no stone unturned in reviewing and evaluating every aspect of the operation. This process will serve to strengthen the team aud improve its overall performance.

The debriefing should be conducted in a secure area, free from distractions, and with the necessary aids (maps, aerial photographs, sand tables, and so on) in an effort to allow detailed reconstruction of the operation and to eliminate the possibility of misinterpretation of the information presented. Every team member must be given the opportunity to speak freely if he desires.

The mission is not complete, and the objectives not achieved, until the debriefing has been completed, reviewed, and evaluated.

DEBRIEFING REPORT FORMAT

1. Designation of team
   —Radio call sign.
   —Team members, name, and rank.

2. Date of report
   Maps used: scale, sheet number, map name.

3. Mission objectives

4. Date and time, group and method of actual infiltration
   Date and time, group and method of actual exfiltration

5. Routes
   —Actual coordinates.
   —Azimuth and distances of various legs.

6. Halt location coordinates
   —Night locations.
   —Patrol bases.
   —Ambush positions.

7. Size, activity, location, unit, time, and equipment, of:
   —Enemy sightings.
   —Enemy contact, to include KIAs, WIAs, and CIAs.
   —Captured documents and equipment.

8. Terrain intelligence data
   —Height, type, and density of vegetation.
   —Possible LZs and DZs, to include size, orientation, and obstructions.
   —Degrees of slopes.
   —Depth of ravines.
   —Waterways: width, depth, current speed, direction of flow, weather effect on waterways, condition and type of river banks, and fording points.
   —Bridges: type of construction, size, estimated load weight, and condition of structure.
   —Trails and roads: width, construction, orientation, extent of use, condition, and markings.
   —Terrain traversibility by wheeled or armored vehicles.
   —Soil composition.
   —Obstacles and danger areas: size, type, and description.
   —Villages and towns: size, fortifications, population, and activity.
   —Map correction data.

9. Communications data, to include any problems noted.

10. Logistics and administrative data, to include any problems noted.

11. Miscellaneous information not covered elsewhere.

12. Debriefing map overlay.

13. Conclusions and recommendations.

INTELLIGENCE REPORTING

Training emphasis must be directed not only to methods of acquiring intelligence, but also how and when to report it. All information concerning enemy activity must be reported as quickly as possible. However, in the high- and mid-intensity warfare environments, it may be necessary to make reports after exfiltration due to communications difficulties. This must be clearly established in operational SOPs, operations orders, and mission statements. Information must be accurate and as complete as possible. Reporting will generally consist of both oral and written reports. To aid in making complete reports, the military has developed acronyms and code words to assist the soldier. These are quite usable even in the LRP environment. The most common and versatile are the acronym SALUTE, and what is commonly referred to as the three Ws.

S = Size of the enemy force.
A = Activity of the enemy force.
L = Location of the sighting—the enemy's location, not yours.
U = Unit, which may be the type of unit, patches observed, uniform, and so forth.
T = Time of the observation; inclnde from and to times if appropriate.
E = Equipment: individual, unit, vehicles, and so on.

WHAT activity occurred;
WHERE the activity occurred;
WHEN the activity occurred.

SHELREP (Shelling Report)

An important intelligence reporting function of LRP teams is reporting observations of high-angle fire weapons or their fire. This can aid tremendously in locating and attacking enemy long-range fire systems. A rather simple format called SHELREP normally will provide all the data required. An oral SHELREP would normally be submitted immediately, with a follow-up written report provided during the end of mission debriefing. Items covered in the report:

1. Observer identification
2. Observer's location (coded)
3. Azimuth to flash or sound from observer's position
4. "Flash to Bang" time (from and to)
5. Type of rounds received or observed (artillery, mortar, etc.)
6. Number and types of rounds received or observed
7. Number and type of guns or mortars firing
8. Nature of fire (registration, harassment, etc.)
9. Damage (coded)
10. Time shelling commenced, and ended if applicable.

13 Tracking, Stalking, Stealth and Camouflage Skills

INTRODUCTION

Such actions as approaching a sentry for silent removal, attempting to bypass an enemy position, or tracking the enemy have many skills in common. An expert in stealth and the art of stalking can become a natural tracker if for no other reason than each discipline requires patience, knowledge of the environment, and knowing the enemy's habits. The knowledge and practice of these skills will not only aid the LRP team in locating the enemy, but also enhance their ability to avoid detection of themselves.

Since 500 B.C. when the Chinese military writer Sun Tzu wrote in his book *The Art of War*, "all warfare is based on deception," the battlefield has become increasingly sophisticated in the effort to detect deceptive techniques used by an opponent. Survival on the battlefield of the future will be increasingly difficult, and will require the soldier to become thoroughly skilled in the arts of stealth, stalking, deception, and camouflage.

Traits such as good eyesight, patience, attention to detail, thoroughness, inquisitiveness, curiosity, determination, knowledge of the enemy and the area of operation, and a good dose of common sense are essential to becoming a good tracker and stalker. Although seldom mentioned in most sources, hearing is also critical and is frequently a severe shortcoming for combat veterans.

When looking at training techniques and, in particular, courses of instruction that can give the LRP the broadest possible range of skills, there is only one that immediately comes to mind, and that is ninjutsu, the training discipline of the ancient Japanese "shadow warriors," originally an art of survival against nature and the elements as well as animals and people. Their techniques of diversion, hiding, illusion, and stealth can serve the modern LPR well. The art of the Ninja is an art for winning. Ninja training ranges from concealment and camouflage techniques to stealth movement, invisibility, and psychic sensitivity; all serve to heighten the abilities of the LRP.

The human senses play an important part in tracking, stalking, and acquiring combat intelligence. Just by smelling, touching, and listening, valuable information can be gained. LRP personnel must continually condition all of their senses, for they only see or hear what they have been conditioned and taught to see or hear.

Smell can be employed to detect the enemy before he detects you, and determine what he is or has been doing. Cigarette smoke can be detected up to one quarter mile away if the wind is right, and especially by a non-smoker. You can also smell food from several hundred meters, cooking fires, and even latrine facilities. For the person not wearing them, after shave, soaps, and other toilet articles can often be detected from a considerable distance. Insect repellent, onions and garlic, and similar smells can give away well-hidden ambushes or observers. Even explosives emit a distinctive odor that can be detected by a trained tracker. There are a multitude of items that give off their own distinctive odors; learning them and detecting them can pay off.

Touch aids not only tracking, but also searching dark tunnels, rooms, or the enemy dead at night when the use of flashlights is not possible. To use the sense of touch to identify an object (use your right hand—you mind "sees" with it), you consider four factors: shape, moisture, temperature, and texture. By shape we mean the general outline of the object. Moisture refers to the content, either wet or dry. Temperature is the heat or lack of heat of an object. Texture is the smoothness or roughness. By considering all these aspects you will normally be able to basically identify the object. Touch can save your life when searching for booby traps and trip wires. Although using exposed skin works well, try using a long thin blade of grass—you can feel the moment it touches the wire and then bends to avoid setting off the booby trap. During the Korean War, the Turks would remove all their clothing prior to going on a night patrol. If they came into contact with someone in the dark they merely felt for clothing—if they found some they would immediately kill the person. However, I don't recommend LRP teams roam around the bush naked; other methods can work quite well.

The sound of a safety latch being released on a rifle could warn of an ambush or sniper. The sound of a sudden flight of wild animals may indicate enemy movement, as will the sound of a barking dog. You must be able to determine if you have been detected, or your enemy. Sudden cessation of noise may indicate the same thing. You must become one with your operational environment and know the types and habits of the local wildlife. The sounds of men talking, running, or crawling are obviously important, but you must learn not just to hear them, but to also listen for numbers, type of equipment, and so on. You can learn to gauge the range of enemy weapons, and even their types, by listening and using the formula of counting the number of seconds from the time of the flash until the sound of the bang, and then multiplying by 400 meters, or 1,100 feet. Learn to instantly count the number of shots and seconds from flash to bang, identify the type of weapon, and determine compass direction, all as one smooth automatic function.

Don't try to win a fight with Mother Nature; operate on the principal of joining her. You must learn your place in the order of things on Earth, and become a part of your environment. Nature observation is an important key to the skills of tracking, stalking, stealth, and camouflage. Learn how to coexist with nature and you will not only succeed, but enjoy the experience.

Success at these skills is dependent on teamwork. Whether tracking, stalking, employing stealth movement, using counter-tracking measures, or camouflaging, it is essential to employ an overwatch. Although they may assist, their primary job is to be on constant alert for the enemy.

STALKING AND STEALTH

Stalking and stealth movement techniques, modified as needed, can prove useful whether tracking an enemy, infiltrating enemy lines, conducting prisoner snatch missions, or a myriad of other tasks. The team normally splits into two elements when stalking an enemy target. However, this split should take place as close to the target as possible, with one element proceeding on to the target while the other provides security from an overwatch position. There are two primary reasons for this; first, a six-man team is too large and noisy. Second, most equipment needs to be removed to achieve the level of stealth movement required. The overwatch element must be prepared to support the approach, or stalking, element with fire. No more than three members should make up the approach element.

Stealth and stalking are a combination of slow moves, soft steps, and sharp senses. Stealth is defined as "the art or action of going or proceeding furtively, secretly, or imperceptibly." Its practice involves a great deal of common sense and, to a lesser degree, technique. Stalking is defined as "advancing grimly, or to pursue (game, etc.) stealthily," and requires a great deal of patience and common sense. One is used to accomplish the other, and of course the proper application of camouflage, cover, and concealment techniques is essential for both. Time and patience are the most important elements in stealth and stalking. No matter how expertly you are camouflaged, a wrong approach or impatience can spell instant disaster.

When conducting a "stalk," you must learn to see and listen, as opposed to look and hear. To see and listen requires a great deal of patience and even common sense. Learn to see what you are looking at, and listen to what you are hearing, just as you must to successfully track a foe.

Sometimes on a frosty morning it is possible to spot a concealed enemy by his vaporized breath. You must sweep your eyes slowly back and forth, looking for unusual shapes and forms, matted vegetation, disturbed terrain, or anything which simply doesn't belong.

Objects in your path that may create noise must first be seen to avoid them or move them out of the way.

Almost every sound has some meaning, if you listen carefully. The alarm calls raised by birds mean that something is moving or you have been spotted. The flick of a cigarette lighter can carry hundreds of yards on a still night. Any noise that sounds foreign to the situation must be evaluated.

You must maintain flexibility to improvise quickly; maintain a light, relaxed feeling to avoid nervous, tense, choppy, and noisy movement. It is extremely difficult to generate high levels of emotional ferocity for critical moments in deadly combat, while at the same time trying to suppress it to prevent discovery. However, it must be dealt with.

That critical "sixth sense" that can be an advantage to you can also alert a sentry to your presence and must always be guarded against. Have you ever felt that someone was staring at you, and then turned to see that someone was? Well, that is the sixth sense in action. Avoid staring directly at a target you are approaching, lest you alert them.

Prior to commencing a stalk, you must plan your actions, clearly identify your target, observe the area involved, and prepare yourself and your equipment. The process must not be approached haphazardly, or in haste.

Preparing Yourself for the Stalk

Prior to commencing the stalk, you must double-check your uniform and equipment to ensure they don't become your enemy. Remove all keys and other nonessential items from pockets, and all other items not required for the immediate task at hand. Remove watches unless they are adequately camouflaged. Ensure clothing fits well enough that it will not easily snag due to bagginess. Recheck your camouflage, and ensure it blends well with the background of the target area.

Selecting Your Approach

Avenues of approach must be selected prior to the stalk and observed when visibility still permits. Once under the brush and grass tops it's more difficult to see in which direction to head. Whenever possible select readily identifiable trees, hills, and other tall objects that you can guide on without exposing yourself to check progress towards your target. Consider the following factors:

Always bear in mind that your target may be as well versed, or even better than you, at this deadly game and may have already spotted likely avenues of approach and emplaced mines, booby traps, or warning devices.

When selecting your route, it may be advisable first to identify the most likely and best approach route, and then select a different one. By doing the expected, you, instead of your target, can become the victim.

Using every bit of cover and concealment is part of a successful stalk. If possible, use folds and draws in the terrain to conceal you from view. Fallen logs can also be used to advantage. Even furrows in a plowed field can improve your concealment efforts.

Pay particular attention to camouflage requirements. Walls with vertical lines or shadows should be passed in an upright position, while horizontal lines or shadows call for a stomach crawl.

Try to select your route so that the sun is at your back and the wind in your face when approaching an enemy position. However, when moving away, you want the sun in your face and the wind at your back. When putting the sun to your back, make sure it is not skylining you for the enemy.

Learn as much about your target as possible by observation before you begin the stalk. A right-handed sentry will tend to turn clockwise to face an attack, sound, or noise from the rear. Knowing this can help you avoid visual detection.

Try to establish from what direction the largest volume and widest variety of sounds reach your target. The best approach would be from the direction with the largest volume of sound. The second best choice would be from the direction of the largest variety of erratic different sounds.

Determine the primary direction of your target's observation efforts and approach from the opposite direction.

Determining When to Conduct the Stalk

The timing of the stalk should be such to take advantage of weather, light, and noise factors.

Attempt to determine the guard schedule if you are stalking a sentry. When does he eat and sleep? Immediately after eating, the body requires more energy for digestion, and a sentry is therefore less attentive, slower to react, and less sensitive to subconscious input. A sentry who goes on duty directly after sleep requires up to thirty minutes to achieve good visual acuity. A sentry whose normal sleeping time comes directly at duty's end is mentally preparing himself for sleep, and is less sensitive and alert.

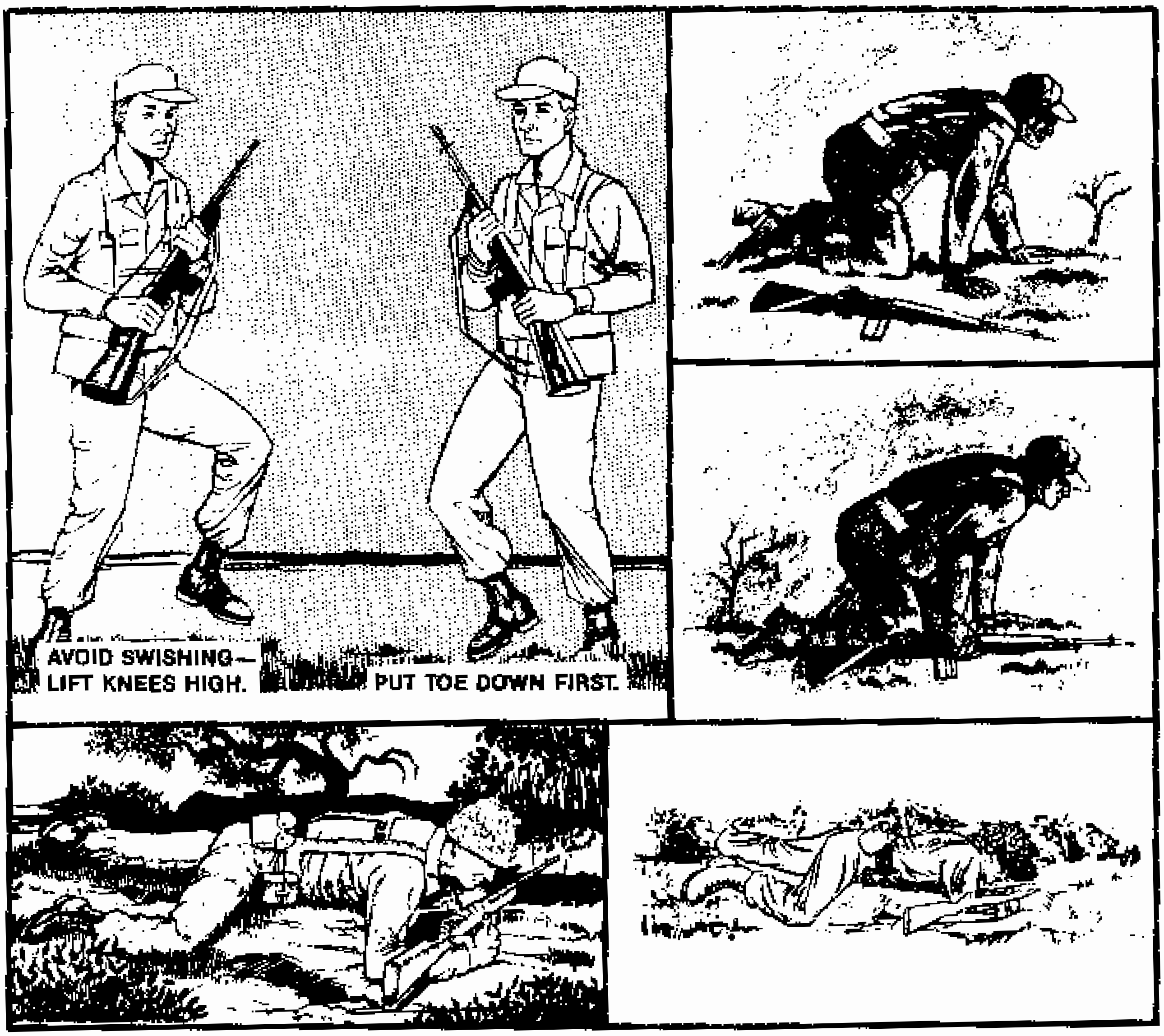
Use the cover of darkness to make your approach if possible, or the thirty minutes just prior to full darkness.

Take advantage of any weather conditions that may mask noise and movement in the target area.

Conducting the Stalk

Plan each step before taking it; don't rush. If it requires an hour to negotiate 100 yards, then it takes an hour. Quietly remove brittle twigs and other items if they will make noise stepping on them, and it is not possible to step around or over. When ground cover prohibits quiet movement, and the enemy is close, wait for a distracting noise that can mask your movement, then move quickly to a preplanned position. Take advantage of every distraction that can be used in your favor.

Motionless objects, even if not well camouflaged, don't send up the alarm as quickly as a noisy moving camouflaged object. Walking must be done softly and with patience—like walking on egg shells. Never drop your guard just because you are certain you cannot be seen or heard.



MOVEMENT TECHNIQUES. TL: High step; TR: Hands and Knees crawl; CTR: High crawl; Bottom: Low crawl.

CAMOUFLAGE, COVER, CONCEALMENT, AND DECEPTION

Camouflage is a French word meaning "disguise," and describes actions taken to mislead the enemy by misrepresenting the true identity of an individual's position or equipment, or to blend in with the surroundings. To be effective, it requires not only adapting the uniform and equipment to the surroundings, but also selecting positions and routes that afford concealment.

The art of concealment combines two major features: deception and camouflage. Deception is the art of creating a false recognition of the target, while camouflage is the art of preventing recognition.

Camouflage discipline must be integrated into all training, operations, and standing operating procedures so as to become a way of life and automatic response. This requires development of technique, through the proper use of available camouflage aids; learning to use terrain to your advantage; and using modern technology to aid your efforts. The desired result is to occupy an area yet not disrupt its appearance or leave telltale signs that can give your presence away.

The LRP team can deceive the enemy by deceptive infiltration techniques and counter-tracking methods. Even if detected, they can evade, implement counter-tracking, and continue the mission. Through deception, the team must endeavor to hide their presence, exact location, force size, and/or purpose.

Modern weapons can hit almost anything the operator can see, making your best defense that of not being seen. You must concern yourself not only with the color of yourself and equipment, but also with location, shape, texture, shine, and motion.

Although it is impossible to blend perfectly at all times, the LRP must make a continuous effort to ensure that their camouflage is adjusted to fit surroundings. Objects are often recognized or sighted based on their relationship to other objects and their shape. Care must be taken not only to alter obvious shapes, but also to select positions where the background aids in this effort.

Texture is primarily concerned with the reflection of light, or shine. Shiny objects must be concealed at all times, and smooth surfaces should be roughened whenever possible to reduce their reflectivity.

Never use regular patterns; use natural materials whenever possible, avoid large areas of solid color, eliminate straight lines, and as much as possible match colors with the terrain.

In addition to radar and night-vision devices, the modern soldier must be concerned with seismic detection equipment and thermal-imaging devices. Blending in with your surroundings applies equally at night. Moving upright across an open field at night is asking for trouble. Always assume that you can be observed and take action accordingly.

It is possible to obtain at least a slight degree of protection from thermal imaging devices. In early evening hours, following a sunny day, moving over "hot" rocky areas can help to mask the thermal image of a man. At the same time, concealment in heavily forested areas with dense ground vegetation can help mask the team, since the vegetation itself will put off a considerable thermal image. In either case, you must move slowly and close to the object being used to mask your presence. Although rocks provide cover and mask your presence, they also create ricochets. Rocks on all four sides of your position could prove a killer. Instead, select a position with rocks on one side, and position yourself with them between you and the most likely avenue of enemy approach.

Limit the enemy's ability to detect you with Starlight and infrared systems by remaining well inside of heavily wooded areas—you can be detected close to the edge of a clearing.

Mask the enemy's radar-detection abilities by staying close to large objects, moving slowly, and using routes concealed from line of sight by folds, draws, ravines, and other low spots in the terrain.

Avoid detection by seismic equipment by moving through wooded areas when the wind is high. The movement of the trees will extend into their root structure and will be picked up by seismic sensors, which will create seismic disturbances to mask your presence. Don't forget to move slowly and softly. If you move carefully, you will probably be passed off as another moving tree root rather than a target.

Knowing what, and who, is up ahead will make your camouflage and deception efforts much more effective. Position yourself, your route, and your equipment to take advantage of available cover and concealment and to increase the effectiveness of your camouflage.

Always look through or around foliage and other cover, never over the top, unless you blend well with your background. Select observation positions and movement routes suited to your camouflage. Select positions that offer cover and concealment from as many directions as possible, including from above. Avoid isolated bushes and thickets; they may be a reference or ranging point from an enemy observer. Selecting "dead ground" for your position and route of movement can screen you not only from visual observation, but in some cases also from radar and thermal detection equipment.

Weather conditions, although giving the enemy the same edge as you, if used wisely can be a considerable aid to camouflage and concealment efforts, and will decrease the effectiveness of observation and surveillance equipment.

Wind will affect the accuracy of almost all battlefield weapons to some degree; will cause foliage to rustle and generally obscure other noises; can blow dust and sand, hampering vision; and will sometimes lower the alertness of enemy observation and listening positions. An excellent time for the LRP team to move. Remember that in hilly country the breeze will travel up from the valley during the day, protecting you to some degree from odor and noise detection, but will reverse and travel downhill at night, to your disadvantage.

Clouds limit aerial support and reconnaissance, providing overhead concealment for the LRP team. They also obscure sunlight, starlight, and moonlight, soften shadows during the daylight and make them even darker at night, making undetected movement easier, day or night.

Fog deadens sound, limits aerial support and reconnaissance, slows operations in general, hides movement, and reduces light. However, it can generally make sentries and observers edgier and more alert.

Rain offers all of the advantages of the preceding with the added advantage of obscuring any tracks the team may make. It also hampers communications and electronic-surveillance equipment, generally decreasing the alertness of enemy troops who already feel secure deep in their own rear area.

Of course, the above factors can also adversely affect the mission of the team and must be evaluated accordingly. If a team should move into a position that was only possible due to fog, they may well find themselves trapped until the next fog bank or storm arrives.

Target indicators are anything the LRP does or fails to do that will reveal their position or route of movement to an enemy. A knowledge of these indicators will assist the team in remaining undetected and in detecting the enemy. These indicators are grouped into three general areas:

Sound. Although difficult to pinpoint a target's location by sound alone, sound does alert the observer so that the possibility of eventual detection is increased.

Movement can lead to quick detection and increased alertness. Slow deliberate moves are more difficult to detect than those which are quick and jerky.

Improper camouflage, or lack of camouflage, reveals the majority of targets on the battlefield, especially when coupled with sound and/or movement. Shine, regularity of outline, and contrast with the background are all giveaways to your position or that of the enemy.

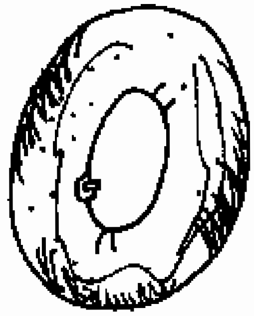
The LRP team must be camouflage-conscious from the time it departs on a mission until the time the members return. All personnel must recamouflage their faces and the backs of their hands in the morning, at noon, and after moving into an ambush, patrol base, or night location. They must constantly observe the terrain and vegetation, changing camouflage as the terrain and vegetation change. Shadows, terrain features, and vegetation must be used whenever possible for concealment. They must master the techniques of hiding, blending, and deceiving.

TRACKING

Tracking is the art of locating or following an enemy force by the physical signs they leave while moving over terrain. Tracking operations are used primarily in counterinsurgency and stability operations. However, for the LRP team, the ability to detect tracking signs may well allow them to avoid contact with the enemy. Whether intentionally tracking their foe or simply moving through an area, they should always be alert for the presence of track signs.

The most difficult part of tracking may well be finding that first sign. However, this need not be as difficult as it may sound. The team concentrates its initial search in probable areas such as streams, trails, and so forth, and then conducts a cross-grain or box search in an effort to locate an initial sign. Once located, they reduce the area of search and attempt to establish the age of the sign, direction

Strips of cloth, such as varying shades of burlap, can make excellent camouflage for the uniform or equipment. Sewn on at random, they serve to break up outlines and color. The strips of cloth should be stitched loosely, overlapping with an irregular pattern of texture, line, and color.



Pattern painting with flat finish paints works very well; however, care must be taken since it will tend to "shine" with age and will require repainting.

Bands can be cut from old tire tubes and be used to attach camouflage materials. Ensure the bands are not so tight that they restrict circulation.

of travel, and so on. The team's pre-mission intelligence briefing should include a detailed description of enemy activities and habits in the operational area, known and suspected, and past and present activities and methods of operation.

Methods of Tracking

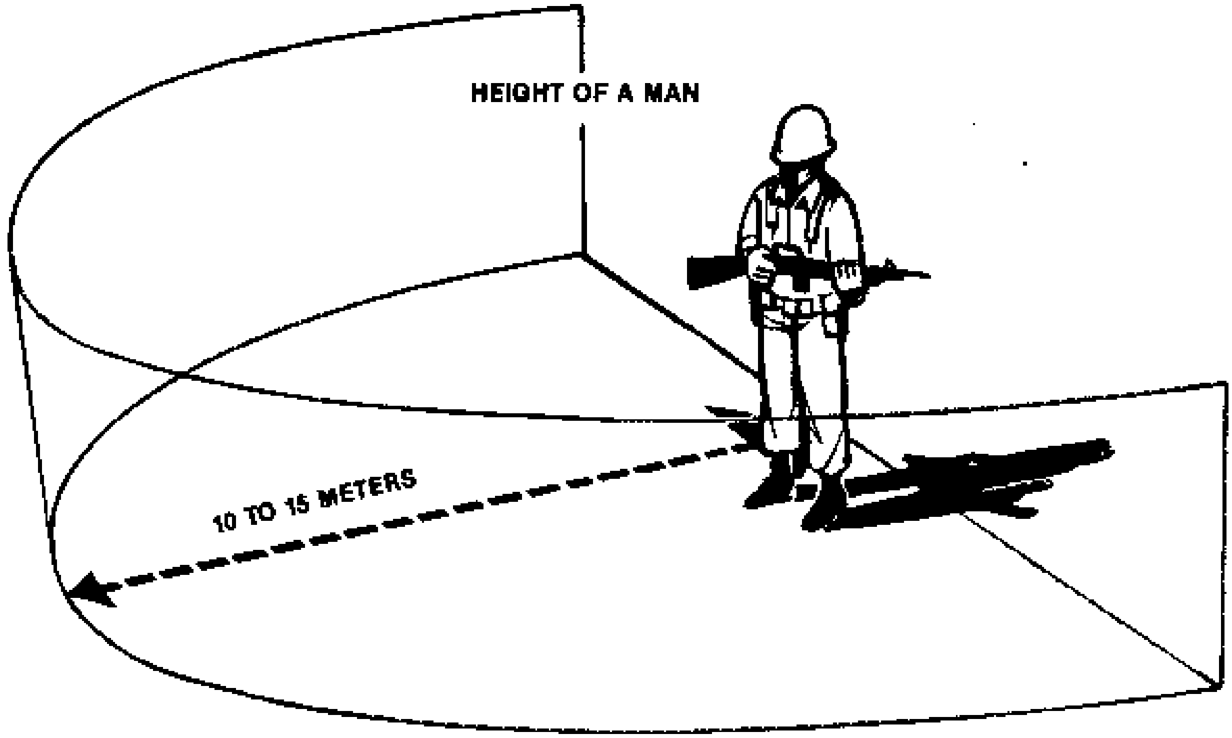
There are two basic methods of tracking, visual and scent; scent tracking is normally accomplished with trained tracker or scout dogs. Each method has its own advantages and disadvantages, but together make up a formidable team.

Tracker dogs. *Advantages:* faster than visual tracking, capable of tracking over terrain that has no obvious sign, and can track at night. *Disadvantages:* cannot work a long track under difficult conditions, may stray off the track when tired, or may stop for rest or water. Hampered by rain. The enemy pits his brain against the dog's nose; therefore, theoretically at least, the enemy holds the advantage.

Scent-tracking methods, although normally performed by dogs, can help a well-trained tracker follow a quarry, provided the scent is fresh. The sense of smell can provide early warning through detection of cooking fires and fumes, smoke, latrines, or freshly dug earth or cut vegetation. The tracker dog can alert to a wide variety of odors depending on his level of training, and can include explosives, food, human smells, and so on. A dog can even be trained to alert on scents over water.

Visual tracker. *Advantages:* can assist dogs in finding lost track, and can assess the track found as to age, numbers, and so on. *Disadvantages:* must always use their power of observation, even when not tracking, which creates fatigue. Limited during hours of darkness, and normally slower than a tracker dog.

In general terms, trackers are the most efficient in their countries of origin, with their efficiency falling off until they become accustomed to their new surroundings. Visual tracking methods consist of detecting bruises, breaks, and cuts in vegetation; water in areas that are normally dry; lack of water or dew on vegetation when it should be there; disturbed mud or soil; footprints in dirt, sand, or mud; sap from a bruised root or tree trunk; and disturbances to animal, bird, or insect life.



Area surveyed by tracker for indicators.

TRACKING TECHNIQUES

How to look. Your eyes should search from about eight to ten feet out, working back to your position, until the track is picked up. When searching, your head and eyes must keep moving from side to side, to keep looking through, and not at, vegetation. Try getting down on the ground and looking through the undergrowth. If observing movement, it is better to stay in one place for a while, moving the head and eyes only occasionally; anything moving will then excite the eyes. Once you have picked up marks or signs, you can then move in closer to inspect and evaluate. When tracking, the tracker will make a general assessment of the track direction by observing ahead 25 to 30 meters for general signs of the track, and visually connect it back to their present position. Always check left and right for signs of deception. Never look down at the track while in a standing position; always go down to one knee first, then look and examine the sign.

Where to look. Signs can usually be found in muddy or soft ground, on river or lake banks, in and around obstacles, at the edge of clearings and plantations, in thick undergrowth, and on or near roads and trails.

How to study the sign. Interpretation of the sign is by far the most important factor in tracking. Not only must you be able to pick out the sign, but you must also be able to determine the type of person you are following, i.e., lazy, tired, alert, confident, and so on. Any change, no matter how small, must be investigated thoroughly. This will allow you to anticipate movements, direction, and attempts at deception well beforehand. A party that suddenly begins attempting to disguise their trail may be aware they are being tracked, and may lie in ambush up ahead. A complete picture must be built up of all available signs. A study of the ground, country, and map in relation to direction of movement must also be done continuously. The first sign you find must be studied carefully. Normally it will be a ground sign. The approximate height and size can then be established by studying the top sign (above knee height). The signs would be studied further to determine approximate weight by studying the depth of prints. The length of the pace can be used to judge a person's height, whether or not they are carrying a load, and possibly the speed of travel. The top sign will normally verify information about the ground sign.

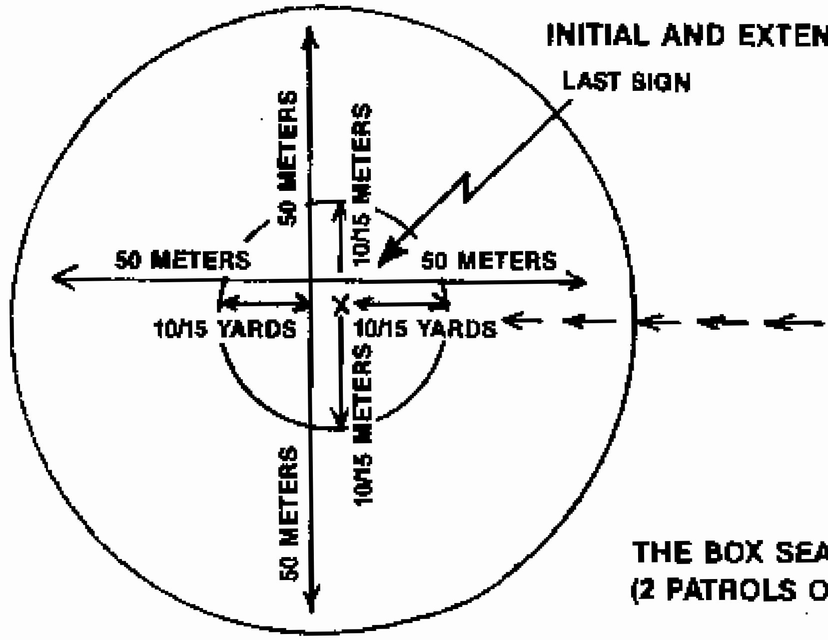
How to locate a lost track. When a track is lost, a search can be conducted to pick it up again by using the following search methods:

1. Initial cast: Mark the last visible sign, and search

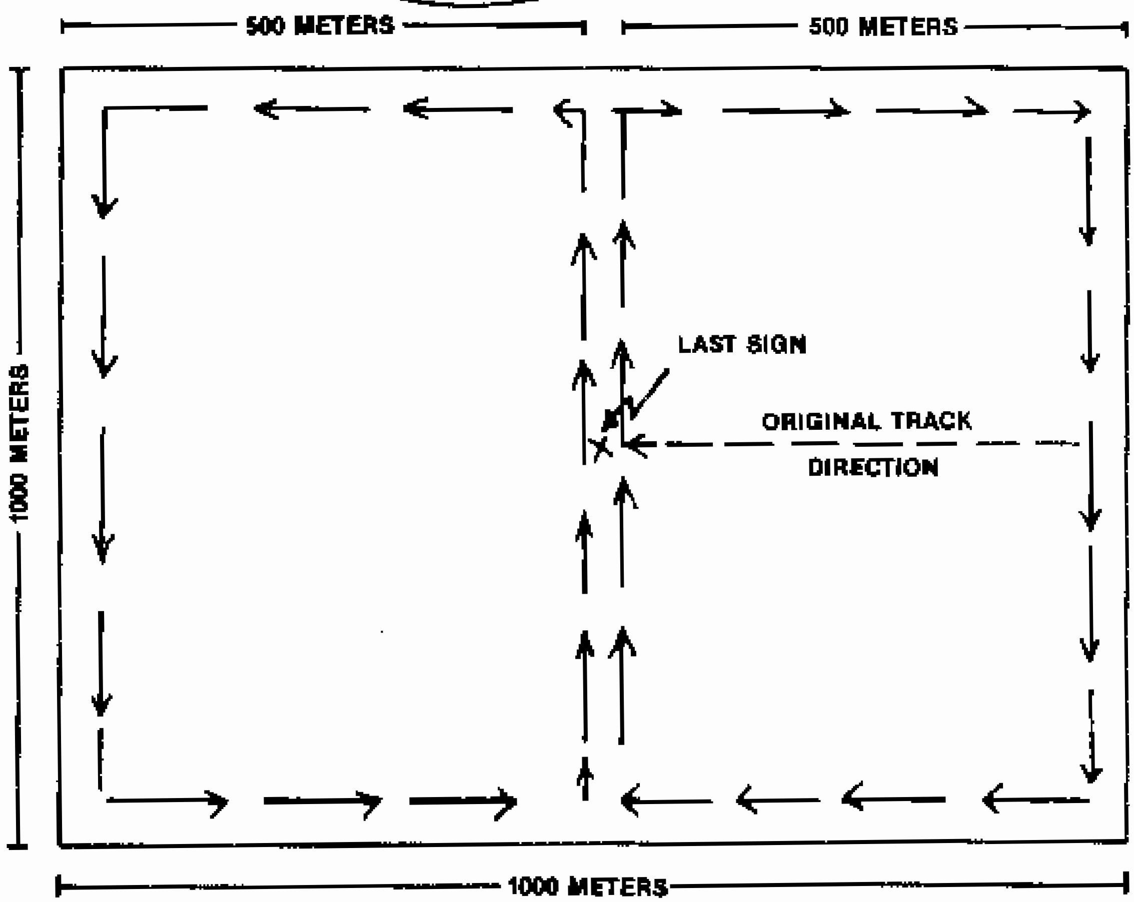
in a clockwise direction for a radius of ten to twenty meters.

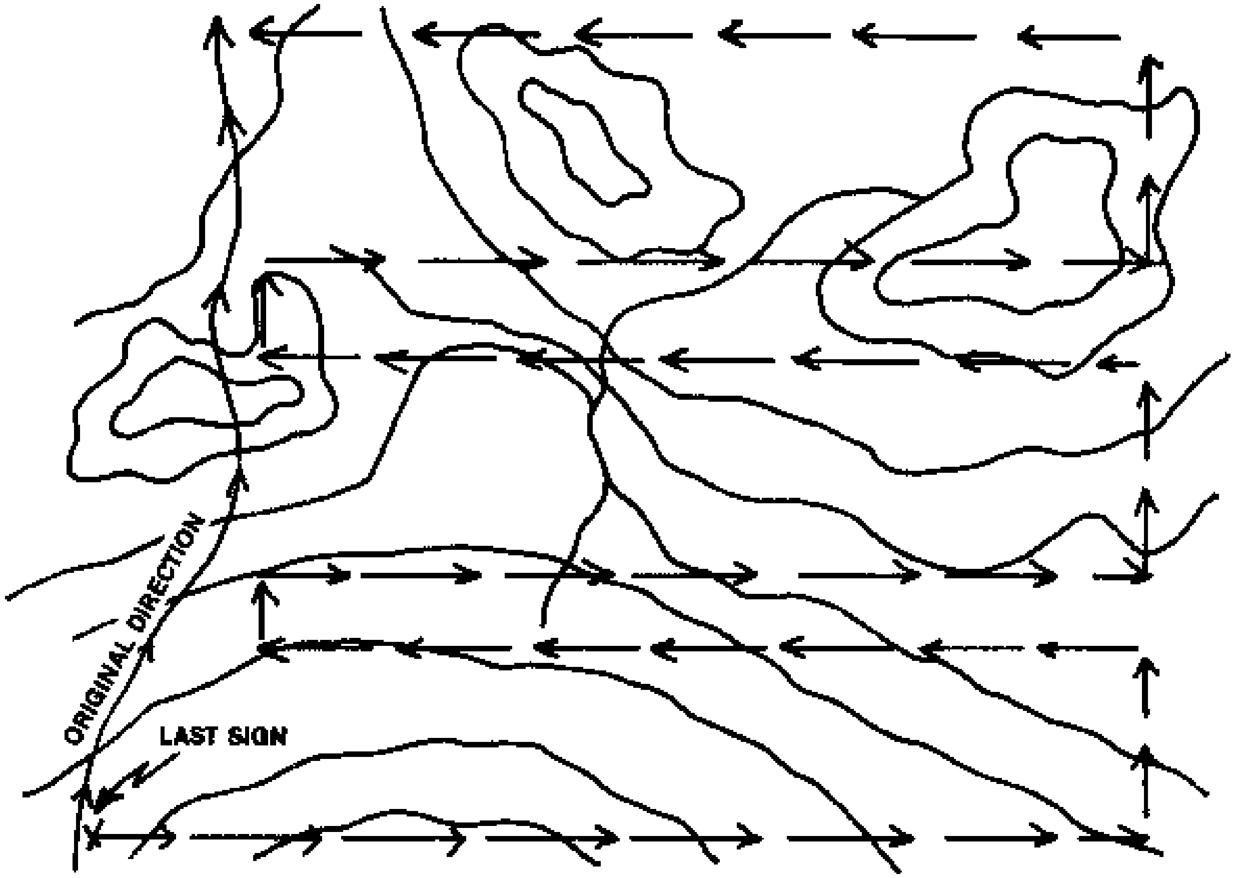
2. Extended cast: Retrace the track for up to 50 meters, looking for a place that may indicate your party has doubled back, or cut off the track.
3. Box search, to the front and flanks of the track and last visible sign out to 100 meters. If the track has still not been found, repeat the process by extending the size of the box being searched.
4. Cross-grain is used when the above methods fail. Conduct a search across the grain of the terrain. This method also includes the base line and stream line methods, which all consist of searching based on the terrain.

INITIAL AND EXTENDED CASTS.

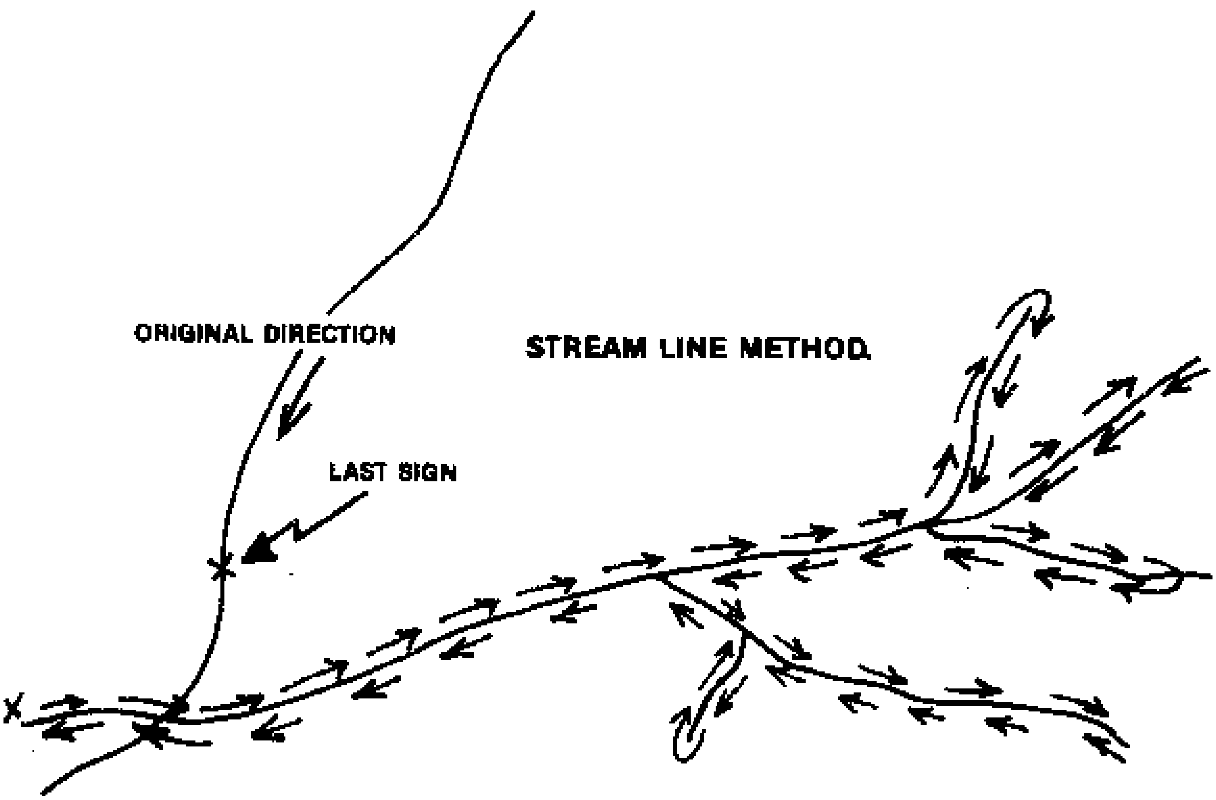


THE BOX SEARCH
(2 PATROLS OR LEGS).

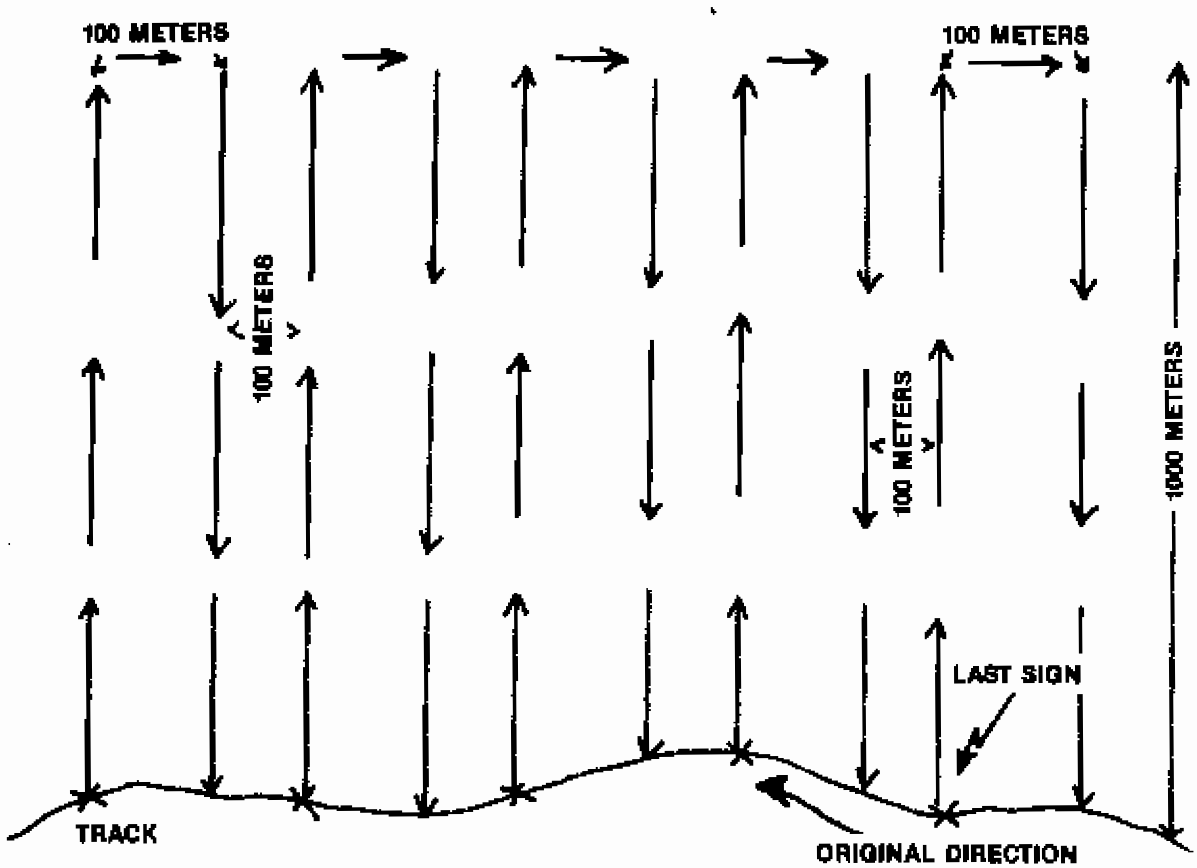




CROSS GRAIN METHOD.



STREAM LINE METHOD.



BASE LINE METHOD

CLASSIFYING TRACK SIGNS

All track signs can be placed into one of the following categories.

1. ***Top signs.*** Those made above average knee height, further classified as large and small top signs.
2. ***Ground signs.*** Those made below average knee height, further classified as large and small ground signs.
3. ***Permanent signs.*** Those that will not normally be eliminated due to wind, rain, or sun, such as broken vegetation.
4. ***Temporary signs.*** Those that will eventually be eliminated, partially or completely, by the elements, such as footprints.

TRACKING CONCEPTS AND FACTORS THAT AFFECT TRACKING ABILITY

Tracking consists of five basic concepts for identifying, locating, and interpreting the signs, which, when combined with other factors, will allow an experienced tracker to expertly follow and interpret the track. There are a large number of climate, environmental, and terrain factors that will at times aid and at other times hinder the ability to follow a track. Wind, rain, snow, and frost will all eventually serve to destroy a track. However, at the same time, they are useful in determining the age of the track. The type of ground and vegetation, time of day, animals, and even personal hygiene of the enemy can serve to either hide, destroy, or clarify tracks.

Displacement is the disturbance of soil, vegetation, or wildlife from its natural state. For example, bent or moved foliage, scuff marks on rocks and land surfaces, flushing of animals, and of course footprints. Birds and animals, when flushed, usually emit cries of alarm. They will normally flee from the source of disturbance. Soil displacement from footgear can be found on logs, grass, roots, and stones. The color and composition may indicate a previous location or route over which a party has moved. Muddying of clear water is a sign of recent movement, while clear water in footprints may indicate the trail is an hour or more old.

Staining may consist of blood, mud, sap, water, or berry stains found along the track that are unnatural to their specific location. Bloodstains can be found on the ground and on leaves and underbrush, up to the average height of a man. Examine stains for color, odor, and consistency.

Weathering can aid in determining the age of the track based on how temperature, rain, wind, sun, humidity, season, and time of exposure will affect the appearance of track indicators. Be aware of when it rained last, for how long, and how heavy or light the rainfall was.

Litter such as papers, cigarette packs, remains of fires, human feces, equipment, or ration containers can provide useful information. Shreds of clothing may be found clinging to the underbrush, particularly if movement was hurried. Observe along the track and to the flanks for items of litter. By studying the litter, you may be able to tell the age and other information.

Camouflage (deception) is the enemy's efforts either to hide their track or mislead the tracker. If the ground sign and top sign direction pointers disagree it is possible that the party is walking backwards. On the other hand, if various top signs contradict each other, it is possible the party is attempting to change his top sign to read in the opposite direction of movement, or intentionally creating bogus top signs to throw off trackers.

When walking backwards, the length of the pace will be shortened and the toe and ball of the foot will be more pronounced in any prints. Even when walking backwards, loose dirt, dust, sand, leaves, and twigs will still be dragged in the actual direction of movement. Unless a person is a real expert, attempting to convert signs will only serve to signpost his track and actual direction of movement. Attempting to brush away tracks will also signpost your direction of movement or intentions. Crawling on hands and knees will eliminate top sign, but at the same time can increase ground signs. When tracking a party who is "stone hopping," look for shiny spots on the surface of stones, particles of dust, sand, or mud, and crumbled dirt and sand that builds up around the lower edge of rocks. Tree-climbing will increase top sign, and very fine hairs, moss, and so on will be rubbed off by hands and feet.

Humidity, rain, and general weather and climate conditions will cause metal to rust. Check recently exposed scraps of metal and ration cans. Rust will form on bare metal within twelve hours or less. Rain will flatten paper scraps and other litter such as cloth. By close examination you can determine whether the litter was discarded before or after the last rainfall.

Sunlight will bleach and discolor light colored paper and cloth. It will first go through a yellowing stage and eventually turn completely white. Of most importance to the tracker is the yellowing stage. After one night, yellow spots will begin to form. It takes about three days for such litter to become completely yellow. Other factors such as brittleness and deterioration due to wetness can also provide clues to age. On dark colored paper and cloth, you must look for indications of fading, which will vary with the intensity of the sunlight, and requires experience to evaluate.

Sun, rain, and wind are all factors that will adversely affect a track. The degree of effect will vary with their severity. Generally speaking, tracks that are sheltered from all or most of the elements may still be recognized up to 30 hours from the time they were made. Wind will dissipate and carry sound and odors. Knowing the direction of the wind can aid in detection and stealth. Whenever you hear a noise, rotate your upper body with the ears cupped with your hands until the noise is the loudest. The direction you are facing will usually be the same as the source of the noise. When there is no wind, air currents will generally flow downhill at night and uphill during the day.

Time, or age is generally the most difficult to assess in tracking, and the poorer the signs, the harder the task. Some signs can be gauged in minutes, such as wet blood, while others must be assessed in hours of measurement. Only experience and practice will help to overcome this difficulty. The tracker must also have a good knowledge of the local weather and its effect on signs, which can place them into a time bracket.

TRACKS (FOOTPRINTS)

Footprints are probably the most important example of displacement, for by examining the effects of the weather and other factors on the track, we can learn the number of persons in the party, direction and speed of movement, sex, how long ago the party passed, the serviceability of their equipment, and in some cases even the type and weight of load they are carrying.

Animals. It is fairly easy to tell the difference between animal and human tracks regardless of the type of ground involved. Obviously, the most distinct characteristic is the shape of the print. However, the majority of animals also make a distinct "chop" as they move along, whereas a human fails to put down, or lift, his foot as clearly, tending to break die regular line of the print. Many wild animals sleep during the day and move at night. If human tracks have animal tracks over them, going in two directions, then this is an indication that the track is one night old. If prints show that an animal has moved in only one direction, then the human tracks were probably made at night after the animal moved down for water, but before it moved back.

Type of footwear. Look for scuff marks, symmetrical patterns, and similar signs. Persons travelling in a group will usually leave one set of clear prints made by the last person. By studying a set of footprints for worn or unworn heels, cuts in the heels, and tread patterns, it is possible to recognize and follow a specific individual's track and gain further intelligence about dress and equipment. Even the angle of the impression compared to the direction of movement can provide useful information.

Number of personnel. In the case of small numbers being tracked, take a normal pace, count the number of prints within the space, and then divide by two. This will give you to within one the number in the party. Larger parties can only be guessed at. If the ground is soft and fairly level, and prints are distinct, measure off a distance of 24 inches and count the number of heel marks. One man will seldom place his foot down more than once in 24 inches.

Speed and load. The deeper the imprint or impression, the faster the speed of travel, or the heavier the load. Running will make the toe and ball of the foot stand out, and the stride will vary. Soil will tend to be scuffed or thrown out to the rear and sides when the target is running. Running tracks can be distinguished by wide spaces, deep impressions, signs of slipping, and skidding. Load carriers also make deep tracks, but they are more closely spaced. Normally spaced prints with exceptionally deep toe prints indicate that the person was probably carrying a heavy load. By following the track, you may find a rest point where the load was placed on the ground, providing even more information. Check for signs at rest and halt locations that might be left by equipment, such as rucksack imprints, bipods, tripods, rifle butts, and so on. Signs may be chips from tree bark, impressions in the soil, and so forth.

Sex. Women's tracks are generally spaced closer together, smaller, and usually somewhat more pigeon-toed compared to a man's print. Their prints will usually be shallower due to their generally lighter weight.

Rain. If prints have scars made by rain they will have been made before the last rainfall, and if not, they were made afterward. A light rain will round out footprints and give the appearance they are old, while a heavy rain will completely obliterate footprints in a very short time, depending on the soil composition. If a track is found at midday, and there was a heavy downpour at 0300 hours, and the track is not filled with water, you can then assume that it was made after the rain, placing it into a nine-hour time bracket. If a print is very fresh, water will not have run back into it in a wet muddy spot. Mud and water splashed onto the surrounding ground should also be checked for dampness.

Sunlight and air will dry the ridge of moist dirt pushed up around the edges of footprints, causing a slow crumbling effect. Lack of this dryness can indicate a very recent track. However, this must be compared to the time of day, moisture in the air, and other factors.

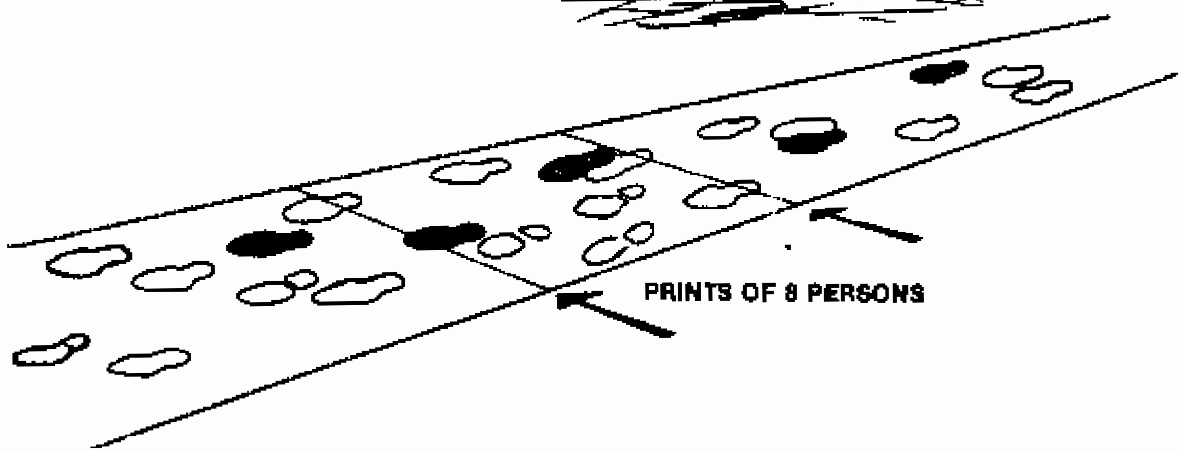
Wind will blow litter and bits of vegetation into a footprint after it has been made. It won't be crushed, and can give clues to the age of the track. Be conscious of when and how hard the wind has been blowing.

Terrain. When walking downhill, the side of the boot or footwear is usually employed, and dirt and leaves will be pushed forward. Also skid and slip marks are more readily seen. When walking uphill the toe is more pronounced, and dirt and leaves will be pushed backwards from the direction of movement.

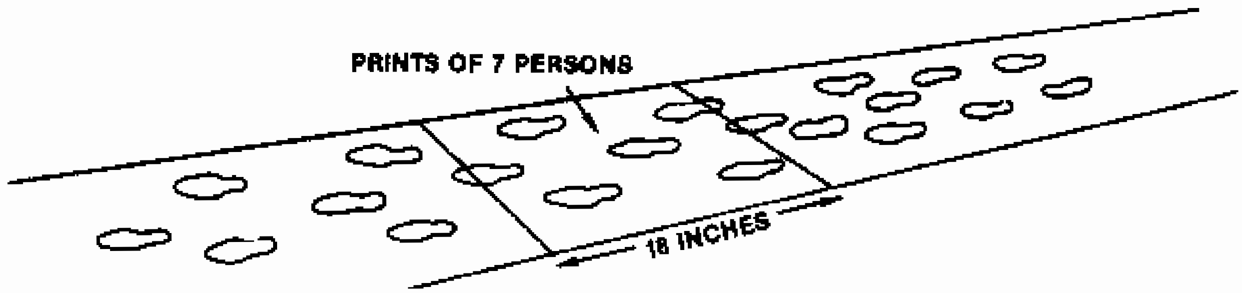
Rocky terrain and sign. Rocks are easily disturbed, and generally speaking, easily marked, making it possible to continue following a track even over extremely rocky ground. When kicked out of place they will generally move in the direction of travel, unless they roll down an incline after being dislodged. When moved aside or rolled over,

WHEN A PRINT IS FIRST MADE, MOISTURE HOLDS PARTICLES OF SOIL ON THE EDGES. THE EDGES OF THE PRINT APPEAR SHARP.

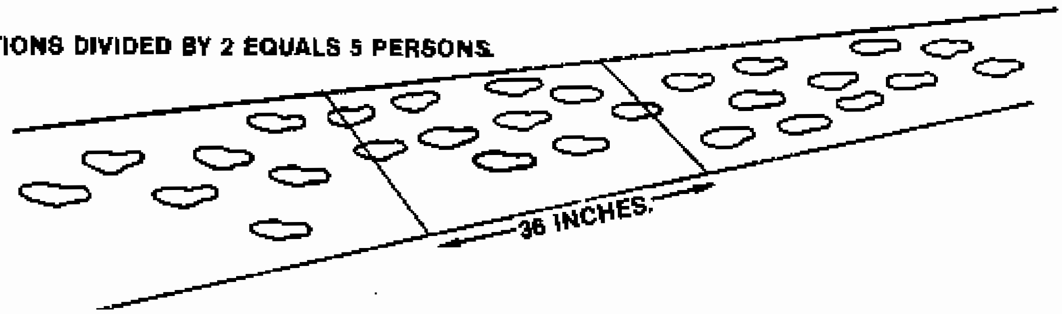
AS THE PRINT DRIES, PARTICLES OF SOIL LOOSEN AND FALL INTO THE PRINT, MAKING THE PRINT APPEAR ROUNDED. BY KNOWING SOIL AND CLIMATIC CONDITIONS IN HIS AREA, THE TRACKER CAN USE THIS PROCESS TO DETERMINE THE AGE OF PRINTS.



STRIDE MEASUREMENT. DETERMINE THE KEY PRINT. IN THIS CASE, IT IS THE PRINT LEFT BY THE LUG SOLE BOOT. THIS BOOT MADE THE LAST PRINT ON THE TRAIL, AND IT IS THE EASIEST PRINT TO RECOGNIZE. DRAW A LINE ACROSS THE HEEL OF ONE OF THE KEY PRINTS. MOVE FORWARD TO THE OPPOSITE KEY PRINT AND DRAW A LINE ACROSS THE INSTEP. THE EXTRA 1/2 PRINT IS ADDED TO CATCH A PERSON MAKING AN ABNORMALLY LONG STRIDE. USING THE EDGES OF THE ROAD OR TRAIL AS THE SIDES OF THE BOX, AND THE DRAWN LINES AS THE FRONT AND BACK, COUNT EACH PRINT OR PARTIAL PRINT IN THE BOX. REMEMBER TO COUNT THE KEY PRINT ONLY ONCE. IN THIS METHOD, THE TRACKER USES THE LENGTH OF STRIDE AS THE UNIT OF MEASUREMENT. THIS METHOD IS ACCURATE UNDER THE RIGHT CONDITIONS FOR COUNTING UP TO 18 PERSONS.



18-INCH BOX. IN AREAS SUCH AS SOFT SAND WHERE FINDING A KEY PRINT IS DIFFICULT, MAKE A BOX USING THE EDGES OF THE ROAD OR TRAIL AS THE SIDES OF THE BOX. THEN DRAW A LINE ACROSS THE AREA. MEASURE 18 INCHES FORWARD AND MAKE ANOTHER LINE ACROSS THE AREA. BY COUNTING EACH IDENTATION INSIDE THE BOX A CLOSE ESTIMATION CAN BE MADE OF THE NUMBER OF PERSONNEL WHO MADE THE PRINTS.



LIKE THE 18-INCH METHOD, THE 36-INCH METHOD IS USED WHEN NO KEY PRINT IS AVAILABLE. USING THE EDGES OF THE ROAD OR TRAIL AS THE SIDES OF THE BOX, MEASURE A CROSS SECTION OF THE AREA 36 INCHES IN LENGTH. COUNT EACH INDENTATION IN THE BOX AND DIVIDE BY TWO. THIS GIVES A CLOSE ESTIMATE OF THE NUMBER OF PERSONS WHO MADE THE PRINTS.

they disturb the soil around them, leaving a distinct variation in color and impression. If wet, the underside of the stone will be darker in color, and if dry, much lighter in color.

Smaller rocks and stones will be impacted into the soil when stepped on. The depth of impact can provide the same information as the depth of a footprint in many instances. Stones on loose or soft surfaces are normally pressed in, leaving either a ridge around them or creating a hole.

Heavy boot soles tend to scratch or scuff the surface of rocks. On sandstone, boot marks tend to show darker color, and on lava, the mark is whitish in color. Brittle stones will chip and crumble when walked on, and a light patch will appear. The chips can also be seen nearby. Particles of stone sometimes catch in the soles of footwear and are deposited further on, showing up as out of place. Feet and hands will easily dislodge moss from rocks and create shiny spots.

VEGETATION

Scrub, secondary, or rain forest sign. Forested areas will generally provide a wealth of ground and top signs that are both temporary and permanent. Look closely for breaks, dislodged vegetation, and other signs that are out of place.

Vegetation top and ground sign. The lighter colored undersides of vegetation will show unnaturally when stepped on, dragged out of place, or broken. This will be easier to see when looking at the trail into the sun. Vines will be broken or dragged parallel to or toward the direction of movement. Some foliage will die in a matter of minutes once broken and exposed to the sun. Finding a broken branch on a bush at first light that has not yet died could indicate that it was broken sometime after sunset the previous day. Sap from broken branches will stop flowing and seal at different time intervals based on the time of day and type of plant. Freshly broken twigs, green or dead, are generally a creamier color at the break. This color gets darker with time. To gauge the age, break the twig again in another spot and compare them. Through experimentation you can then learn how to gauge the age of the break. Freshly broken green twigs will usually retain the smell of their sap for three to four hours, and the ends may remain the same color for up to five hours. Only man will break a stick lying on the ground in two places. The shorter center length will be about the width of a human foot. Watch for pieces of clothing and thread caught by thorns on vines and bushes. Where undergrowth is thick, especially on the edges of a forest, the green leaves of bushes that have been pushed aside and twisted up so the underside shows will be lighter in shade than the rest of the leaves. To spot this type of sign you must learn to look through the forest, not at it. Leaves or branches will become twisted and tangled in the direction of movement. If the direction is unclear, tap the trunk, and they will return to their previous position by moving in the opposite direction of travel.

LEAVES AS GROUND SIGN

Study the top leaves, sorting out those that should be bent or broken once stepped on, always remembering that some will be misplaced. Next, mentally replace all or as many of the displaced leaves or twigs as possible. Pick up and examine each leaf in turn for what is called a "straight edge," remembering where each leaf was taken from. After removing and checking the top layer, the next layer, if wet, will be fairly pliable. Inspect it for any distinct bends or straight edges that may indicate the edge of a boot. Remove the final layer and study the soil itself. Look for squashed worm casts, indentations from twigs, rocks, nuts, and so forth. Finally, establish the heel and toe and left or right foot.

Shadow and shine may be used to detect buildup caused by moving through leaves on the ground. When a person moves over a carpet of leaves, the leaves will tend to pile up in the direction of movement. When viewed from a prone or near prone position, they may cast a slight shadow, or shine, which will aid in determining direction. It can be viewed easiest from the side away from the light by looking for the shadow. The opposite side will reflect more light than the leaves surrounding the buildup, creating a shine.

Leaves on the forest floor, when wet or disturbed, will show darker than those undisturbed. Dry leaves that are disturbed show a distinct dark brown underneath in comparison with the dry biscuity color of the bleached upper surfaces. The dry sides of leaves turned up after a rainfall, or in the early morning after the accumulation of dew during the night, can indicate passage of personnel.

Dead brittle leaves will be cracked or crushed under pressure of walking, as will dry twigs, while fresh leaves may have been knocked or pulled off vegetation and stand out on the forest floor.

OBSTACLES

Check around and on logs lying across the track for prints and scratch marks. Check tree roots for signs of scuff marks and soil where it shouldn't be. When the bark on a log or root is scuffed, the lighter inner wood will show.

INSECT LIFE DISTURBANCES

Broken or disturbed cobwebs across a path may indicate passage of animals or humans. Ant beds will generally stay disturbed for up to 30 minutes after passage. Worm casts are soft in the early morning hours. Exposed to the sun, they become dry and brittle, and if stepped on will turn to powder. If a powdered worm cast is found within the track it would be safe to say that it was made anytime from one hour after sunrise to the time the track was found at midday. If the worm cast is broken, but not powdered, it would place the time of the track within one hour of sunrise. In each instance, the tracker's knowledge of the actual weather and light conditions the previous 12 to 24 hours becomes crucial.

GRASSY TERRAIN SIGN

Grassy areas will generally provide very clear trails that can be easily followed, especially when traversed by an inexperienced target. Consider the following aspects of sign in grassy areas:

Tall grass, above three feet, when knocked down in passage will stay down for some time, depending on the wind and weather. The lower blades will be trodden down and point in the direction of travel, even if the longer ones have already returned to their previous position.

Short grass, under three feet, will normally spring back to its original position in a relatively short period of time. In very short grass, under twelve inches, a boot will damage the grass near the ground, and invariably a footprint or impression will be found.

Grass is normally trodden down and pointing in the direction of travel. Grass presents a contrast in color to normal undergrowth when trodden down, and if wet from dew the night before, the dew will be rubbed off. Broken and crushed grass blades or stems may also be found, especially in dry parched grassy areas. If new vegetation is showing through it indicates that it is an old trail. Look for additional signs of recent usage.

RIVER, STREAM, MARSH, AND SWAMP SIGN

Rivers, swamps, and marshy ground need not eliminate tracking if you use your imagination. Look for wet areas that should be dry, discoloration where there should be none, and so on. When examining stream beds, use a clear plastic bag at least two feet wide when stretched open and deep enough to place ever your arms and push down into the water. This will allow you to clearly view the bottom to check for prints and disturbed rocks and stones whose underside will be lighter when turned over.

Watch for the following signs:

1. Prints, scuffs, and other signs along the edge or bank of rivers, swamps, and so on.
2. Footprints in shallow water.
3. Stirred up mud discoloring the water.
4. Rocks splashed with water in quiet waters.
5. Damp areas at entry and exit points.
6. Places where vegetation may have bent or broken while being used for handholds.

Sandy ground sign. Sandy ground is relatively easy to track in. The biggest problem for the tracker will be the wind, since it may obliterate marks and impressions. If the surface is inclined to be hard the footprint will be clearer. If the surface is soft the prints will be quite deep, and may cast shadows in the early morning or late afternoon.

Counter-Tracking

Counter-tracking is the measures taken by a LRP team to confuse, deceive, or mislead the enemy as to their intentions, identity, or presence. These measures can be classified as either covert or overt, and as active or passive. Someone properly trained in tracking can successfully implement counter-tracking. The team leader, point man, and all other team members must know and practice counter-tracking techniques. They must constantly be aware of their camouflage efforts, how they move, over what type of terrain they will be moving, how to cross or bypass obstacles, and how to eliminate, or cover, their own track. Stealth movement, stalking, and tracking techniques are essential. The team's rear security scout will be responsible for covering the team's track, and is overwatched and assisted by the assistant team leader, while the point man and team leader concentrate on selecting the best route for counter-tracking.

Covert measures are taken to disguise, obliterate, or confuse the track sufficiently to prevent effective tracking of the team. Routes of movement must be selected with counter-tracking in mind. Reduce your track by moving in a formation compatible with the terrain that reduces track; selecting ground that does not leave a distinct track whenever possible; stepping in each other's tracks when required to move ever extremely soft or muddy ground; picking unlikely avenues of march when possible; and so on. If followed by trackers, change your direction of movement frequently to evade and confuse them. To further confuse trackers the team can stop, face left or right, and move on line for 100 or more meters, stop, face back in the original direction of march, and proceed. To achieve maximum effectiveness the terrain must be carefully chosen to reduce the chance of leaving tracks and each team member must move very carefully and quietly. It is also possible to combine this movement with the "buttonhook" or similar maneuver (see chapter 14).

Overt techniques are employed only when the team is aware that they are being actively tracked, and stealth becomes secondary to evading engagement with the enemy force. The following actions can serve to slow trackers, hamper their ability to effectively track the team, discourage the trackers, provide time for the team to gain space, allow time to evade and resume the mission, or set the enemy force up for an ambush.

If being tracked by dog teams, sprinkle CS crystals along the track for 25 to 50 meters until dog pursuit stops.

Set booby-traps along the track using fragmentation, white phosphorous, and CS grenades. Not only will they cause casualties, but the psychological impact of the WP and CS along with the delay to don protective masks will add further delay. Using a delayed fuse in lieu of a tripwire is advisable whenever possible to prevent premature detection and force the enemy to deploy. Even if the period of delay is not accurate enough to cause casualties, it will still get heads down and delay pursuit. If possible, time the delay to allow detonation after most of the enemy force has passed to confuse them further as to your location and intent.

Refrain from overusing overt techniques, or they will in effect create a "track" that the enemy can follow. The best method would be to employ them once or twice, perform a buttonhook movement to observe your track from a distance, and then set new delayed munitions/demolitions if necessary before moving on. Range estimation, timing of the enemy's speed of movement, and route selection are critical factors. Don't rush it or mistakes will happen.

Passive measures are basically the way you accomplish routine actions, as opposed to special measures. The following could be considered routine passive measures for counter-tracking:

1. During dry weather do not urinate on rocks and leaves, but dig a small hole and cover it. The wet spot can be seen, and the odor will carry if not buried.
2. Never break limbs or branches on trees or bushes. Be careful to avoid making scratches on tree bark with your weapons and equipment when moving or stopping to rest.
3. Maintain a high state of alertness and ensure that your camouflage blends with the terrain and your background.
4. Maintain absolute noise, sound, and light discipline at all times.

Active measures are steps taken during planning, movement, and so on to deceive, mislead, or hide your presence.

1. When conducting movement, never use the same route twice, and plan the route with concealment, camouflage, and counter-tracking in mind. Move with the wind and towards the sun to hamper the enemy's tracking abilities.
2. Cut wire entanglements only when absolutely necessary; it leaves a track you cannot camouflage. Bypass obstacles whenever possible.
3. Employ artillery to mask your presence, by having H&I fire implemented to mask movement sound when it is unavoidable; use H&I fire on a routine basis to mask later target registration adjustment fire; employ demolitions only in an ambush, preceded and followed by H&I fire to mask the ambush action.
4. When using helicopters, plan fake extractions to deceive enemy observers as to your presence and location.
5. Change, obliterate, and make phony signs to mislead the enemy as to your size, equipment, identity, intentions, and so on. Seldom will you be able to totally confuse or lose the enemy by doing so, but you can deny them accurate information about your team.
6. Never telegraph your actions by doing the expected; be inventive and imaginative at all times.

SCOUT DOGS

Scout dogs can be effectively employed by a LRP team during stability, peacetime, and counterinsurgency operations. However, this should only be considered in situations where the normal strength of the enemy forces encountered does not exceed squad or platoon size. Dogs can be inserted in the same manner as the team, although HAHO, HALO, and SCUBA are impractical. They can be inserted via rappelling and parachute drop. Whenever possible, a permanent scout dog team, or group of teams, should be attached to the LRP unit. Each dog team should, as much as possible, work with the same LRP team to improve performance through familiarity. The handlers should either be required to undergo LRP training, or experienced LRP personnel should be selected for training as dog handlers.

Scout dogs can locate the enemy when visual trackers cannot, and when used to augment a visual tracking effort will result in greater success. A scout dog has an acute sense of smell, keen hearing, and eyes that are unusually sensitive to movement. These faculties are affected by weather and terrain conditions such as rain, smoke, fog, dust, heavy underbrush, and thick woods. When weather and terrain conditions are unfavorable, the dog can be used for sight and sound alert. Despite limitations, a scout dog team is a very valuable aid.

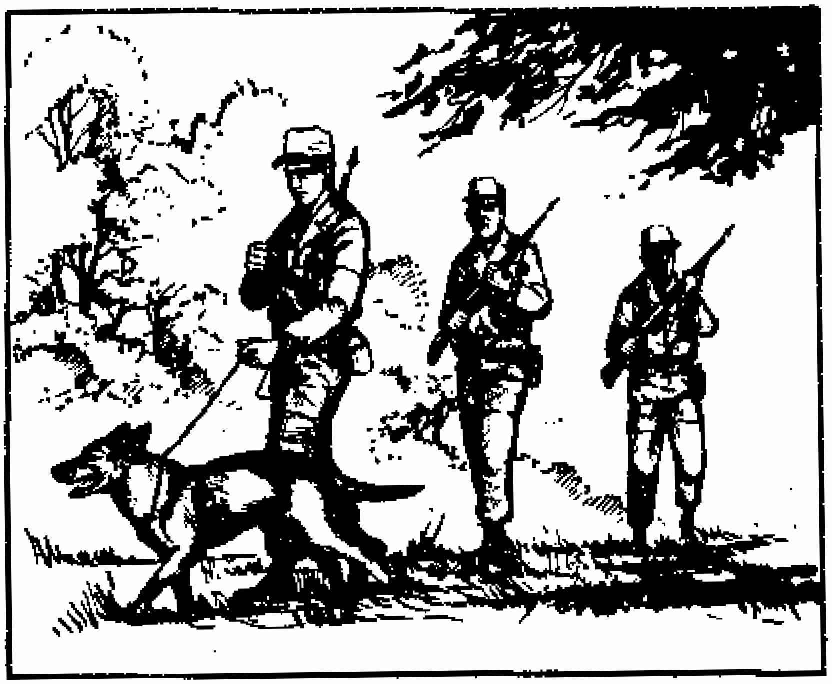
Mission rehearsals must include the scout dog team. The dog must become familiar with the scents of team members and with the noises and motions of the entire team moving.

Normally the dog team will be employed as the point, with the usual LRP point man acting as their overwatch. Wind conditions may dictate that the dog team move on the windward side of the route of march to take maximum advantage of the dog's smell and hearing. Whenever possible, the LRP team leaders should head the team into the wind. This will also serve to mask their own scent and sound when approaching an enemy position.

The distances at which the dog can detect the enemy depend on wind direction and speed, weather conditions, and terrain. No average can be stated, but reliability is very high out to 150 to 200 meters. Favorable conditions can extend detection to far greater distances, while adverse conditions, such as wind from the rear, reduce the effective distance.

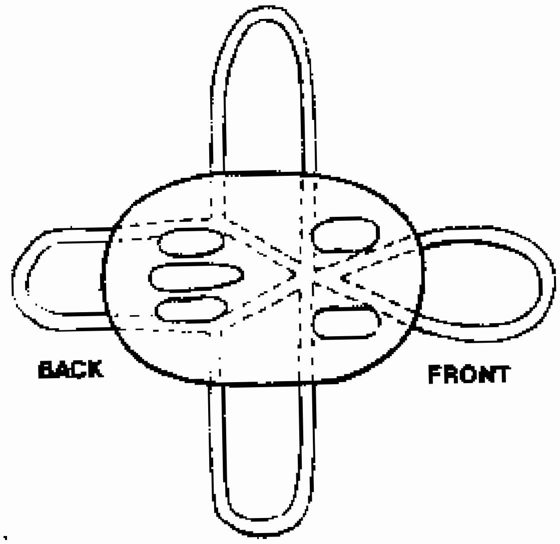
During security halts at patrol bases and ambush sites, the dog team should be positioned for security near the evasion route. For reconnaissance and combat operations, the scout dog is useful in pinpointing sentry locations, enemy positions, and movement, and can assist in selecting routes that will avoid detection.

The dog team must be treated as a full-fledged member of the LRP team. The handler must be given the freedom to advise on the employment of his dog and the selection of patrol positions to receive the maximum benefit from the dog's capabilities.

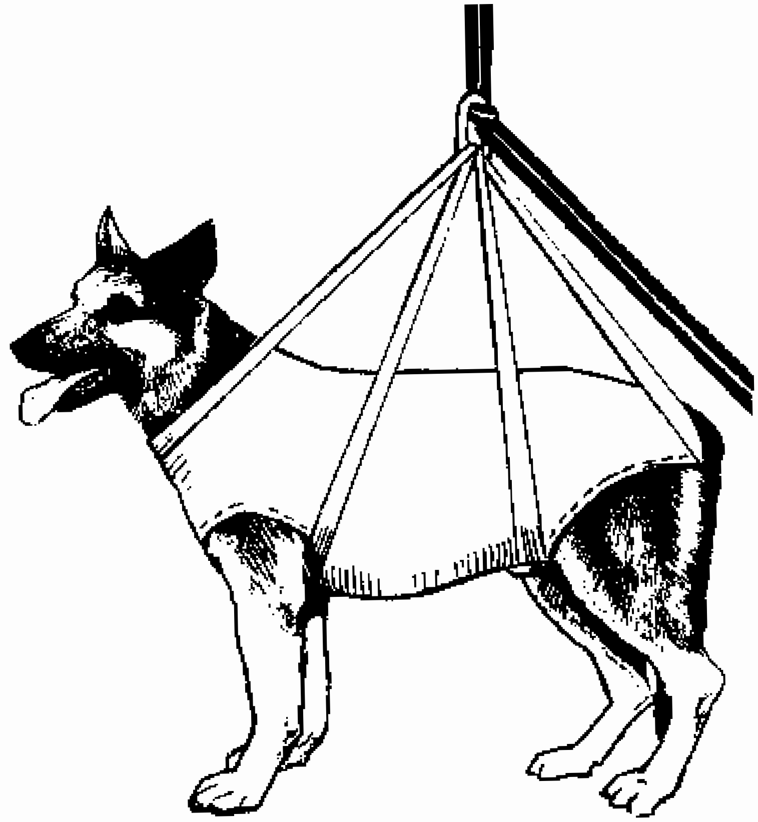


The scout dog team is placed on the windward side of the patrol.

The scout dog must be scent-familiarized with all members of the patrol and integrated into the patrol formation where he will do the most good.



Scout dog rappelling sling



SCOUT DOG IN RAPPELLING SLING

EVASION

Due to the deep penetration nature of LRP operations it is probable that a team will need to conduct evasion operations until they can be extracted or make their way to friendly lines. The special skills required for normal LRP operations will serve the team well should they be required to evade capture. Specific contingency plans must be established during unit and team mission planning.

Due to space limitations it is not feasible to cover all aspects of evasion, especially those of survival. However, the brief explanation provided, coupled with the portions dealing with tracking, stealth, counter-tracking, stalking, camouflage, and team tactics should serve to explain the actions and methods that a LRP team may use to evade the enemy and continue the mission. For the LRP there are two specific types of evasion, short-range and long-range, each with their own unique objectives and actions.

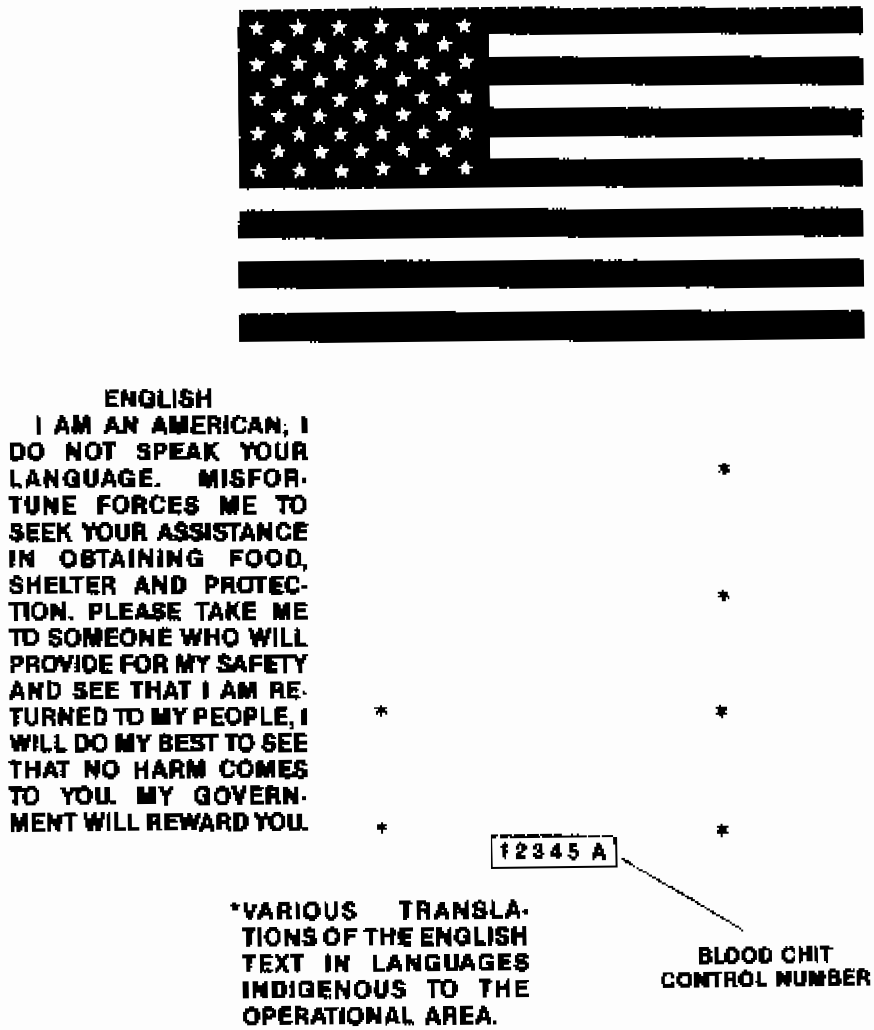
Short-range evasion consists of measures taken immediately following visual or physical contact with the enemy and are designed to break contact. The primary objective is continuing the mission or establishing a temporary defensive position pending evacuation or further evasion efforts.

Long-range evasion consists of measures taken to evade capture and further contact, and return to friendly lines. This form of evasion will be the most difficult. Evasion assistance should be available whenever possible and may take the form of periodic search aircraft, flying a specified route every tenth day at a set time, or the establishment of evasion and escape nets for aiding downed fliers, LRP teams, and so on. Units such as the U.S. Army Special Forces have contingency operations that would provide an evasion and escape net for this purpose. Normally a net would be able to provide temporary shelter, food, equipment, clothing, local currency, medical treatment, and so on. If such a system is in place in the vicinity of the team's operational area they must be thoroughly briefed on how to contact the net and other appropriate procedures.

Evasion aids. Team members should be provided with special equipment and aids to assist in evasion efforts. In addition to survival equipment and supplies covered in Chapter 6, such items as "blood chits," language aids, and a small scale map that would allow them to traverse the area between their AO and friendly lines should be provided.

Language aid, sometimes referred to as a "Pointee Talkee," can be invaluable to the evader. It contains select phrases in English on one side of the page, and the foreign language translations on the other side. You simply determine the question or statement to be used in the English text, and then point to the foreign language translation. In reply, the native would point to the applicable answering phrase in his own language. Of course this only works if the native is able to read, but it's always worth a try. They can also be printed in multiple languages if the situation warrants.

The "Blood Chit" as used by U.S. forces is a small rayon flag bearing an inscription in several languages that identifies the bearer as a member of the U.S. military forces and promises a reward for their return to U.S. control. Each blood chit is assigned a distinctive number, which is to be given to the person, or persons, who provide assistance.



14 Field Tactics

INTRODUCTION

Long range patrol field tactics are based on their specialized employment, small size, and diversity of mission objectives. Although a small force, tactical planning and operations cannot be taken lightly, extensive planning, preparation, and rehearsals are essential. Avoid applying standard infantry solutions to LRP tactical problems, and always bear in mind that they normally have no reserve and limited duration combat capability. The cornerstone is movement, as all other actions stem from how, when, and why they move.

The team must move when and where visibility is limited. If they suspect their position has been compromised they must move immediately. Terrain to be traversed at night should be closely observed during the day. The team should be particularly observant for routes offering concealment from night vision and other STANO equipment, and obstacles that must be negotiated.

Movement should be from one point of cover or concealment to the next whenever possible. The team must always assume it is being observed. Each route of movement should be carefully chosen and observed before making the next move. Halt, listen, and observe as often as possible.

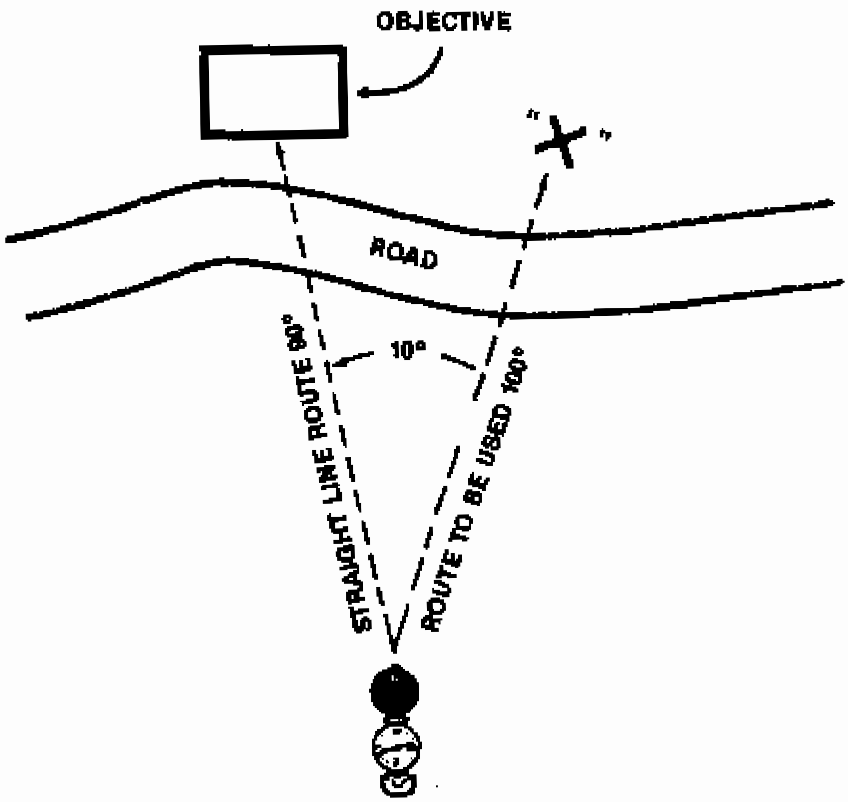
Route selection. A key factor in planning and conducting movement, the route must offer cover and concealment; terrain features from which to observe and aid navigation; avoidance of known or suspected enemy locations, danger areas, and obstacles; and the shortest most suitable route.

During reduced visibility the route should also avoid heavily brushed areas due to excessive noise, difficulty in navigating, and hampering of movement. An alternate route should also be selected that is far enough from the primary route that the enemy cannot observe both routes from the same location.

Use difficult terrain to your advantage. Seldom is there actually such a thing as totally impassable terrain. Travel by stream is possible, provided you travel upstream and the water is not excessively deep. Movement through tall grass must not follow a straight line and should occur when the wind is blowing. When required to cross a road the team should seek a low spot, curve, or culvert to help mask their movement. If it becomes necessary to cross a plowed field, do so at the lowest spot, and along the furrows if possible. Avoid movement on steep slopes, areas of loose gravel, open areas, and the tops of ridge lines. Use any distractions possible to your advantage, and when in close proximity to an enemy position avoid lateral movement across their front.

Route navigation. The route should be divided into legs to aid navigation, deceive the enemy, allow establishment of rallying points, and so on. Continuously check compass azimuth and map location. Do not run a compass course; frequently change direction randomly, and do not establish routine movement patterns. Use an offset method for your route of march, deviating left and right of the straight line azimuth at irregular intervals. Each degree you offset will move you approximately 17 meters to the right or left for each 100 meters you travel. An optional method is to travel, say, 100 meters, 90 degrees to the right or left of your route of march, then turn back to your original heading after traveling a specified distance.

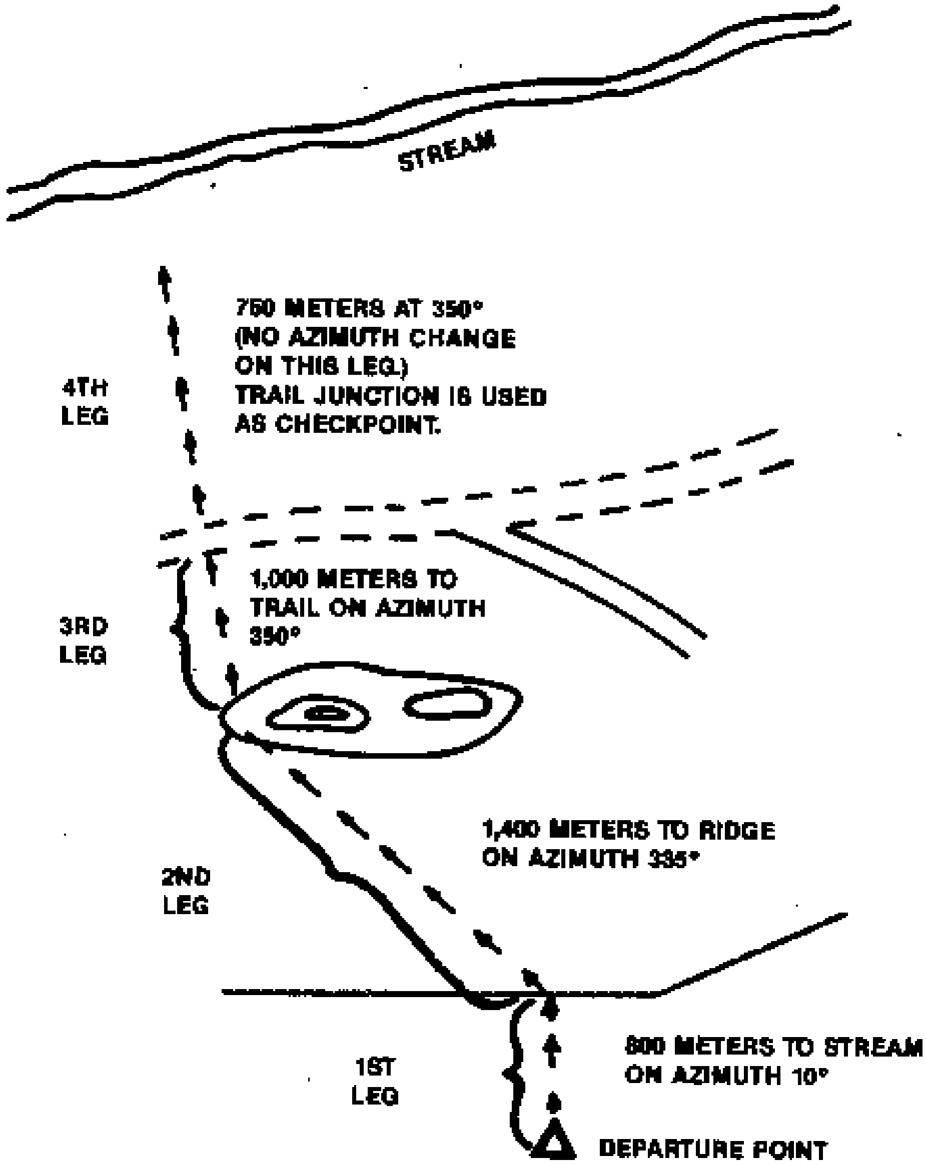
LRP movement techniques. These techniques are time-consuming and extremely trying. Stealth takes

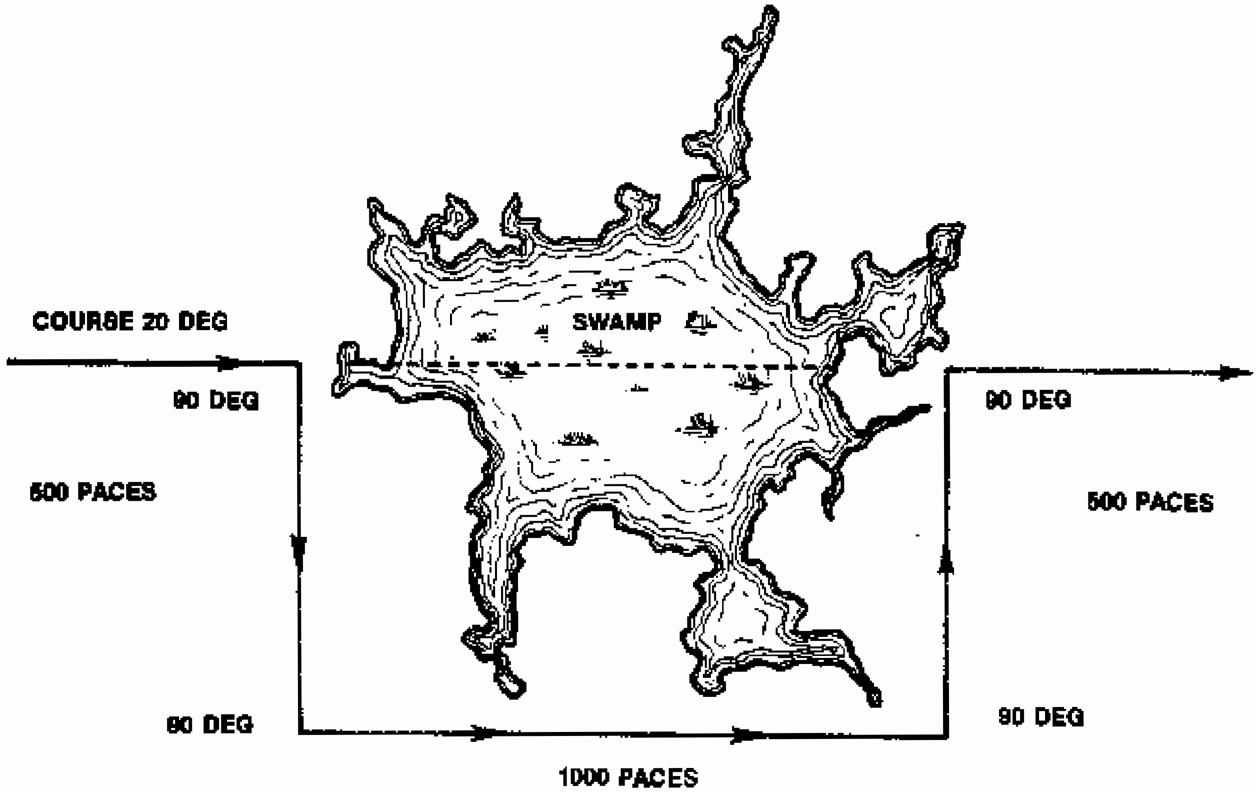


Use of offset. The distance from "X" to the objective will vary directly with the distance to be traveled and the number of degrees offset.

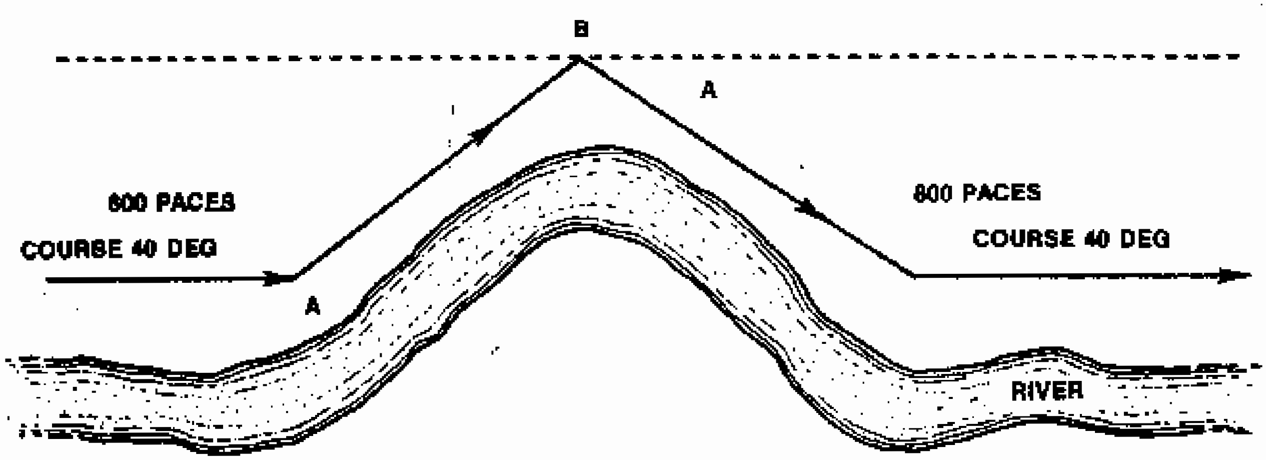
Always know where you are, and periodically stop and check the actual coordinates. This will allow you to call in your exact location quickly if the need arises. On many occasions you will be unable to see terrain features because of vegetation. If you need to make a more accurate check of your location, have a team member climb a tree and attempt to get a fix on two different recognizable terrain features.

Be skeptical when it comes to small streams and dirt roads shown on a map. Especially in jungle areas and semi-arid desert regions, their actual location, or existence, will change with the seasons in many instances. What appears as a stream can become a raging river with heavy rains.


STREAM
750 METERS AT 350°
(NO AZIMUTH CHANGE
ON THIS LEG.)
TRAIL JUNCTION IS USED
AS CHECKPOINT.
4TH
LEG
1,000 METERS TO
TRAIL ON AZIMUTH
350°
3RD
LEG
1,400 METERS TO RIDGE
ON AZIMUTH 335°
2ND
LEG
800 METERS TO STREAM
ON AZIMUTH 10°
1ST
LEG
DEPARTURE POINT



Compensation by paces and right angles.



Estimating distance and average angle of departure.

priority over all other considerations. Movement must be balanced with listening, observation, stalking, tracking, and counter-tracking efforts. Moving ten minutes out of every thirty is a fast pace for the LRP team. This process must be ingrained in team members through continuous training. All commanders involved must learn to leave the rate of movement up to the team leader. Lack of adherence to proper movement techniques and attempting to rush may result in compromise.

When a team moves it should not be based on some strict concept in doctrine or operation plan. To state that a team moves only at night, or during periods of reduced visibility, may be self-defeating. The actual situation will determine when a team should or should not move. The following general principles apply:

1. The team conducts surveillance operations when the enemy is moving.
2. The team moves when the enemy is resting, eating, or inactive.
3. Movement through extremely heavy vegetation should be conducted when visibility is good, especially if the ground is rugged or slippery from rain, in order to maintain noise discipline, and reduce the risk of injury.
4. Stealth must sometimes be sacrificed to avoid physical danger. A broken or badly sprained limb is as serious as any combat wound.
5. Stop, listen, and observe as often, and for about half as long, as you move, and never move more than thirty minutes without stopping to listen and observe. As an example: if you move for thirty minutes, stop for ten; if you move for twenty minutes, stop for five; and if you move for ten minutes, stop for two or three.

The team's rate of movement must be slow enough to allow the rear scout to effectively implement counter-tracking actions. At times he must virtually walk backwards to do his job effectively. A covering scout, or team member, is essential to aid the rear scout in his duties. The team leader and point man must also provide assistance by carefully selecting the ground they move over.

Team members must be especially aware of how the environment they are in affects sound, and how it travels. Consider such factors as wind and direction, rain, day or night, and so on. Remember that whatever may mask your noise during movement and rest may also mask the enemy's noise.

Avoid moving until exhausted. Stay well rested. Exhaustion affects not only alertness, but hearing, noise discipline, vision, and ability to escape the enemy if things should suddenly go sour.

Do most of your moving when it's cool to help conserve water. Never be afraid to move at night, especially if you think your position has been compromised. Be knowledgeable of the normal movement hours of your enemy; that is the time to listen and observe and increase your level of alertness.

Each team member must continually observe the man in front and behind and watch for other members' arm and hand signals.

Silent team movement can be enhanced by having the point man move ahead of the team a short distance while the team crouches and waits. The point man will halt, wait, listen, and observe, and then motion the team up. Once all the men have moved up into their new positions the point moves again. This process is referred to as bounding overwatch, since each phase has one element observing and covering while the other is moving. In some instances this can be accomplished by using two sub-elements, the point man, team leader, and one scout moving forward while the rear element watch and cover.

If you have properly prepared your equipment (taped, tied down, and so on), the only real trick to walking silently is patience. You must move one foot at a time, leaving the weight on the opposite foot. Use the toe of the moving foot to gently move twigs and such out of the way (make enough room to put both feet down), then place your heel down gradually, rolling the weight forward along the outside edge of the foot, and then slowly rolling the sole flat. Next, move the other foot alongside the leading foot using the same movement. An alternate method places the toe down first, and then slowly lowers the heel. They both work. The idea is to do it slowly and make sure there are no twigs to snap when you shift your weight. Watch the length of your stride carefully—don't overdo it and lose your balance! Avoid grabbing nearby trees or foliage for balance; they make more noise than you do walking, and you wind up leaving even more signs for a tracker to follow.

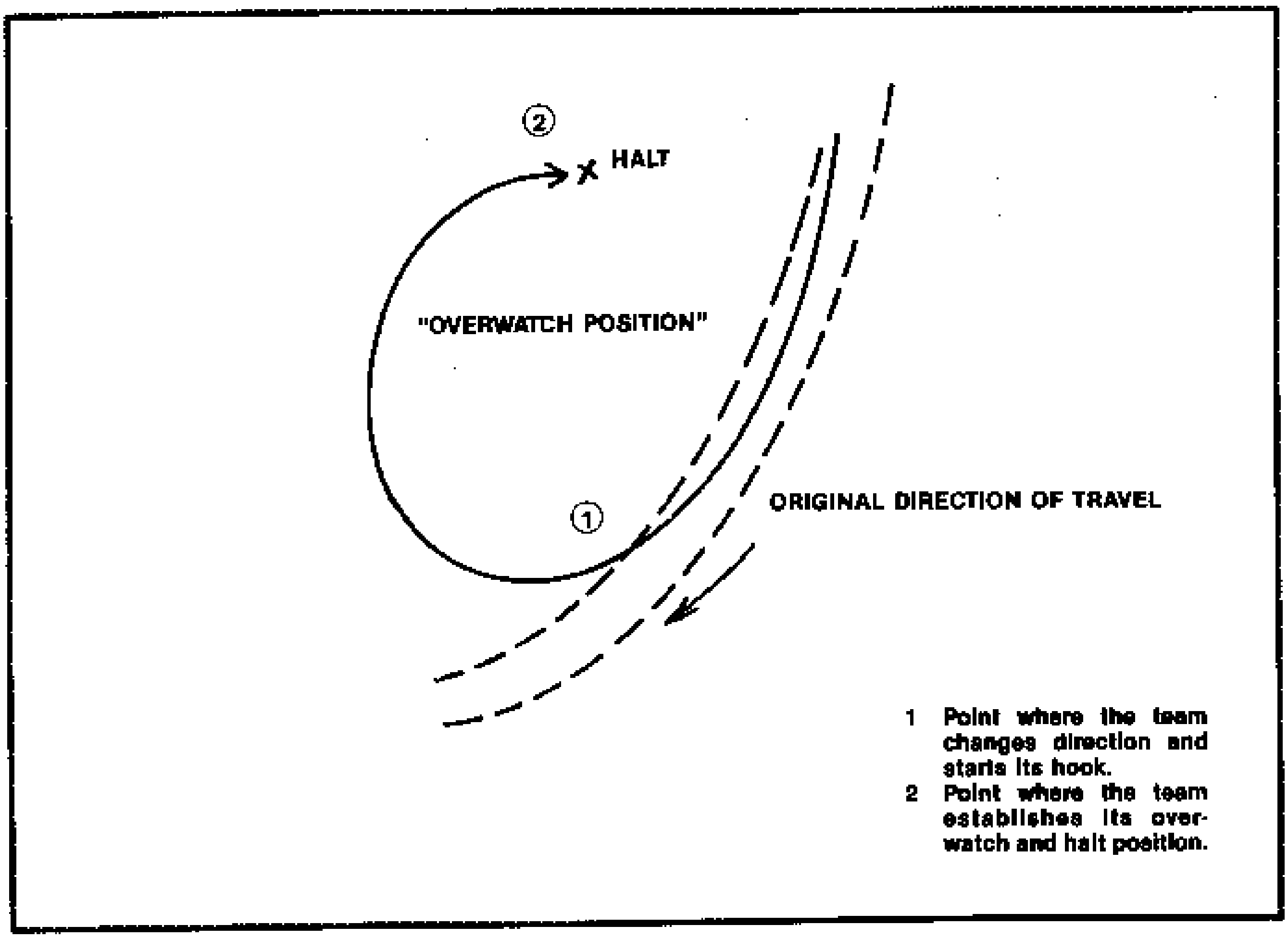
Movements such as the low crawl may be impossible with full equipment loads, and will normally require crawling on the hands and knees, partially upright.

Regardless of how often teams are warned of the dangers of moving on trails, the fact is that they will do so when it seems to suit their needs. The key should be to do so properly if the need should arise. In some instances in Vietnam, and particularly in the brush and forest covered flatlands flanking Highway 13, you could find five trail intersections in one acre of ground. In such a situation it is impossible to move without getting onto a trail. The effective use of proper trail movement can also aid stealth and decrease physical demands on the team.

The following techniques are basically variations of each other, and are used to throw off enemy trackers, allow observation of the team's back-track, and conduct a limited area reconnaissance before negotiating an obstacle or danger area or establishing a halt position. When the team conducts a sweep, it should be with the following priorities: covering its route of march into the position; the intervening ground between the position and any selected rallying point, extraction point, and so on; and the sector judged the least defensible. Do not establish routine movement patterns. Never set a pattern by always hooking right or left.

BUTTONHOOK

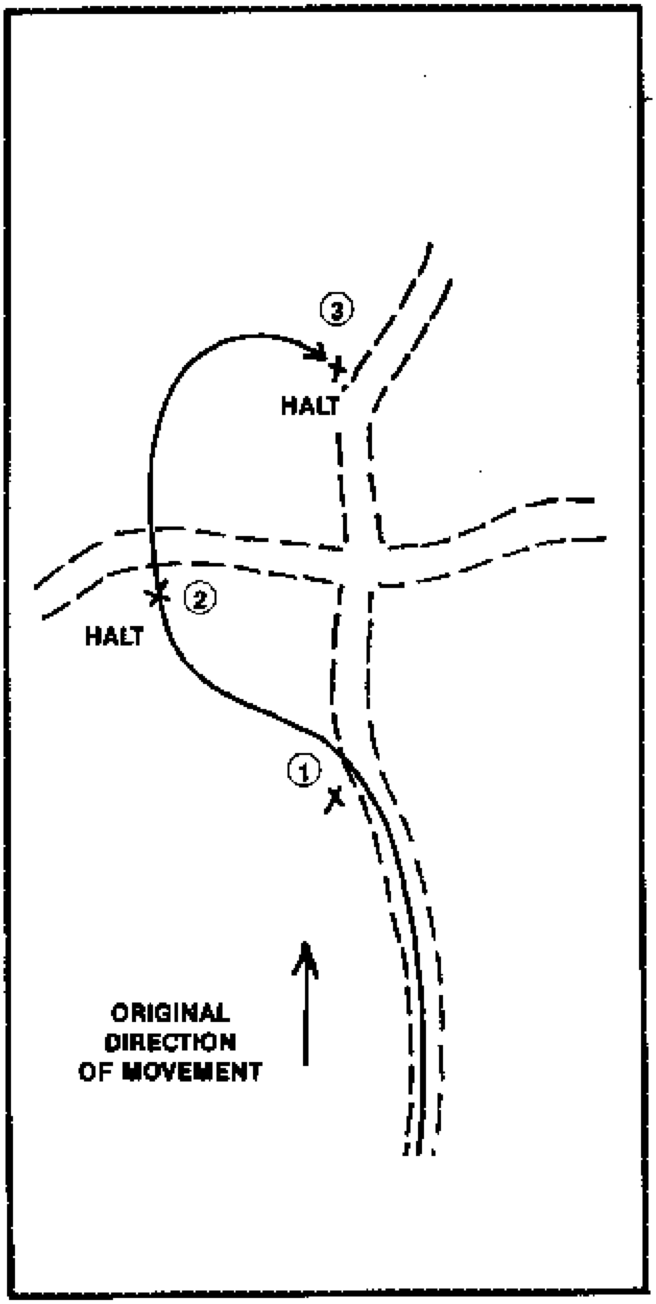
The buttonhook was used extensively by Australian and American forces in Vietnam and proved quite successful. The team makes a wide loop right or left, turning back on its own track to allow observation of the route of march. Its use need not be restricted to trails, but can be used any time to overwatch your route of march or establish a hasty ambush position.



Buttonhook

FORWARD HOOK

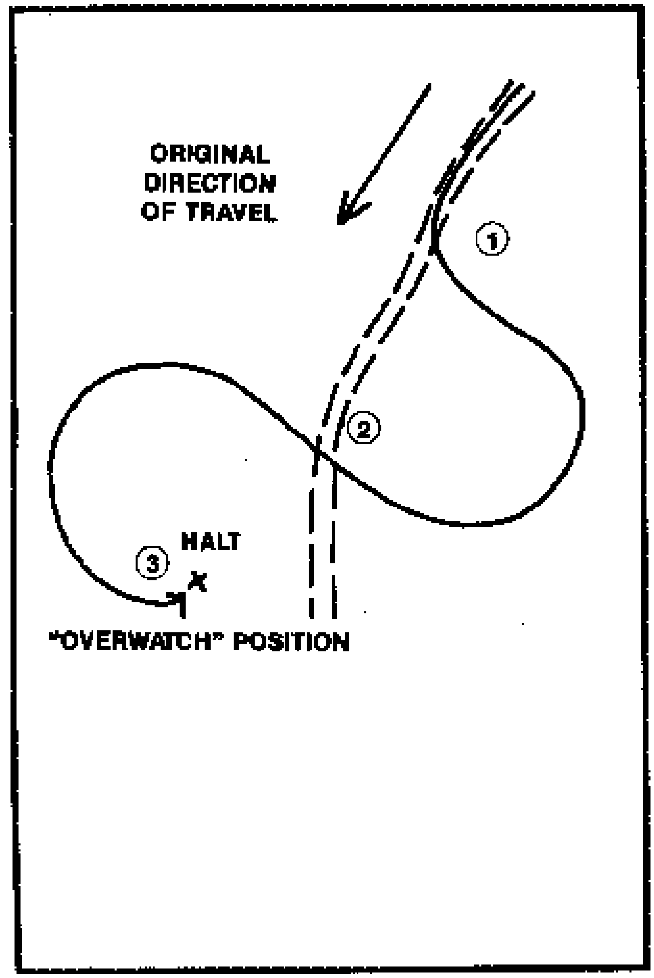
Used less frequently than the buttonhook, the forward hook should be used when the team approaches a trail intersection. The team sweeps out (1) left or right of the trail, (2) observes the new trail, crosses, and (3) sweeps back in near the previous trail, observes their back track, and then moves on.



Forward Hook

DOUBLE HOOK

Similar to the buttonhook, the team (1) first hooks right or left, (2) crosses back over the previous route of march, and then again (3) hooks back in to observe the back-track.



Double Hook

Danger areas and obstacles. Prior to crossing a danger area or negotiating an obstacle, the team must make a temporary halt to observe, listen, rest, and formulate a plan of action. A temporary rallying point should be designated, and a visual reconnaissance of the area made. It may be advisable to conduct a short area reconnaissance of the adjacent terrain to determine if there is an enemy presence. The team will then negotiate the danger area or obstacle, one at a time or en masse. Normally the point man crosses first, covered by the team leader and one scout; the remaining team members maintain rear and flank security. Whenever possible, skirt the danger area or obstacle rather than tackling it head-on. Also keep in mind the following tips:

1. Skirt around the edge, unless the distance is extreme, in which case the team should cross at the narrowest point after lengthy observation.
2. For a large clearing use a file formation, with 15 to 20 meters between personnel, and 30 to 50 meters between the point group and the rear security group, or a well spread-out wedge or diamond.
3. When faced with a narrow/shallow obstacle or danger area, cross one at a time, with a short listening/observation period between each member (one to two minutes).
4. For a wide/deep obstacle or danger area, cross in groups of two or three, in file or abreast. Allow a short listening/observation period between groups.
5. Avoid splitting up the team or dispersing too widely, since either action may jeopardize stealth and control. Visual observation within the team must be maintained at all times.

LRP TEAM MOVEMENT FORMATIONS

In most instances the LRP team will travel in a file formation, with from five to ten meters between personnel. However, the team's formation for movement at times will have to be altered due to threat, terrain, and so on.

T formation. Three members abreast, with three trailing in single file, for use when additional firepower to the front is desired.

Wedge formation. The point man forms the center of the wedge or inverted "V," followed by the team leader. The other four team members form the trailing sides of the wedge, two to each side. Can be used to increase firepower to the front, for moving across an open area when no other route is available, and to reduce tracking signs. Use in grassy areas and when the forest floor is relatively clear of vegetation.

Line or skirmish formation. Crossing danger areas such as roads, turning off main route to offset line of march, moving up a ridgeline or hill, and so on. Reduces track signs, shortens time to cross a danger area, and so on.

Diamond formation. Used under similar conditions as the wedge or T, but when more balanced all-around security and firepower are desired.

The solid arrows in the illustrations reflect the direction of movement, while the dotted lines and solid curve reflect their area of responsibility for observation and fire.

Order of March

The point man should be followed immediately by the team leader (TL). This allows the TL to immediately assess tracks found by the point man, dictate route selection, and more readily assess the immediate situation.

The rear scout should be immediately preceded by the assistant team leader (ATL). The ATL assists and supervises counter-tracking measures by the rear scout.

The remaining two team members are located between the TL and ATL, or to the flanks, and function as the team's base of fire element, one equipped with a grenade launcher and the other with a light machine gun (preferably the M203 and M249 SAW).

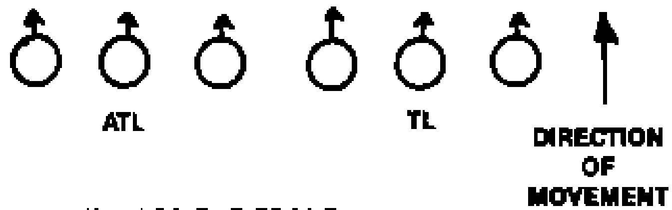
The formation must allow for rapid assessment of the situation without excessive movement of personnel. A closed-up formation is essential, except when crossing danger areas. Team members should always remain within sight and hearing of each other. Hand signals must be the norm, with whispered voice commands and instructions used as infrequently as possible.

The duties and positions assigned help to ensure successful evasion even if the team should become split. For this aspect it is also imperative that each team member have a map and compass and be actively involved in maintaining current location, direction of movement, and so on. Point men and rear security scouts must have the lightest combat load due to their function within the team.

General duties are as follows:

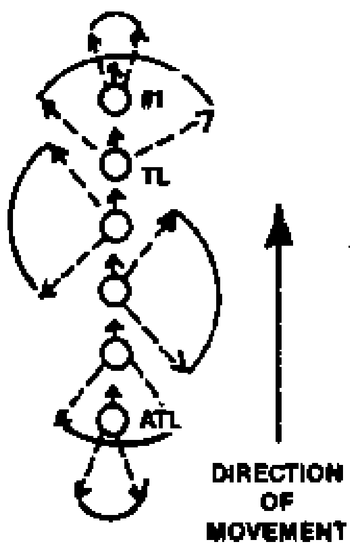
1. Point man/senior scout (P). Tracking, detection of the enemy, maintaining proper route of march, and direct frontal/route observation/fire.

"LINE."

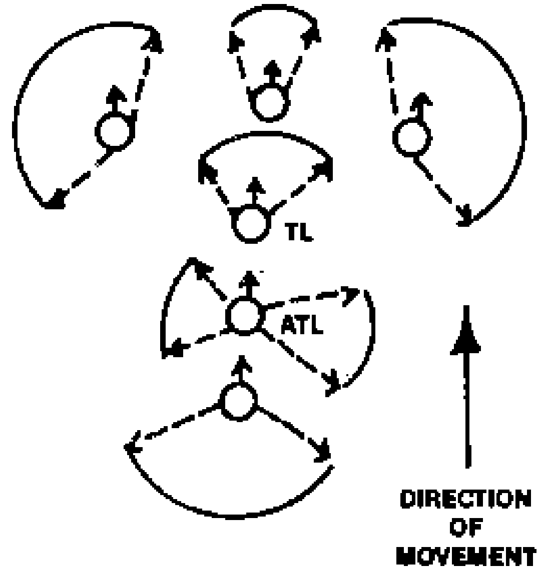


PRIMARY OBSERVATION TO THE FRONT

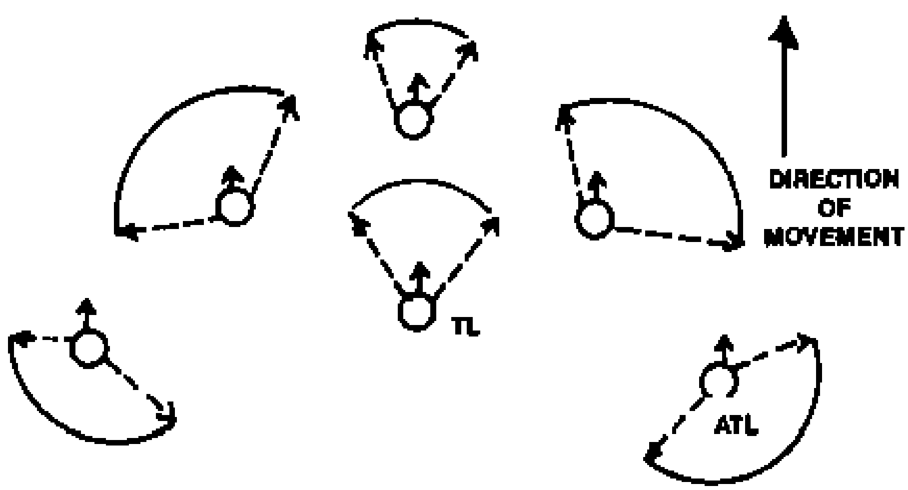
"FILE."



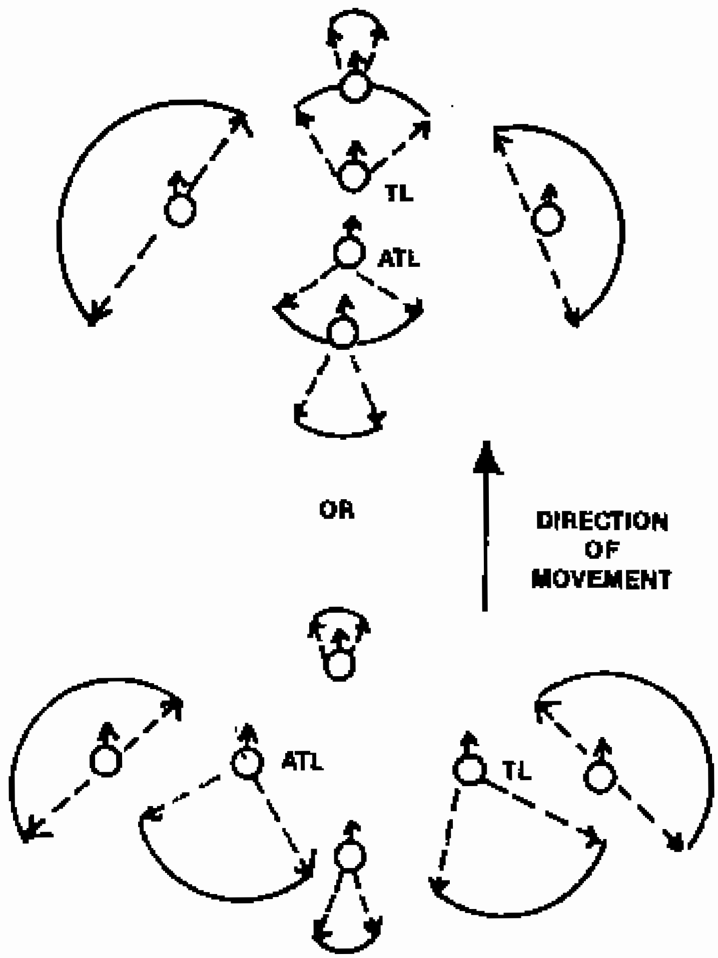
"T."



"WEDGE."



"DIAMOND"



2. Team leader (TL). Route selection, compass direction, map location, cover point man, and wide frontal/route observation.
3. Flank scout/scout sniper (FS). Covers right flank and maintains pace count. Assists in maintaining compass direction and map location. Covers the TL when operating his radio or conferring with the point man.
4. Flank scout/weapons specialist (FS). Covers left flank and maintains pace count. Assists in maintaining compass direction and map location. Covers the ATL when operating his radio or conferring with the rear scout.
5. Assistant team leader (ATL). Covers rear scout, conducts wide rear/route observation, monitors and maintains map location and route of march.
6. Rear scout/demolitions specialist (RS). Counter-tracking, detection of enemy trackers, and direct rear/route observation. Deploys delay fused munitions/demolitions when directed by the TL or ATL.

IMMEDIATE ACTION DRILLS AND BREAKING CONTACT

Although contact with the enemy, on other than planned strike missions, is normally to be avoided at all costs, the LRP team may quickly find themselves in unavoidable contact with the enemy. When this happens they must attempt to break contact as rapidly as possible, and at the same time deceive the enemy as to their intentions. This may be accomplished in a number of ways, and with a large variety of aids. Breaking contact consists of three stages: immediate action drill, delaying pursuit, and evasion. Noise has a very distinct effect on morale. Generally the side that shoots first will have the advantage unless quick and skilled immediate action is taken. If contact with the enemy is forced, make every effort to avoid becoming encircled or pinned down. Get out, the sooner the better.

If a team is in danger of becoming encircled they must take immediate steps to break out and attempt to evade the enemy. One method is to basically reverse the standard immediate action drill, by firing and moving forward instead of back. Each team member covers the next and moves quickly. If Claymore mines were previously emplaced to cover the evasion route the team should fire them before moving out to help lead the way. It may be necessary to move out in twos or threes rather than individually. Groups should move by bounds, each subsequent group moving through the previous group. Caution is necessary when firing weapons to ensure that you don't hit each other. However, if you are not actually surrounded, simply employ the standard IA drill to break contact.

As you will note in the illustrations, with only slight modification the same basic drill can be used if contact is made to either flank or the rear. The team must also practice actions taken if one or more members become casualties during the process of breaking contact.

Do not fire your weapons at night until it becomes absolutely necessary—they will give your position away. Use CS first, then fragmentation grenades, and finally Claymore mines. Employing delayed Claymores and WP in your position upon evacuation can be useful in delaying pursuit. If weapons must be fired, try to do so only by conducting immediate action drills as you move away from your position. If firing becomes unavoidable, try to move as soon as possible thereafter.

CS grenades and artillery rounds can be useful in stopping pursuit, breaking contact, and creating confusion in an enemy force. CS crystals scattered on your track will stop dog pursuit. Periodically throw a CS grenade along your back-track to delay a pursuing enemy force. A length of cord approximately ten feet in length tied to a CS grenade can allow you to drag it along as you move to quickly spread the CS over a wider area. At night you can panic or disorient an enemy force by calling in artillery CS rounds upwind of your position and allowing the gas to drift down across your location. CS grenades can also be thrown for this purpose. CS tends to hug the ground and dissipates slower when the weather is damp. Darkness serves to multiply the effectiveness of CS.

Aids for Breaking Contact

Fragmentation grenades. Useful, especially if delay fuses are employed and they are left behind when you move out, which in effect extends their range. They work best when used to delay pursuit, rather then actually breaking the contact. They are heavy and cannot be effectively thrown in heavy vegetation areas.

White phosphorous grenades. At night these help to destroy the enemy's night vision, and yours if you're not careful, and tend to panic personnel. Also useful in delaying pursuit by the use of delay fusing. Heavy, short range, and create a fire hazard in dry brush or greasy areas.

Claymore mines. Exceptionally good for stopping or at least delaying pursuit. Offer a considerable casualty radius, and are equally effective with delay fuses. Although heavy at five pounds, the effectiveness and killing radius go a long way toward offsetting the weight factor.

CS or CN gas and crystals. Creates considerable panic, especially at night or if the enemy is not equipped with protective masks. Delays pursuit and stops scout dogs in their tracks for a considerable period of time. Safe for your own troops, and can be employed to drift across your position as well as the enemy's. Ineffective on rainy, foggy, windy, or windless days. Delay fuses can be used effectively. Weight and limited throwing range are compensated for by versatility and effectiveness.

Immediate Action Drills

Immediate action drills (IA) for LRP teams are unique. The IA must be designed to break contact and commence evasion action with minimal casualties.

To be most effective, each team member should have a suppressed weapon with a 20- or 30-round magazine of tracers. The use of tracers in each member's first magazine will considerably enhance effectiveness.

Upon contact, assuming the team is in file formation, the point man opens automatic fire, spraying the general area of contact. The rest of the team assume a kneeling or squatting firing position, alternating to the left and right of the original line of march. Upon employing his weapon, the point man rushes back through the team and takes up a firing position 30 to 50 meters beyond the last man. The next team member performs the same action when passed by the point man, taking up a new position 5 to 10 meters to either side or behind the point man's new position.

This action is repeated in sequence by each team member, with each one opening fire when the man in front has cleared his field of fire. The drill is repeated until contact is broken, a defensive position is reached, or the team leader orders a ceasefire.

A variation on this drill has the rear scout and assistant team leader emplacing one or more time delay fused or command detonated explosive charges or Claymore mines to further cover the withdrawal.

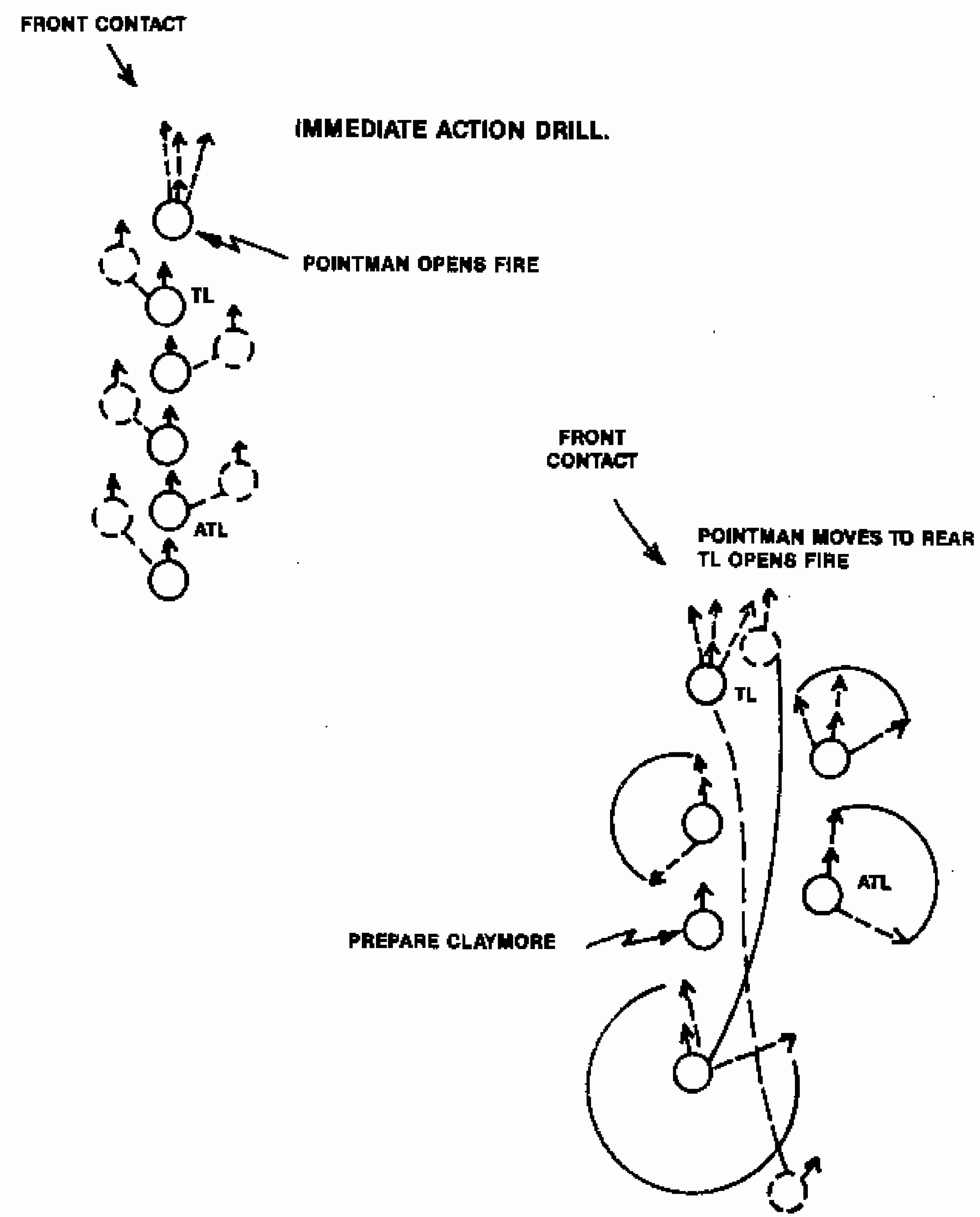
If necessary, the team leader can order everyone to move to a rallying point, or simply give a command such as "eight o'clock, two hundred," and the team would move off in the designated direction for two hundred meters.

The IA can also be used, without firing, for quickly moving out of an area if a ground flare has been set off or the enemy spotted early enough to avoid detection. Or the team can simply reverse itself and be led out of the immediate area by the rear scout acting as a temporary point man.

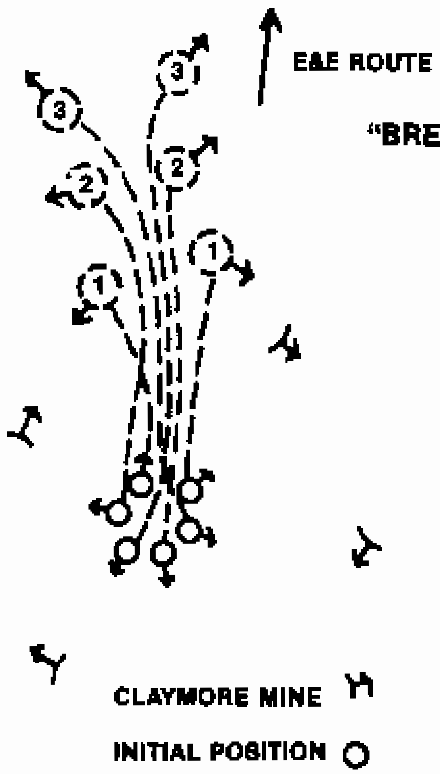
To a considerable degree, the success of the IA is based on the shock effect experienced in the first few moments of contact. In the meeting engagement, this is the most confusing and devastating time when the most casualties are suffered. The team must take advantage of the initial confusion and rush by the enemy to respond to their fire. There is usually a great deal of tactical carelessness in those first few moments that the team can use to their advantage.

THE HALT

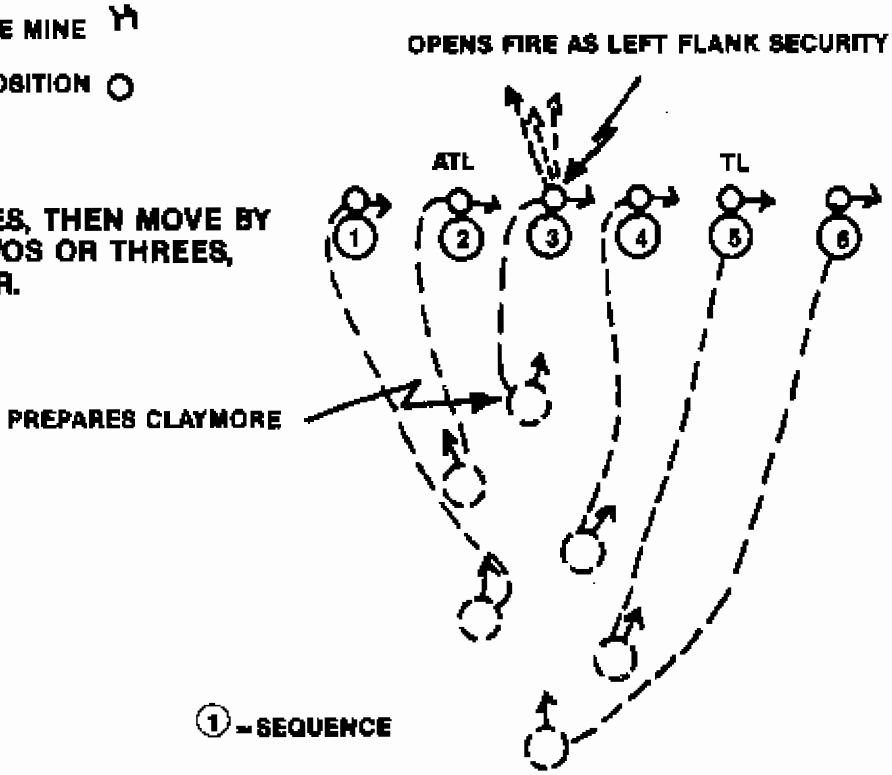
Short, or temporary halts, are made for various



PROCESS WOULD "RIPPLE" BACK THROUGH TEAM UNTIL CONTEST IS BROKEN, OR TL DIRECT OTHER ACTION.



FIRST—FIRE CLAYMORES, THEN MOVE BY *SHORT* BOUNDS, BY TWOS OR THREES, COVERING EACH OTHER.



IMMEDIATE ACTION DRILL
FLANK CONTRACT.

reasons such as a short rest, radio contact, observation, consuming a meal, personal hygiene, and so on, and also allow the team leader to issue instructions, make notes, and send reports when needed. These temporary halts are also useful for confirming previous coordination, verifying compass directions, and checking equipment. The halt may be as brief as two to five minutes, but may last an hour or longer depending on the situation. Equipment, to include rucksacks, is not removed.

Short halts should be conducted prior to and after negotiating obstacles and danger areas, and prior to moving into a long halt position. Prior to and after passage of lines it would occur at a preplanned rally point. These should be established near the insertion point to wait, listen, and observe prior to moving on. The same would apply to the extraction point.

A rally point is a short halt position where the team can assemble and reorganize following chance contact with and evasion from the enemy. It is also a point to which the team moves when initiating emergency action plans such as lost communications. What are normally considered enroute and objective rally points for normal infantry patrol operations are also generally applicable to the long range patrol. Only their purpose and location are different. For the LRP these would be points along a planned evasion route where contact could be made with supporting air assets during implementation of emergency action plans.

Long halts are considered to be any halt lasting for more than one hour and include a reconnaissance of the proposed site. Normally the position will be occupied for the minimum time necessary to accomplish the purpose for which it was established. Long halts are used for establishment of OP/LPs, ambush sites, patrol bases, and so on. The long halt is normally planned for prior to starting the mission.

A patrol base is established when a team halts for an extended period of time, and for the purpose of avoiding detection, formulating plans, preparing meals, maintaining equipment and weapons, reorganizing for the next phase of the mission, and as a hide for conducting surveillance.

Temporary night locations (NDP, night defensive positions, or RON, remain over night) are also long halts, but in most cases are not preplanned, but rather established out of tactical necessity. It may be necessary to stop due to physical strain or injury or illness of a team member, or to plan a last minute change in the mission. Normally in these situations the position is not occupied for more than 24 hours before the team moves again.

Dual Position Occupation

Based on the actual enemy and terrain situation it may become necessary for the team to occupy more than one position at a time, such as a patrol base (PB) and observation post (OP). In this situation the team would split into two sub-teams with the team leader and assistant team leader heading one each. One element remains in an overwatch position in a patrol base with the majority of the team's equipment while the other occupies the OP. The overwatch capability must be both visual and physical (within fire support range).

The two elements rotate functions periodically for rest, meals, personal hygiene, and maintenance of equipment. At least eight hour shifts should be used to avoid excessive movement between locations that could compromise the team.

If planned for in advance, and both positions are in reasonably close proximity to each other, it may be beneficial for communications security to utilize a sound-powered telephone system between the two positions. They should only be used when there is little possibility of an enemy patrol passing between the two positions and the distance is less than fifty meters. Small squad tactical radios could also be effectively utilized during this type of operation.

A number of OPs could be operated in various locations around the PB using this method. The distance between need not be far, and could conceivably be only 15 to 20 meters—the distinction being that all team members are not their usual close proximity to each other.

Long Halt Position Selection, Occupation, and Organization

Select, occupy, and organize a site which by its location and nature provides security. Heavy thickets make good obstacles against unhindered enemy approach. Be prepared and alert, and use the terrain to your advantage. The location should provide passive security from enemy detection, will be evacuated if discovery is suspected, and only defended long enough to secure equipment and commence evasion measures. Trip flares and booby traps would not be used. Once used, the position should not be reoccupied, except possibly during a lengthy ambush mission where it is necessary to move out of the ambush periodically for meals and so on. Planning and selection should begin during the premission map study phase and continue up to the actual occupation phase.

An alternate position should always be selected in case the primary position is compromised. Evasion routes and at least one nearby rally point must be established. Also identify an extraction LZ in the vicinity.

When selecting the position it should be located where it best supports the mission objectives and provides adequate communications.

It should be remotely located in rugged terrain to discourage enemy patrols from investigating too far off the beaten path; accessible by dismounted troops only; considered of little or no tactical value; away from roads, trails, built-up areas, ridgelines, wet areas, steep slopes, and small valleys which may be lines of drift; and not near the infiltration point. It should also be close enough to a water source for resupply, but far enough away to avoid contact with enemy patrols securing water or patrolling.

It must offer good natural camouflage, cover, and concealment, which may include trees, rocks, cliffs, gullies, and so on; have good air cover in the form of heavy tree growth; and be easily defensible for a short period of time.

The position selected should also encompass all or most of the following characteristics: contain multiple withdrawal routes; provide observation of withdrawal and approach routes; have no more than one track leading into the position; avoid areas with dead trees or rotting branches that are subject to fall and cause injuries; allow the erection of antennas with security; provide 360° fields of observation and fire; be flat and dry ground that drains quickly; and secret and secure. The use of the same position for over 48 hours should be the exception rather than the rule.

Moving into the position should be done in phases that include temporary halts to observe and listen, reconnaissance of the area around the planned site, extended periods of observation prior to actual occupation, and entering from one point using a buttonhook approach that allows overwatch of your track in.

To preclude compromise of night locations, it is advisable to wait until almost dark before quietly moving into the final position for the night. However, difficult ground and vegetation may well make it essential to move in before last light. Select and observe during the day, and move in silently at last light or after.

Never establish a pattern of always moving into, or out of, any halt locations at the same time of day or using exactly the same method. If you are going to be hit departing a position it will usually happen within the first 300 to 500 meters. Be 100 percent alert when moving out or occupying any halt location.

The sequence of events would consist of halting to observe the area, establishing local security, conducting a reconnaissance of the site and surrounding area to include a water resupply if needed, and finally occupation of the position.

The occupation phase will normally encompass the following priorities: establishment of security and communications; preparation of the position and shelters, if needed; determination of meal times and rotation; conducting of a team briefing and establishing watch rotation.

Individual team duties should be routine and memorized beforehand to minimize time required, simplify work, reduce words, and eliminate confusion. Always work in pairs, one to work and one to guard. Practice the occupation phase. If it becomes necessary to set up at night, "knowing one's stuff" will eliminate noise and confusion.

Occupation of the position may or may not include deployment of Claymore mines depending on the expected length of the time the team will occupy the site. If used, Claymore mines are sited to clear evasion routes and to delay the enemy at the most likely avenue of approach—the route in.

Positioning of personnel will be varied based on the purpose of the halt, ground and vegetation, enemy threat, and size of the team, and must consider not only fields of fire and observation, but also stealth, evasion and escape, incoming track, and so on.

Personnel should be close together for mutual support, ease of control, and quiet operation. Each team member should be able to touch two or more team members without moving from his position.

When positioning your team, place the point man in a position opposite the most likely avenue of approach to lead the team out in case of an emergency. Designate men for use of time delay munitions, grenades, CS, and so on. Be prepared for anything that may happen, go over what each man's actions should be, and when. Rehearse these situations during training just as you would immediate action drills.

Rucksacks can be placed in the center or around the outside. If placed to the outside they afford a stable prone firing platform. For an ambush position it may be desirable to place only the rucksacks with radios in the actual ambush position while leaving the other rucks camouflaged at a nearby rally point along the withdrawal or evasion route for pickup during the move away from the ambush site.

Each patrol member should memorize the trees and bushes around the team's location prior to nightfall to help quiet the imagination and make movement out of the position easier at night if it becomes necessary. It also identifies points of possible concealment for the enemy. Record key coordinates for possible artillery fire support.

Equipment must be kept on at all times, except when removed for hygiene and sanitation—the team must be ready to move at all times. Never remove more than one boot at a time.

All functions during the time in the patrol base would be done on a rotating basis to ensure adequate security and observation. Eat and take care of hygiene and sanitation needs in shifts of two. During sleep periods, adjust the alert level based on the situation, but normally sleep in twos. In highly inaccessible areas it may be possible to have a single member watch, while in highly active areas 50 to 100 percent alertness may be required.

Each man should scrape the ground bare where he will be lying down in the position, so that if he must move at night he can do so without making noise that gives away his location.

For the LRP team there are no noisy periods upon occupation of the halt position, normally no cooking fires, and strict enforcement of noise, light, and movement discipline.

If personnel are having difficulty staying awake, have them assume a kneeling, squatting, or sitting position. Provide as much sleeping and resting time as the mission permits. When awakening the next man for watch during sleeping halts, touch him lightly, and be prepared to place a hand over his mouth if he is startled.

AMBUSH OPERATIONS

Due to team size, the LRP force will normally employ a linear ambush formation. However, the specific location of the team and team members, in respect to the killing zone can be varied based on the terrain, weapons, and so on. The examples in the accompanying illustrations give an idea of the variety of possible layouts. Note that in each case the use of command detonated munitions and demolitions is called for. A team should never employ booby traps in the actual path of enemy movement. Although you plan to ambush a squad or platoon, it could well turn out to be a battalion or company, which may make it advisable not to initiate the ambush and wait for a more manageable target to turn up. The types of ambushes a LRP team can perform are limited only by the imagination, but could consist of the following:

Silent ambush. The team would ambush a very small enemy force and accomplish its mission by use of silenced weapons from extremely close range. It could also be combined with a prisoner snatch mission.

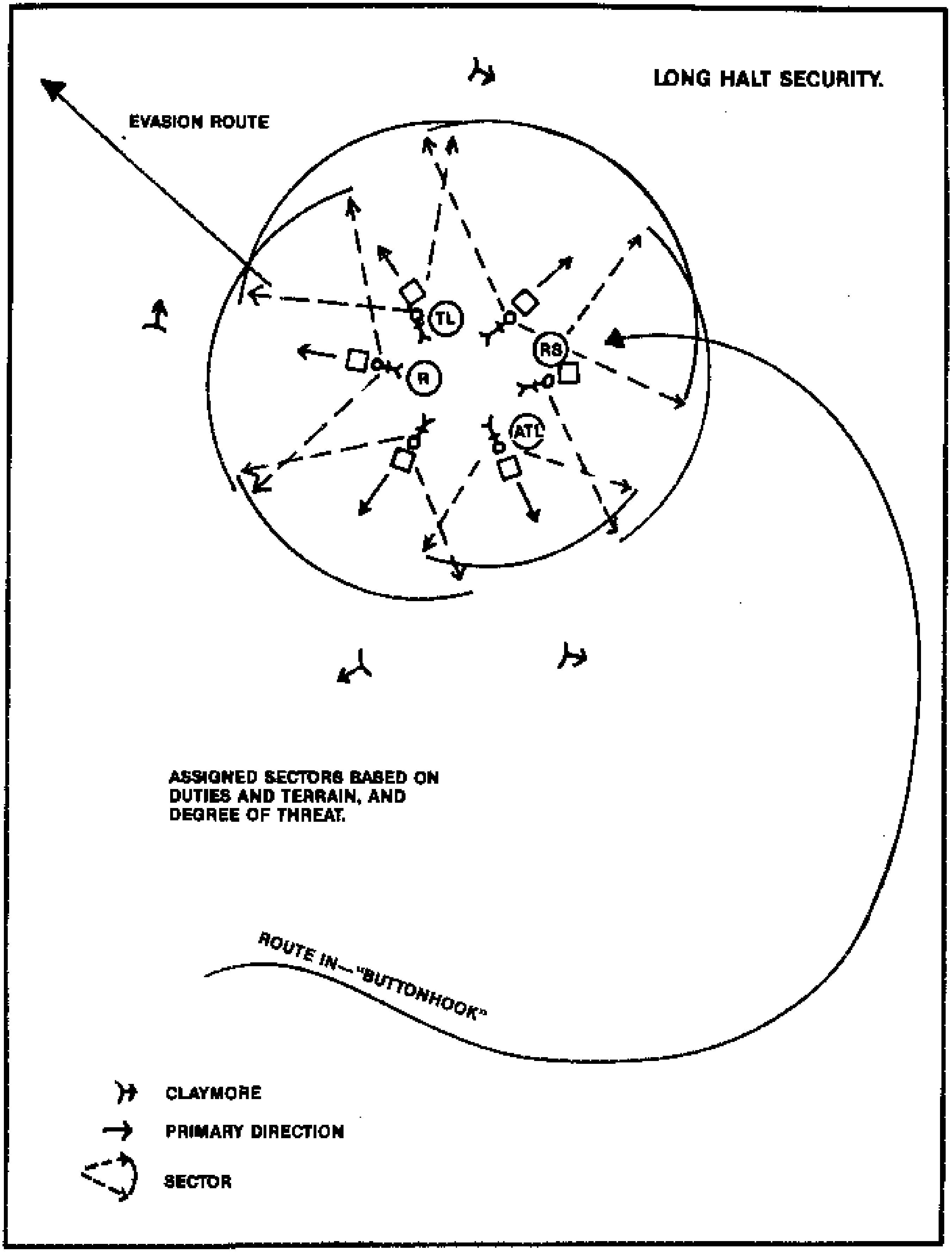
Demolition ambush. Virtually any size force could be ambushed in this manner, with an objective of either harassing, delaying, or destroying them. It can also be used to stop pursuers when you are under pressure.

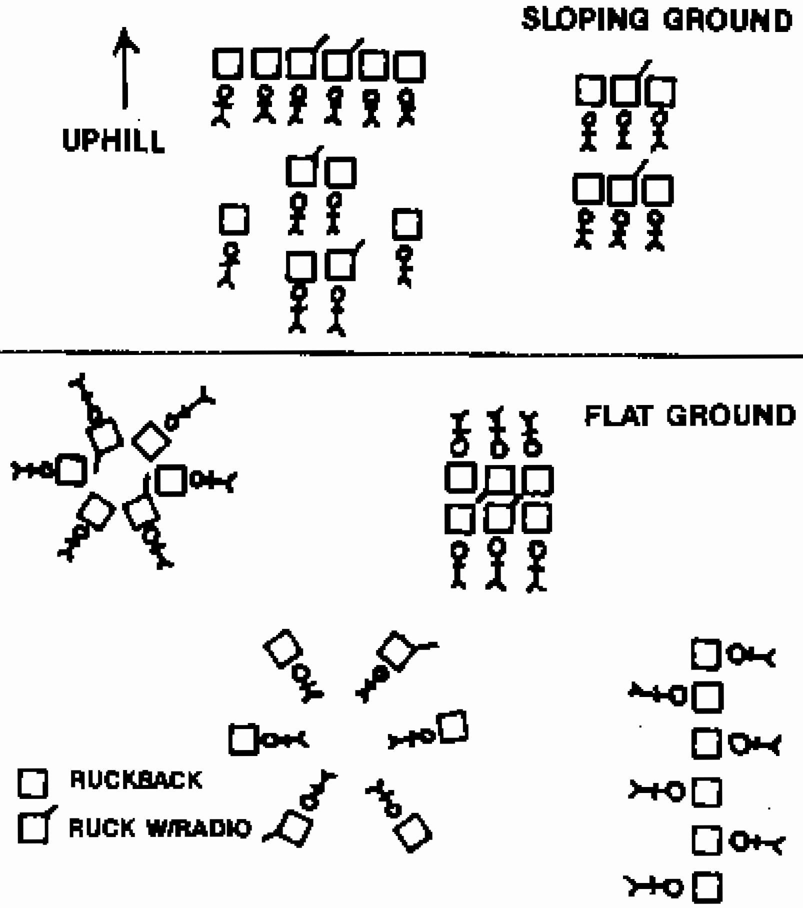
Artillery ambush. The team would engage the enemy force with preplanned accurate artillery fire from an observation point. By employing frequent H&I fire around the general area the team would be able to pre-adjust fire into the planned target area to allow accurate barrage fire on call. Their distance from the killing zone would be determined by the limits of observation.

Remember that the enemy is always watching for possible ambush sites. Consider selecting the most likely site, then try to determine where they would stop to make a reconnaissance of the site and set your ambush there. The selection of a good ambush site is very critical and should have the same basic characteristics as a long halt position, but should also include:

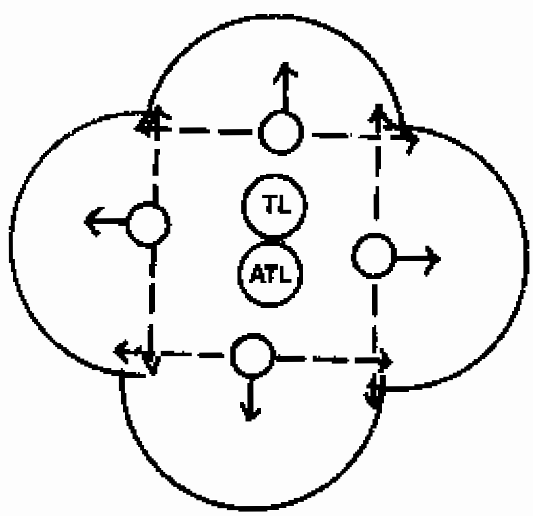
1. A restricted flank, either natural or man-made, to prevent, or slow, the enemy's escape from the kill zone. The site should require the enemy to concentrate, or bunch up, when moving through the kill zone, and hinder enemy reinforcement and maneuver.
2. Adequate observation and fields of fire which allow the team to accurately engage targets that appear in the kill zone, and observe the avenues of approach and departure from the kill zone.

If sited to either side of a sharp bend or curve in a trail or road, the ambush will add confusion to the enemy's response, especially for a larger


LONG HALT SECURITY.
EVASION ROUTE
TL
RS
R
ATL
ASSIGNED SECTORS BASED ON
DUTIES AND TERRAIN, AND
DEGREE OF THREAT.
ROUTE IN—"BUTTONHOOK"
CLAYMORE
PRIMARY DIRECTION
SECTOR



"LONG HALT POSITIONS."



TEMPORARY HALT SECURITY.

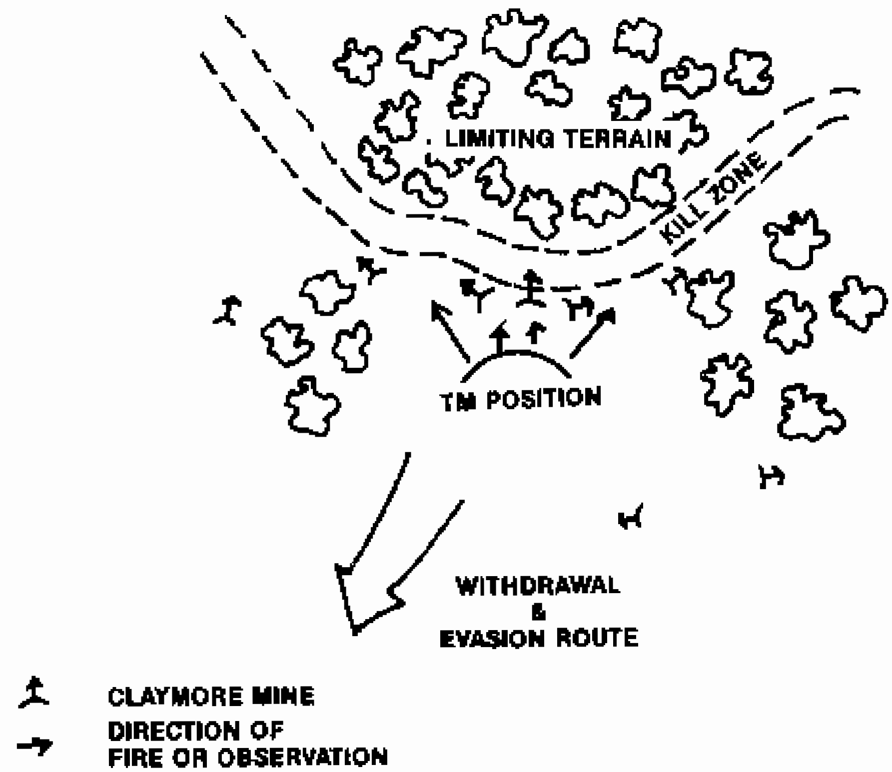
force. With either the tail or head of the enemy force out of sight of the other it will be harder for the element outside the killing zone to sense what is happening at the critical moment, a handicap which increases the success of the ambush and delays the enemy's response.

If you allow a point or similar element to move through the kill zone before hitting the main party, one man must be designated to time how long the lead element traveled before the ambush was initiated. You could then expect them back in twice that time, or less if they don't use caution.

The use of command detonated demolitions and preplanned artillery fire can assist the team in remaining virtually undetected during an ambush. By positioning themselves off-center of the kill zone and only using demolitions and munitions the team can confuse the enemy as to the cause of the explosions. Being positioned away from the killing zone also denies the enemy a target to assault upon initiation. Preplanned fires would be used in a random pattern around the ambush site to give the impression of artillery H&I fire rather than visually adjusted accurate fire. The team should shift the fire randomly around the area while at the same time ensuring that a portion of the rounds fall directly in the killing zone, avenues of approach, and along the evasion route to the rally point. If their position should become compromised it would be a simple matter to shift fire to accurate defensive targeting.

A good ambush plan must include site reconnaissance; prior to final selection, the area around the proposed ambush site should be reconned for the presence of enemy positions, obstacles, other dangers to the team, and hindrances to the enemy. Also important, movement into the ambush position should be accomplished after a period of surveillance, and should be done at the time of day when the enemy is normally stationary. The ambush operation should consist of three distinct team positions:

AMBUSH: CURVE OR BEND



Rally point. This position is used as a withdrawal point at any time during the operation when it becomes necessary to withdraw rapidly.

Patrol base. Located to allow observation of the ambush position, killing zone, and avenues of approach. The team would occupy this position for rest and meals, and to observe the area prior to establishing the actual ambush site.

Ambush position. Basically the same characteristics as the patrol base, but located in closer proximity to the kill zone. Once the team moves into this position, absolute noise and movement discipline must be maintained, and it must be located to provide full observation of the kill zone. The ambush will be initiated from this position.

Objective rally point. This is a temporary halt position normally located on the opposite side of the kill zone. This position is only established when it is necessary for the team to make a sweep of the kill zone to assess damage and casualties and search for documents. Normally the team would move from the ambush position through the kill zone, and into the objective rally point in groups of two or three to allow mutual support and observation and security during the move. Depending on the size of the kill zone, each two or three man group could move through a different portion of the zone to conduct their search and reduce exposure time.

Surprise, coordinated fires, and control should be little problem for a highly trained LRP team, if for no other reason than the small size of the force.

Multi-Team Ambush

Although a larger "heavy team" could be employed for ambush missions it is advisable to keep the force small to improve stealth and surprise. However, the following illustrations depict an operation where three teams work in support of each other, with either only one team employed as the ambush force, or all three. The ambush force is task-organized along the following lines:

Early warning, flank security teams, located to each flank of the ambush site, but well away from it. They could also have the additional task, through the use of snipers, to delay and confuse the enemy force being ambushed, or a force attempting to reinforce the ambushed element.

Ambush team occupies the ambush position and is responsible for initiating the ambush.

The teams may move to the general area as one force, but then separate for the remainder of the mission. Providing the flank security teams do not actually become engaged, they can continue separate missions after the ambush, while the ambush team evacuates the area to conduct evasion operations, resume its mission, or be extracted.

Forward Observer Mission

This concept was used very effectively during the Vietnam War and has at times been referred to as artillery long range reconnaissance. Regardless of the name, the basic principle remains the same; the LRP team is deployed for the express purpose of adjusting long range artillery fires or air support onto suitable targets. When conducted deep behind enemy lines the surprise can be devastating to an unprepared enemy. To increase effectiveness, the plan should include firing of H&I fires to help mask the team's presence, increase the accuracy of the fire, and reduce the time to on-target shooting.

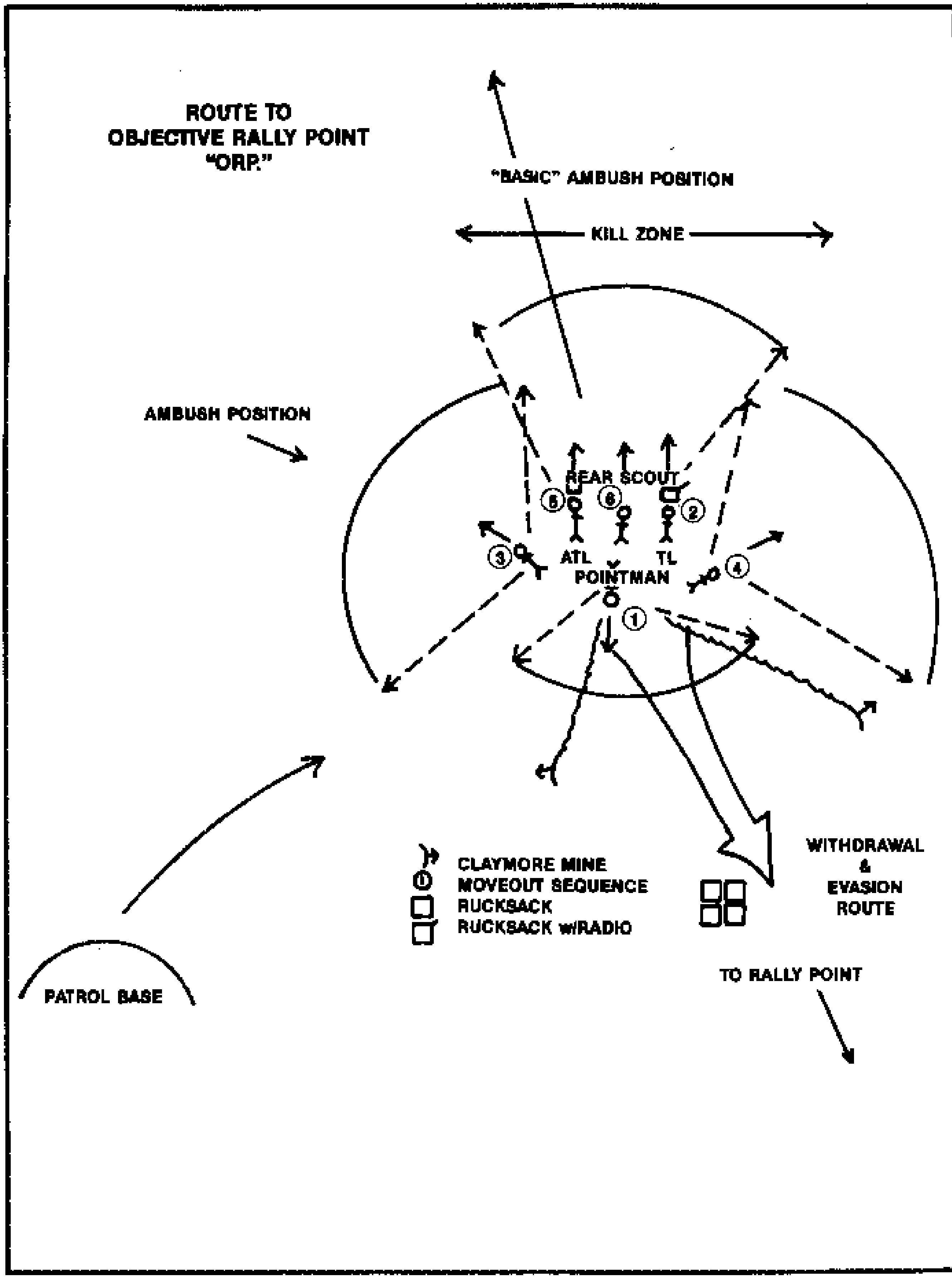
Extensive use of preplanned fires should be made, with preplots confirmed through the use of H&I fire whenever possible. A properly sited and hidden team, combined with accurate and timely fire support, can rob the enemy of their freedom of movement within their own rear area, creating confusion, fear, and lowered morale.

Special codes and modified fire requests should be developed to simplify the task, and dedicated fire support should be provided. Extensive training in artillery and naval gunfire adjustment and employment of air support assets is essential.

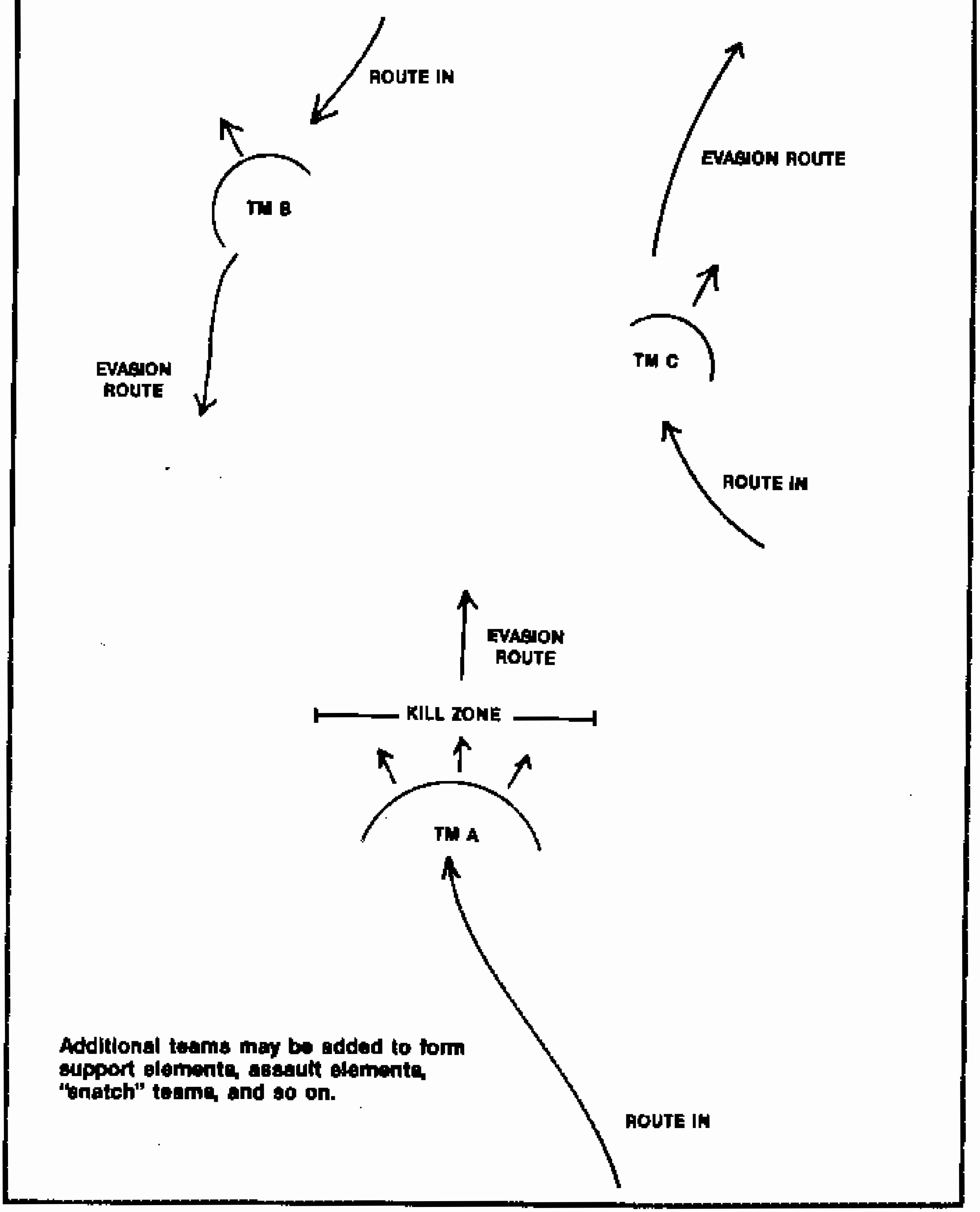
Whenever possible, call artillery fire onto a set of known coordinates so later fire missions can be called by shifting from a known point. This is most practical when random H&I fire is being used in the general area, so you do not give away your presence.

Prisoner Snatch Missions

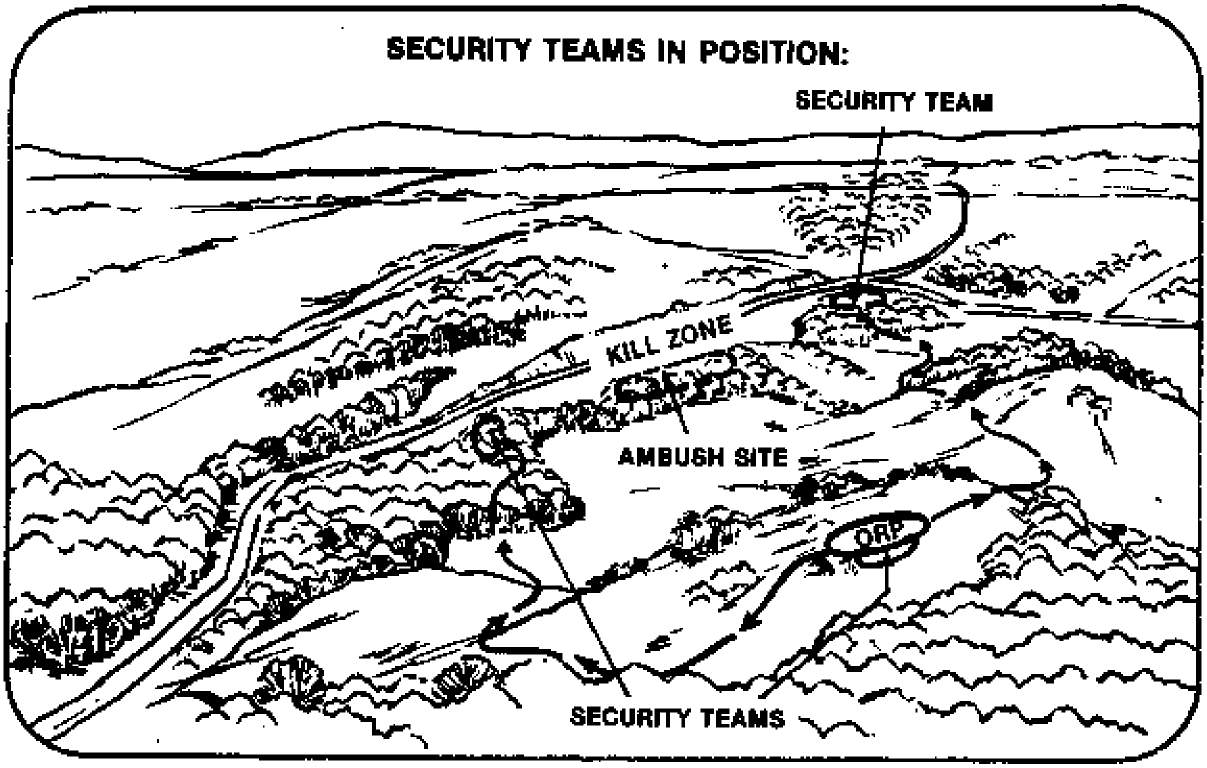
A key individual taken at the right time can produce intelligence information that is obtainable from no other source. Vital information regarding morale, strength, food, weapons, past engagements, and even future intentions can be learned by a skillful interrogator. The timing of this information can decide the outcome of a battle by minutes. A properly trained and rehearsed LRP team can perform snatch operations, with all or part of the team functioning as the snatch element. When

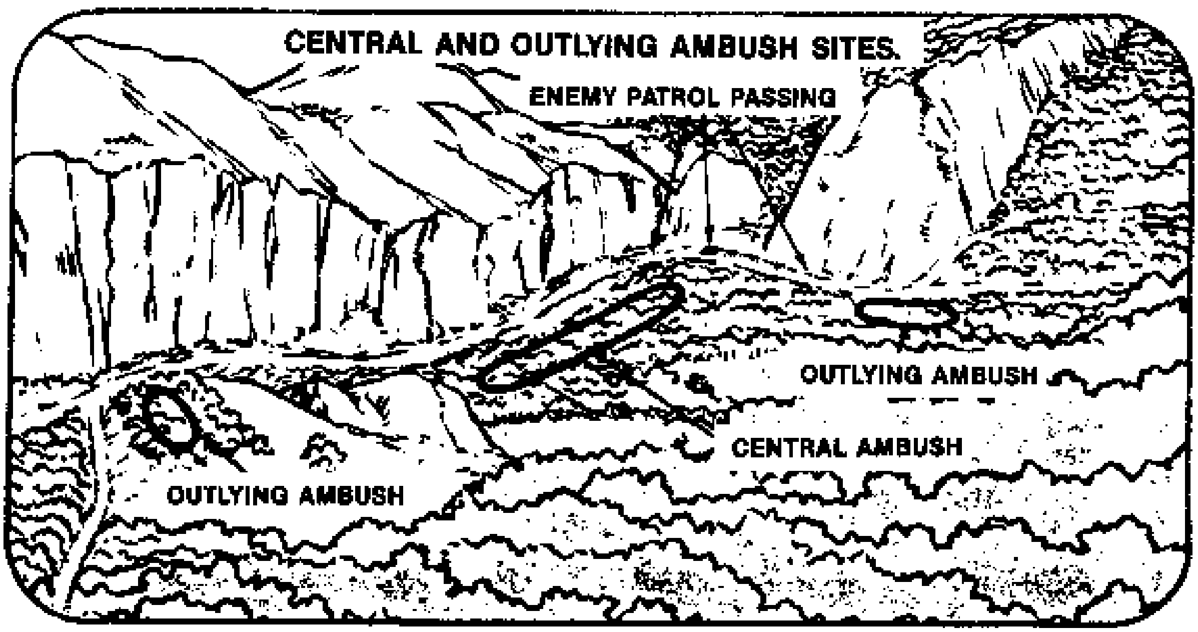

ROUTE TO
OBJECTIVE RALLY POINT
"ORP."
"BASIC" AMBUSH POSITION
KILL ZONE
AMBUSH POSITION
REAR SCOUT
ATL
TL
POINTMAN
CLAYMORE MINE
MOVEOUT SEQUENCE
RUCKSACK
RUCKSACK w/RADIO
WITHDRAWAL
&
EVASION
ROUTE
TO RALLY POINT
PATROL BASE

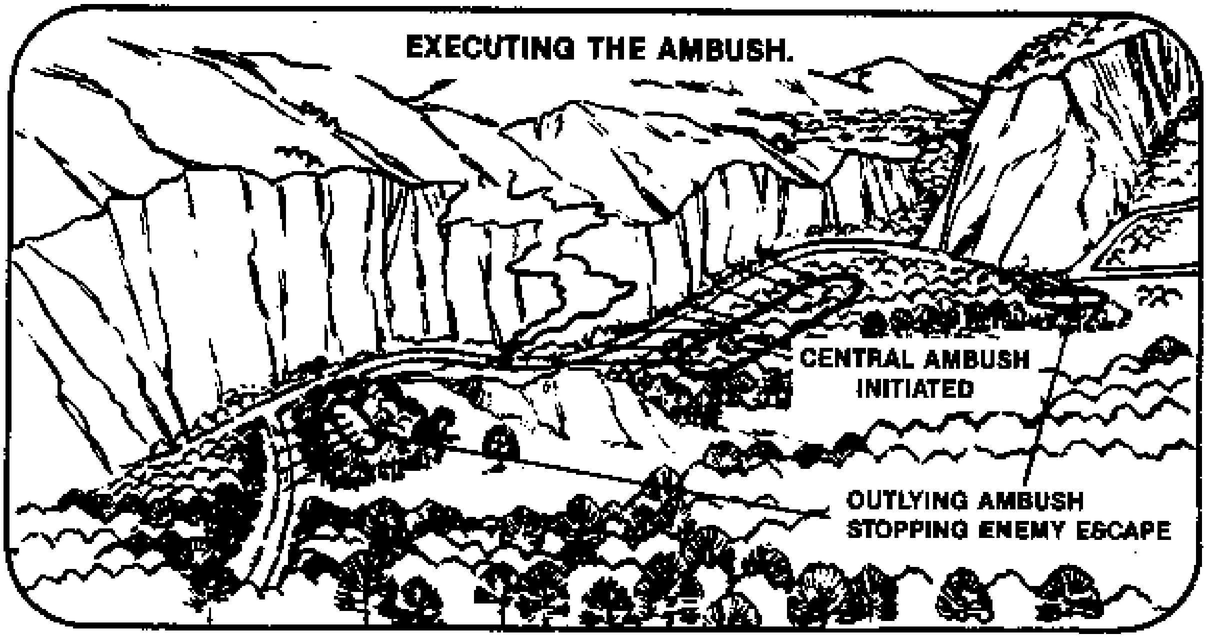
MULTI-TEAM AMBUSH.

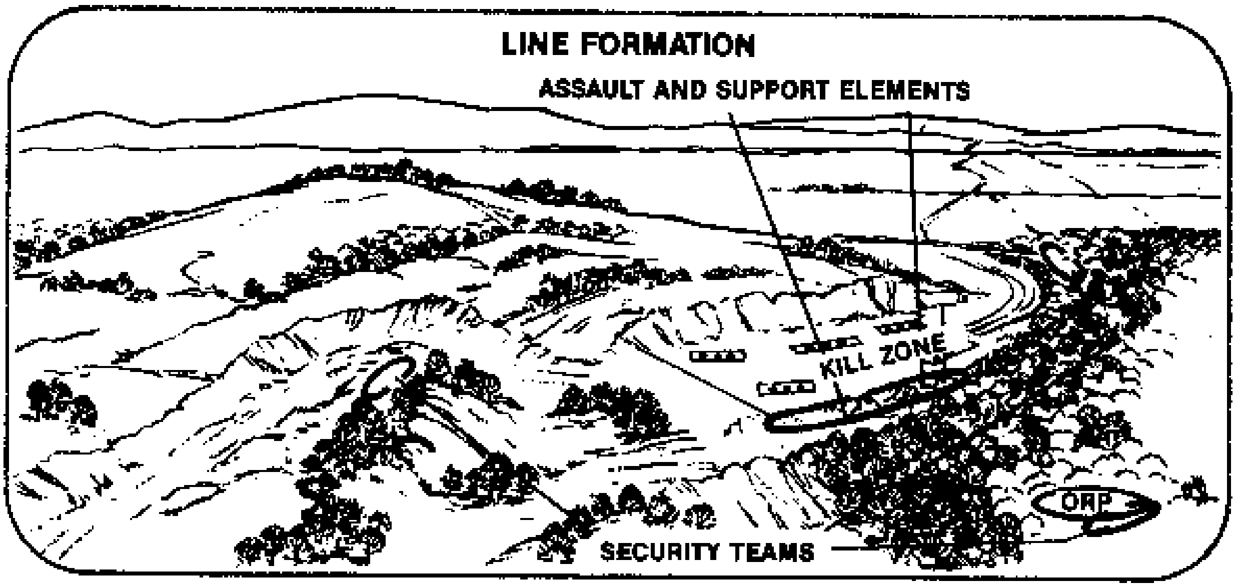


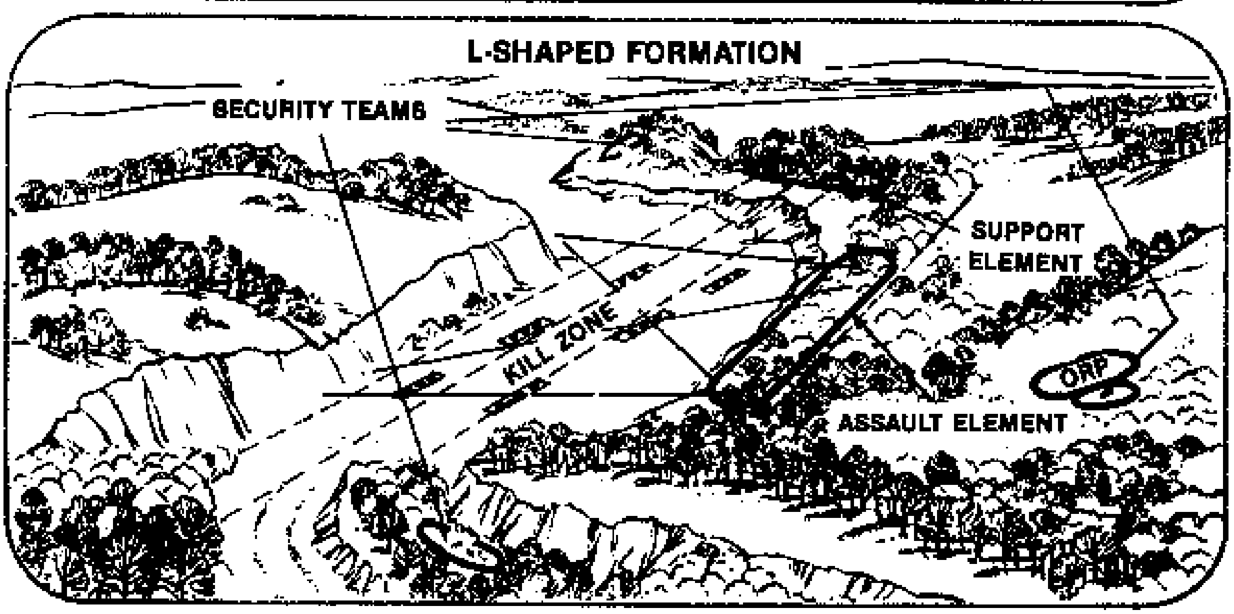
Additional teams may be added to form support elements, assault elements, "snatch" teams, and so on.

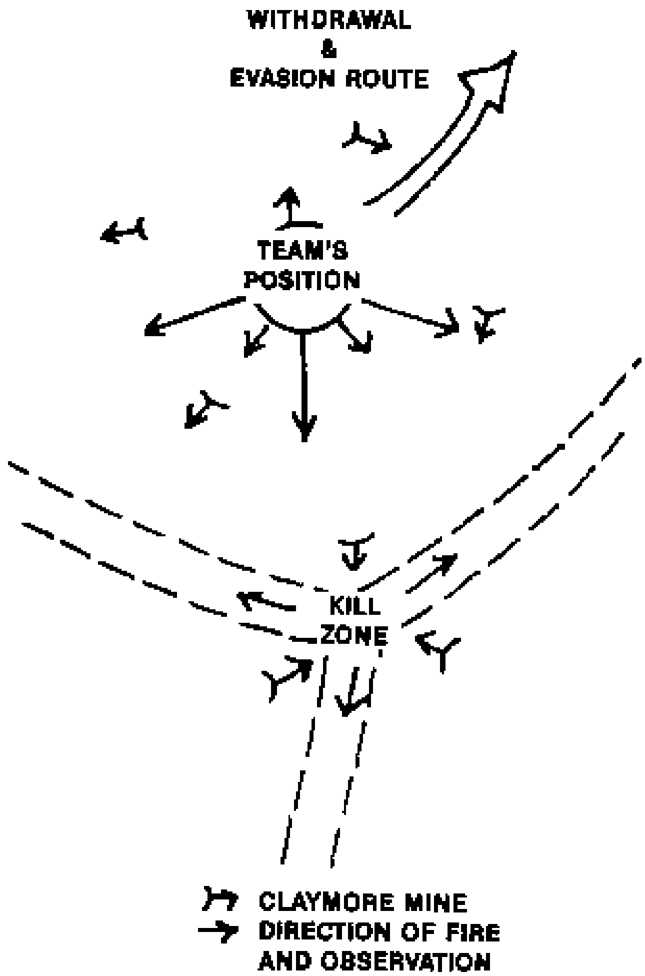

SECURITY TEAMS IN POSITION:
SECURITY TEAM
KILL ZONE
AMBUSH SITE
ORP
SECURITY TEAMS


CENTRAL AND OUTLYING AMBUSH SITES.
ENEMY PATROL PASSING
OUTLYING AMBUSH
CENTRAL AMBUSH
OUTLYING AMBUSH


EXECUTING THE AMBUSH.
CENTRAL AMBUSH INITIATED
OUTLYING AMBUSH STOPPING ENEMY ESCAPE


LINE FORMATION
ASSAULT AND SUPPORT ELEMENTS
KILL ZONE
ORP
SECURITY TEAMS


L-SHAPED FORMATION
SECURITY TEAMS
SUPPORT ELEMENT
KILL ZONE
ORP
ASSAULT ELEMENT



Demolition point ambush. During the Vietnam War, the NVA/VC became quite proficient at this type of ambush. It is normally employed against the head or length of a column on a road or at a wide spot in a trail, but can work equally well at forks and junctions. Generally it consists of sighting a Claymore mine down the length of the enemy's route of march, to be command detonated upon their approach. There is no warning or follow-through in most cases—it is a one-shot, one-weapon affair. The mine must be set to command a long stretch of the route and detonated when the enemy is within a few meters of its location. During Operation Attleboro in 1966, a single command detonated Claymore set in a tree killed or wounded 28 American soldiers strung out over forty meters along the trail. It was fired from five meters forward of the front man.

warranted, additional teams can be added as security elements.

A snatch operation requires as much detailed information as possible about the intended target, to include uniform, weapons, rank, ID, habits, and so on. However, a mission may also be based on capturing any lucrative target in the operational area rather than a specific individual.

The mission of the snatch team is to subdue the target, secure, and remove him to an extraction site, or back through friendly lines. It could also be feasible to include an interrogator as part of the element, although this would be least desirable. At least one member of the team should either speak the target's language or be familiar with key phrases to aid in control during removal, calming the prisoner, and to at least a limited extent, gain his trust. The more professionally the team functions the more resigned the prisoner will be to his capture.

The operation can be conducted as a raid or ambush depending on information and accessibility of the target, and in certain situations can be conducted similar to silent sentry removal. The actual capture operation does not require silence, but there are obvious advantages to completing the mission without announcing your presence to the rest of the enemy force. The operation must be conducted quickly and violently, giving the enemy little time to react. The snatch team's objective must be restricted to the actual removal of the target, with the remaining elements responsible for covering security and elimination of other enemy personnel.

The target should be gagged, blindfolded or hooded, cuffed and bound as needed, and then removed from the area. All knots, cuffs, and other security items must be checked at frequent intervals. If the subject is extremely hostile, his legs should be bound. He can then be removed from the area using a fireman's carry, and later transported by a pole slung between two team members. The securing process should be completed as quickly as possible, but speed should not override safety and security considerations.

The POW should not be harassed. His inability to defend himself should not be exploited, and needs such as food, water, and relieving himself must be looked after whenever practical. At the same time, he must be under no illusion as to his situation, and as to his captors' serious intention to accomplish their mission. This can be transmitted to the prisoner through the team's professional behavior. The objective is to gain the individual's trust and confidence through understanding that his cooperation will help to ensure his well-being. If the methods of safeguarding and treatment are followed, it is a good possibility that the POW will be more cooperative with the team and, later, the interrogator.

Removal of the target from the operational area after the snatch may be accomplished in a number of ways, including skyhook, STABO, or helicopter extraction; removal by sea, even to include use of scuba equipment; and removal over land. During this phase of the operation safeguarding the prisoner is of the utmost importance. The snatch team bears overall responsibility for this, and must make every effort to ensure that mental and physical damage is kept to the minimum. Unnecessary roughness or poor treatment may adversely affect the ability to eventually obtain accurate information from the prisoner.

State of the art antiterrorist munitions, such as stun grenades, flash weapons, and so on can be useful if the situation permits their use. This would allow the team to move out among a stunned enemy force, secure their target, and remove him from the area with minimal danger compared to the more conventional ambush. However, great care must be taken to ensure that the target is not severely injured as a result. Considerable training and practice are required to effectively employ these special weapons.

All equipment must be checked for serviceability prior to departure and rehearsals must be as realistic as possible. Alternates must also be rehearsed for each phase and duty of the mission. For a six-man LRP team the snatch team should consist of the team leader, senior scout, and one other man. The assistant team leader and other two members would be their alternates. The snatch team should normally consist of three personnel with the following minimum special equipment:

1. Two pair of handcuffs for each team member (the type that do not cinch up on the prisoners wrist and cause injury);
2. Two twelve- to fifteen-foot lengths of rope;
3. Two cravats (medical triangular bandages) for gagging and blindfolding the prisoner;
4. One silenced pistol per member;
5. One combat knife per team member;
6. Two garrotes per team member, one cushioned for use in subduing a prisoner;
7. Emergency first aid kit for care of the prisoner;
8. Extraction harness or other special equipment for removal of the prisoner;
9. Plastic bags for captured equipment and papers;
10. A club, sap, knuckle duster, or similar weapon.

LRP Sniper Teams and Sniper Missions

A six-man LRP team can deploy as a sniper team when required. Normally employed for deep penetration sniper missions, they can also be employed on a temporary basis to support other tactical unit operations. When dictated by the mission they can deploy into three teams instead of two, with the senior scout heading up the third team. However, this would normally only be done when the team is operating in support of a unit conducting defensive or offensive operations. On a deep penetration mission they would only split into two teams.

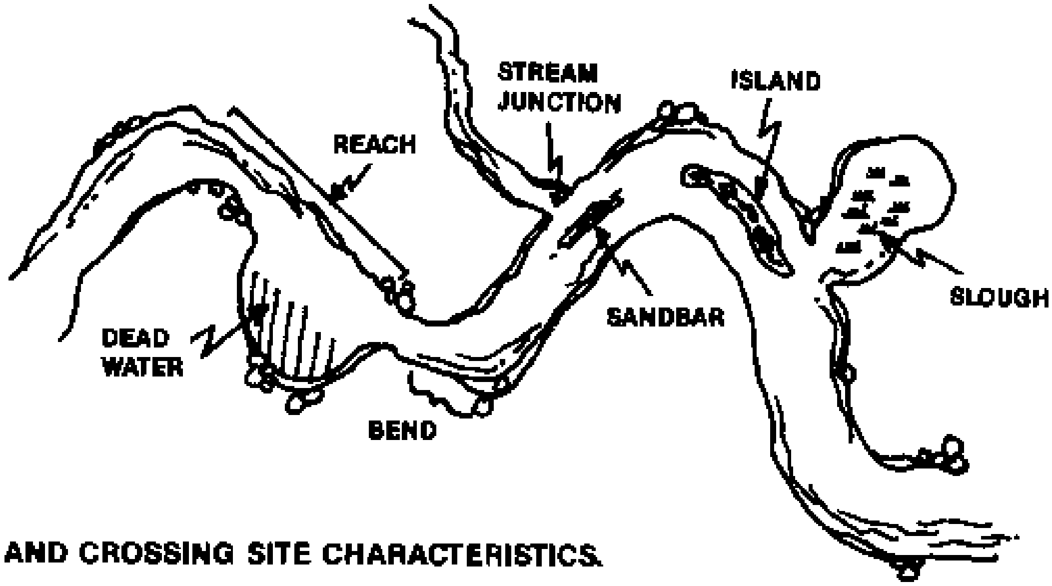
Their mission would be to engage point targets, personnel and light vehicles beyond the effective range of the service rifle; weaken the enemy's resistance and morale by neutralizing or eliminating enemy personnel by stealth and covert action; suppress enemy sniper fire by countersniper fire; and report timely information on enemy movements.

RIVER-CROSSING OPERATIONS

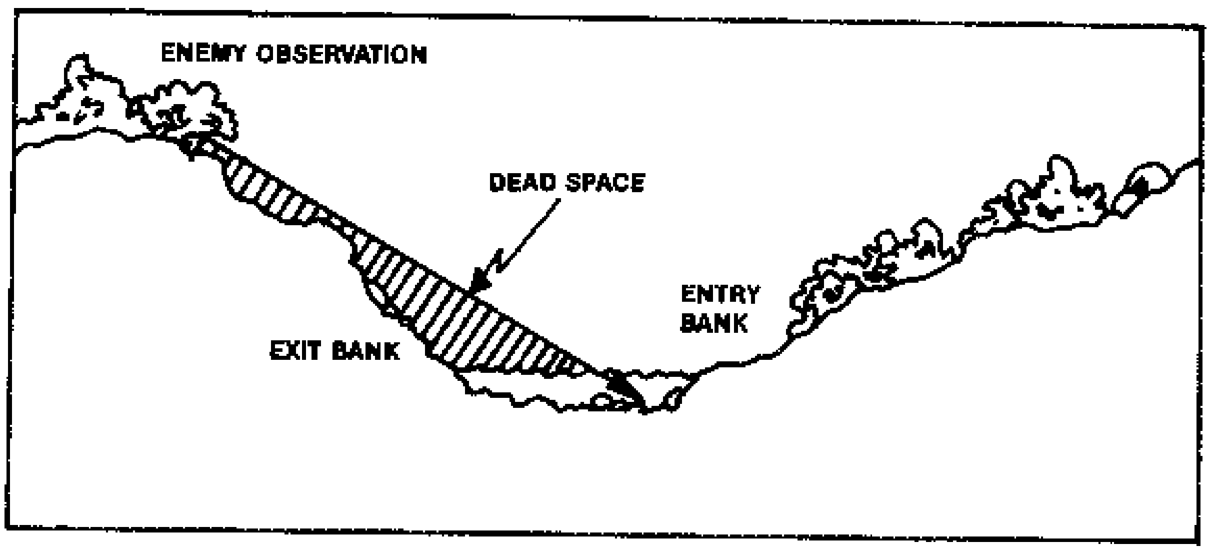
First, if possible, the team should avoid the problem completely. The danger of detection, injury, and ambush is great. However, should the need arise the team must be able to effectively and safely negotiate the obstacle. In the European theater, traveling west to east, you would have to cross north to south water obstacles up to 100 meters wide every 35 to 60 kilometers, 100 to 300 meters wide every 100 to 150km, and more than 300 meters wide every 250 to 300km. These very formidable obstacles must be clearly identified during planning and every effort made to minimize their impact on operations. However, about 60 percent of all river obstacles are less than 20 meters wide and can be effectively negotiated by a LRP team supplied with the proper equipment and training.

The following factors must be considered when negotiating water obstacles:

1. River width, depth, current, and expected water temperature.
2. Steepness of banks for entry and exit.



RIVER AND CROSSING SITE CHARACTERISTICS.

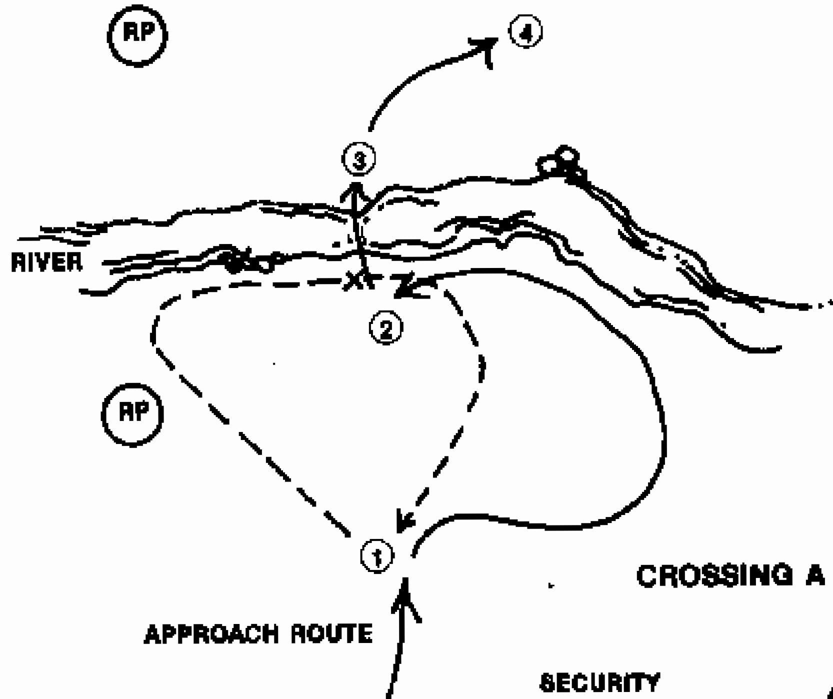


3. Obstacles at water's edge, e.g., vegetation and river bank.
4. Approach and exit routes.
5. Cover and concealment.

When crossing relatively shallow streams, observe first for activity, then send your point man across to check the area. Then cross the rest of the team, one at a time. If necessary, each can get water as he crosses. Each man should cover the next. There should be a short pause after one man exits the water before the next one enters, to listen for movement. To further confuse the enemy, enter the water and then move left or right for five to ten meters before crossing to the other side. At times the entire team can move downstream, in the water, for as much as 50 to 100 meters. Moving downstream prevents dirt and leaves stirred up from floating back to the point where you entered the water.

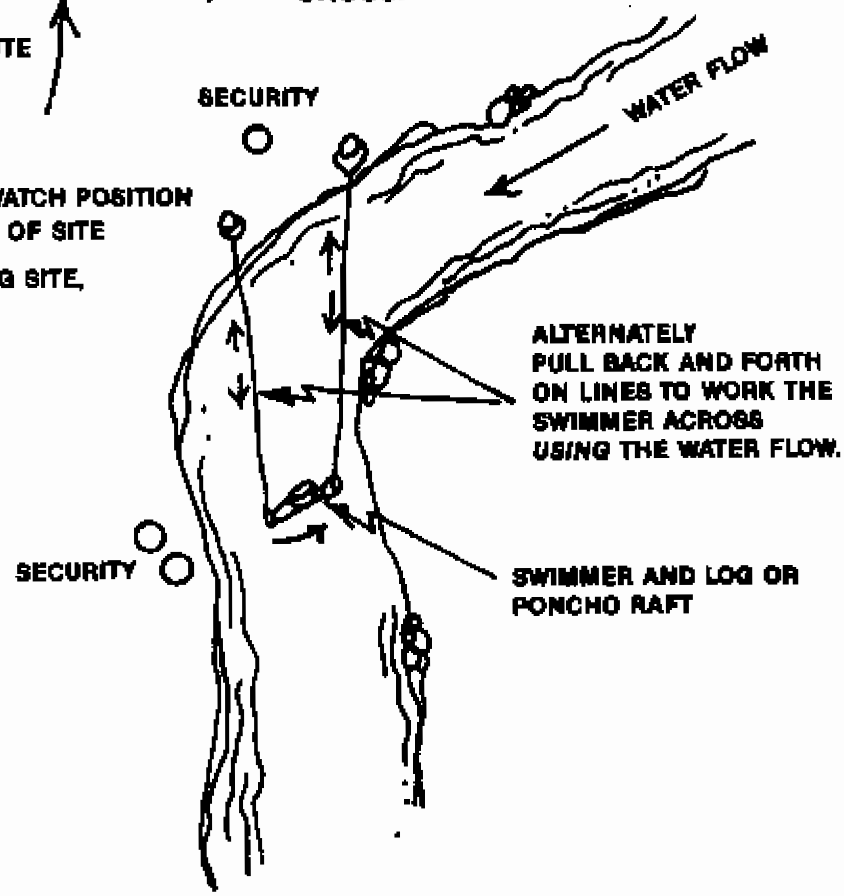
In the event the river is fast flowing and too deep to wade, the problem then arises as to how to get a line across to negotiate it. First, locate a bend in the river, the sharper the better. Recon the proposed crossing site and keep it under observation for twenty to thirty minutes. While observation is being maintained, two to three personnel should be locating a log 5 to 10 feet long, and about 10 to 15 inches in diameter, or building an expedient poncho raft. Tie a length of rope, sufficient to reach across the river, to each end of the raft or log. A third rope, if available, should be secured to the first man to cross. Place the log in the water at the upstream end of the bend, with one man securing each rope. Have the man crossing enter the water and grab hold of the log or raft. Then, by controlling the rope, it is possible to move to the other side by alternately pulling and letting out on opposite ropes—basically you "walk" it across, letting the current do the work. However, rather than repeating the process, you should then secure the rope at both banks, and let each member cross, one at a time.

RIVER CROSSING PHASES.

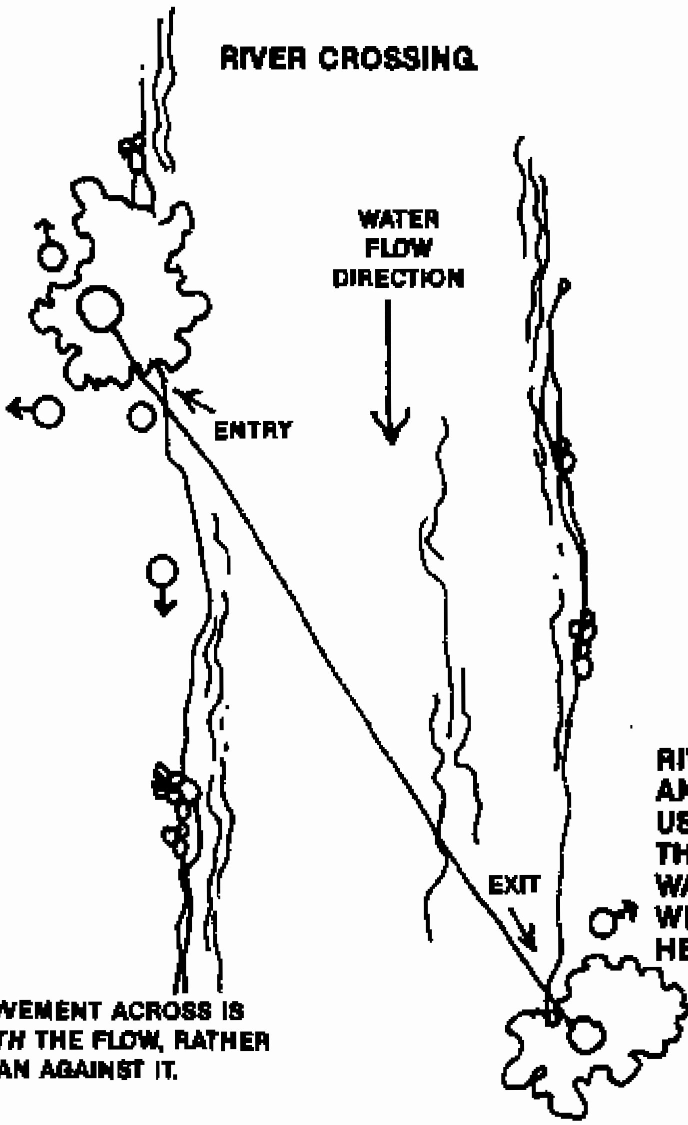


RP Rally Point
1. TEMPORARY HALT/OP/OVERWATCH POSITION TWO OR THREE MAR RECON OF SITE
2. "BUTTONHOOK" TO CROSSING SITE, OVERWATCH ROUTE
3. CROSSING POINT
4. CONTINUE THE MISSION

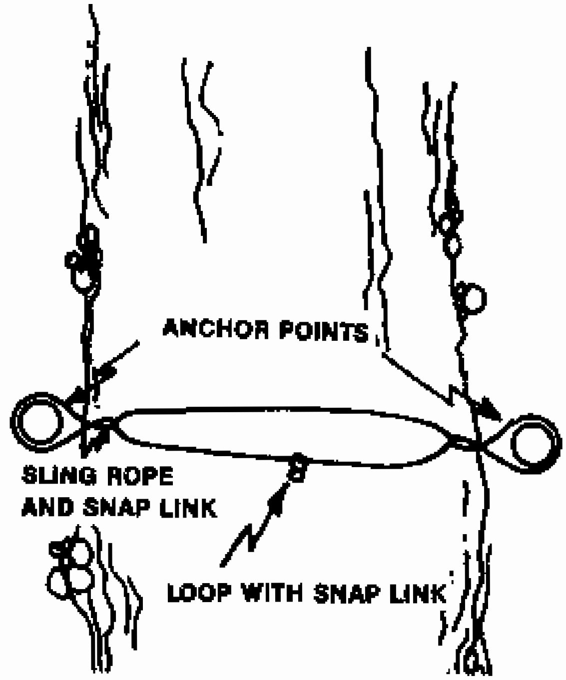
CROSSING A FAST FLOWING RIVER.



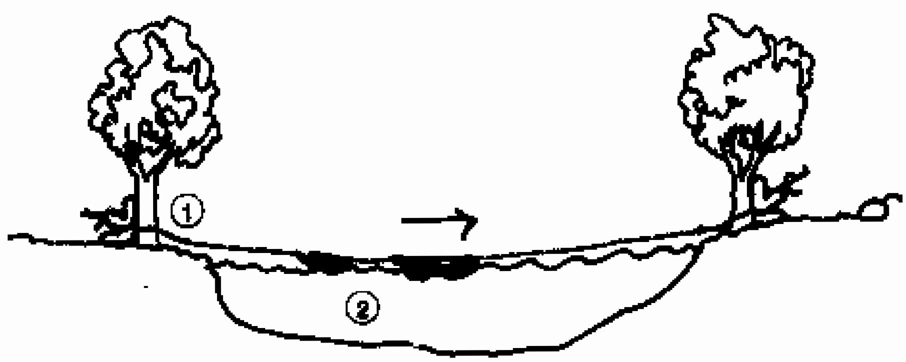
RIVER CROSSING



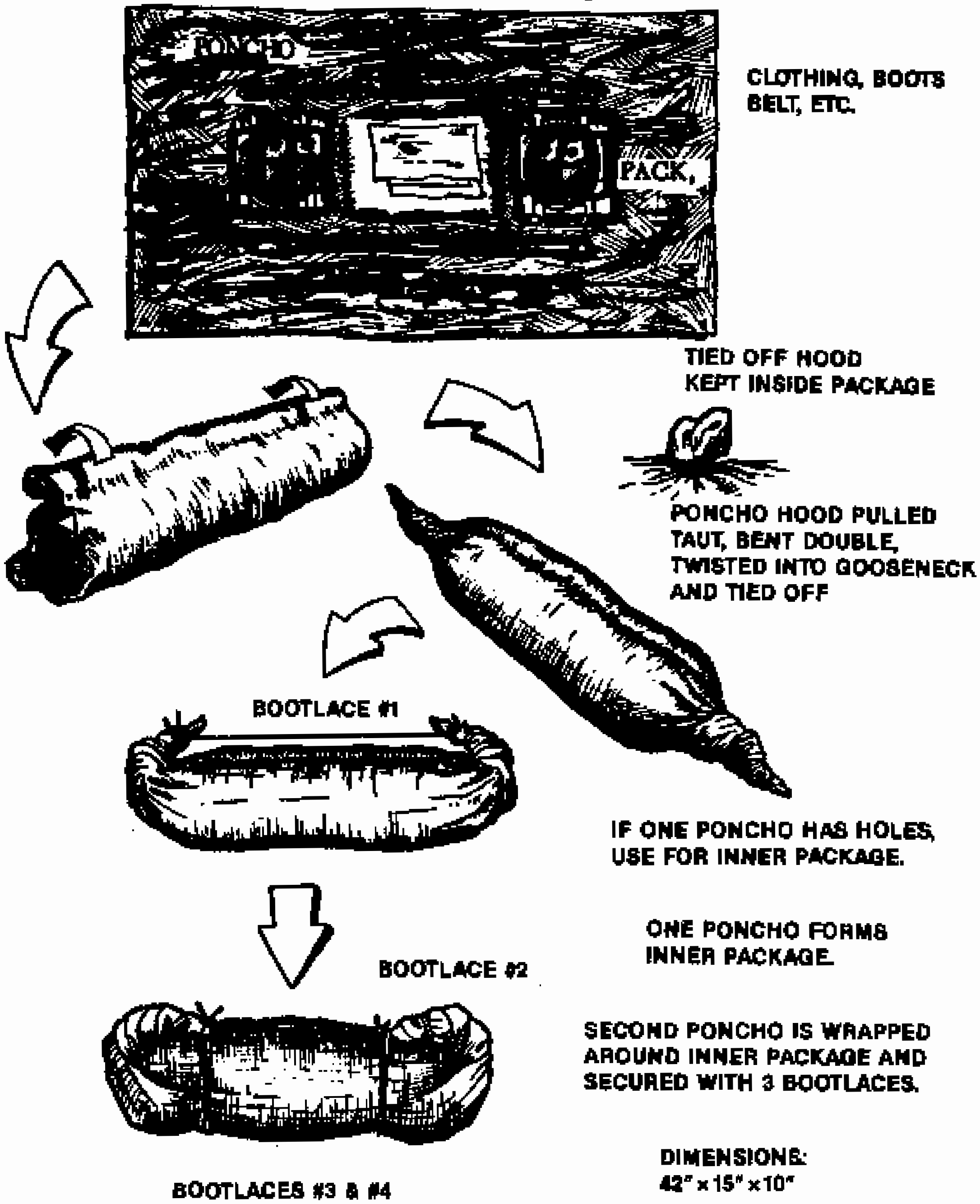
MOVEMENT ACROSS IS *WITH* THE FLOW, RATHER THAN AGAINST IT.



RIVER CROSSING SITE. DOUBLE ROPE, AND TIE ENDS TOGETHER, SO IT CAN BE USED AS A PULLEY. WHEN RELEASED, THE LINE SHOULD DROP BELOW THE WATER SURFACE. IF ANYTHING GOES WRONG WHILE A MEMBER IS CROSSING, HE CAN QUICKLY BE PULLED ACROSS.



① PONCHO RAFT WITH EQUIPMENT.
② CROSSING ROPE, SETUP AS PULLY LINE, LOW TO WATER.

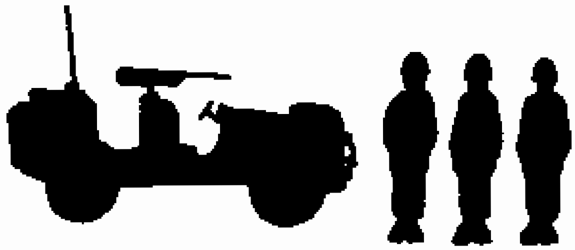


LRP WATER OR GROUND "MOUNTED" OPERATIONS

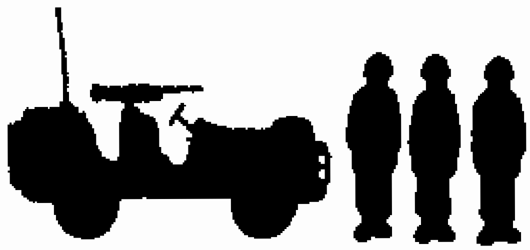
LRP teams may be required to conduct river patrol operations or ground vehicle mounted operations in certain theaters and environments. In most instances these operations will vary only slightly from any other mission. The primary difference will revolve around their methods of movement and will normally involve splitting the team into two three-man elements and moving by bounding or traveling overwatch. The following illustrations provide examples of how this can be accomplished.

The patrol will normally dismount from boats or vehicles in order to investigate sightings, conduct stealth reconnaissance, and establish stationary surveillance positions. Vehicle movement would normally be kept very slow to avoid excessive noise and raising of dust "tails." (Chapter 9 contains additional guidance on both methods of operation.)

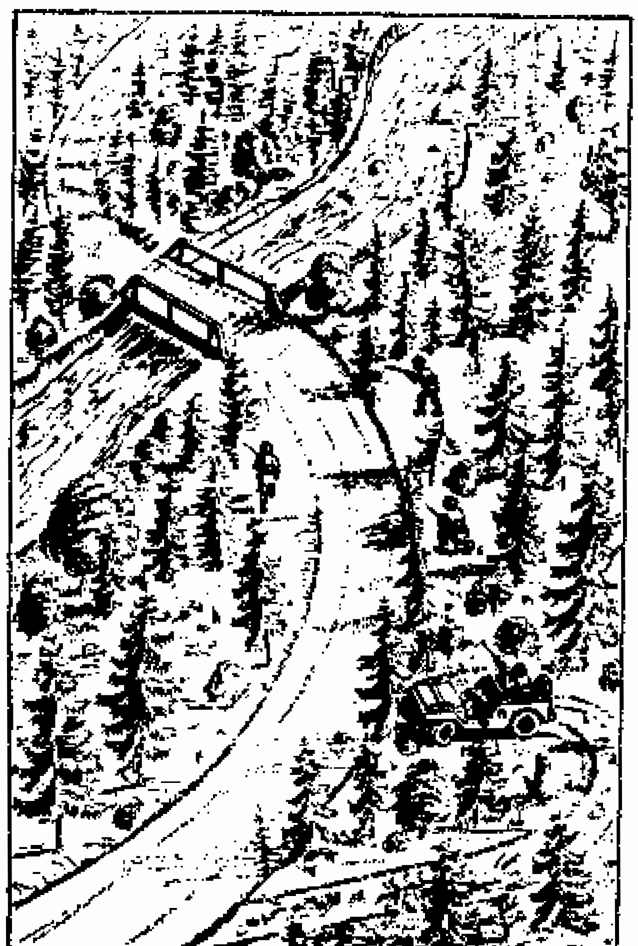
Vehicle or boat team organization.



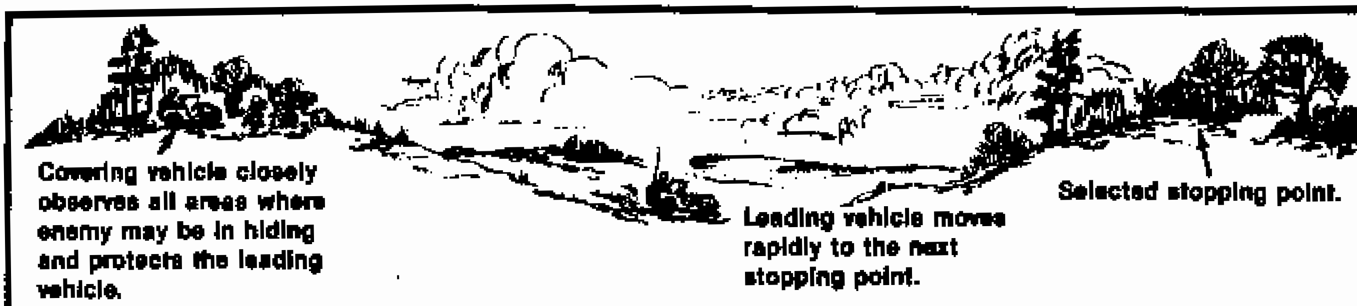
TEAM "A"
TEAM LEADER
SCOUT-RECORDER
DRIVER



TEAM "B"
ASSISTANT TEAM LEADER
SCOUT-RECORDER
DRIVER

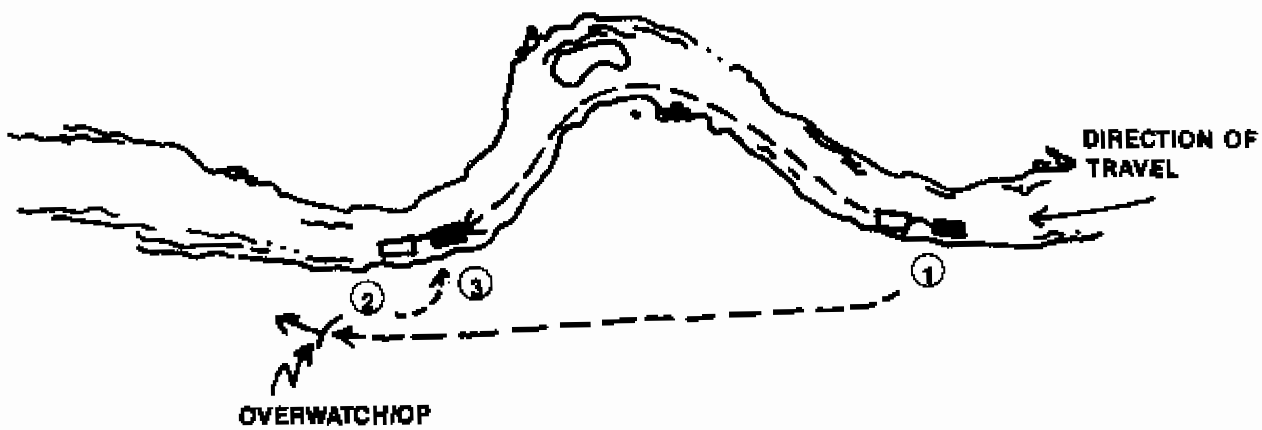


Patrols dismount to investigate danger areas.



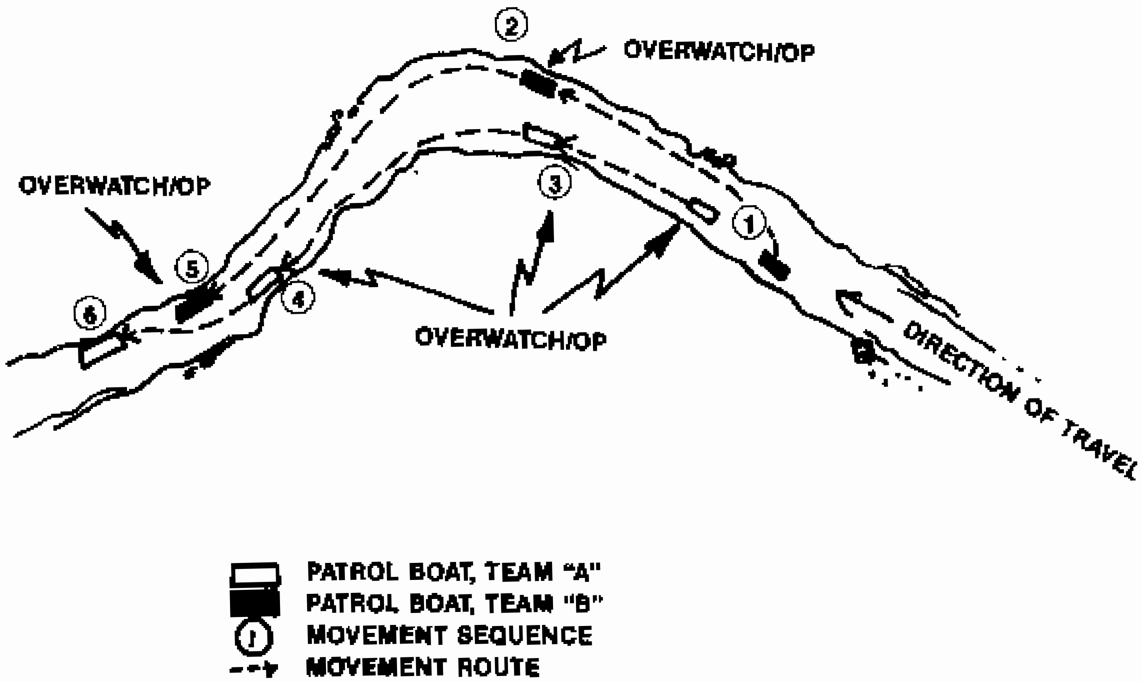
The lead vehicle moves forward to the selected stopping point covered by the rear vehicle.

When the lead vehicle at the selected stopping point, the occupant dismounts and reconnoiters the area to the front, keeping the vehicle concealed until the vehicle commander has signaled the rear vehicle forward and the next bound has been determined. If the rear vehicle now leads the next bound, the vehicles are moving by alternate bounds. If the rear vehicle again covers the movement of the same lead vehicle. The vehicles are moving by successive bounds.



RIVER PATROL—BOUNDING OVERWATCH. TEAM "B" DISMOUNTS, TRAVELS OVERLAND, AND ESTABLISHES OVERWATCH POSITION. TEAM "A" TAKES BOTH BOATS DOWN RIVER AFTER TEAM "B" IS IN POSITION AND GIVES ALL CLEAR.

RIVER PATROL—TRAVELING OVERWATCH



NIGHT OPERATIONS

Darkness favors movement, hampers enemy use of most weapons, and provides favorable conditions for stealth and achieving surprise. By learning to operate at night LRP teams can lessen the risk of detection. Night also presents problems. It is more difficult to orient oneself and maintain direction of movement. Effectiveness of aimed fire is reduced, and reconnaissance and identification of targets is more difficult. Night vision equipment is essential for accurate target acquisition and engagement.

Darkness modifies the outline, shape, and coloring of local objects and distorts distances. Dark colored objects seem farther away than they really are, while lighter ones appear to be closer. According to Soviet Army studies, on a clear night one can recognize land relief and coloration up to 400 meters with the naked eye. Under a high moon, one can spot a moving man at 240 meters, and at 700 meters using binoculars, assuming there is sufficient background contrast.

At night, sounds seem louder and carry farther. Directions from which sounds originate cannot always be determined. Weather conditions such as rain can adversely affect both audibility and visibility, and serve as a definite advantage to the LRP team. The lack of convection affects night combat, since the persistence of gas, fog, or smoke is increased in the absence of vertical air streams.

Night combat is also affected by the physical and psychological conditions of the troops; darkness stimulates the imagination and creates a feeling of insecurity that might lead to panic during combat. Nights are normally reserved for rest, while fatigue and symptoms of exhaustion may affect those who have to stay awake.

Watch for enemy weapon flashes, and be aware of your own. Move frequently to avoid pinpointing your position. Tracers do not start to "trace" until they have traveled about 75 feet. If the enemy's muzzle flash is ball shaped, he is firing in your direction; if it appears as a lick of flame, he is firing away from you.

Illumination devices, aerial flares dropped by supporting aircraft flying ground support missions, and so on, will not be employed by LRP teams except as a last resort during contact with the enemy.

Night visibility should be enhanced by the use of active and passive night-vision devices such as Starlight and infrared scopes. However, they are not effective in heavy rain, nor for the adjustment of indirect fires.

Aerial flares producing one million candlepower of illumination burn for three to six minutes, and provide a circle of light .5 to four kilometers in diameter, depending on their height above ground. An artillery star shell illuminates the ground for 30 seconds over a circle 500 to 1,500 meters in diameter. Illuminating cartridges with a range of 200 to 250 meters burn for seven seconds and illuminate an area with a diameter of 200 to 240 meters.

NIGHT OPERATIONS FACTORS

Distances at which light sources can be observed at night with the naked eye:

Source	Distances up to
Vehicle Headlights	4–8 km
Muzzle flashes from single cannons	4–5 km
Muzzle flashes from small arms	1,500–2,000 m
Bonfire	6–8 km
Flashlight	1,500–2,000 m
Lighted match	1,500 m
Lighted cigarette	500–800 m

NOTE: For aerial observation, increase distances two to three times.

Distances at which sounds are audible to man at night in open areas:

Source	Distances up to
Cannon fire	15 km
Single shot from a rifle	2–3 km
Automatic weapons fire	3–4 km
Tank movement, dirt road	1,200 m
Tank movement, paved road	3–4 km
Wheeled vehicle movement, dirt road	500 m
Wheeled vehicle movement, paved road	1,000 m
Movement of troops on foot, dirt road	300 m
Movement of troops on foot, paved road	600 m
Small arms loading	500 m
Metal on metal	300 m
Conversation of a few men	300 m
Steps of a single man	40 m
Axe blow or sound of a saw	500 m
Blows of shovels and pickaxes	1,000 m
Screams	1,500 m
Oars on water	2,000 m

COMBAT FIELD COMMON SENSE

This last section basically deals with combat proven field tips that can keep you alive and functioning in any situation. They are by no means all-inclusive, and must be added to as experience is gained.

Team integrity is a must. The more time a team spends together the more likely they will be to develop a sixth sense which can frequently mean the difference between success or failure. Team members should be within visual observation of each other at all times for mutual support and stealth.

Take nothing for granted, and always look for the ruse or trap. Always stay alert, be cautious and curious. Be constantly aware of available cover and concealment. Watch for tracks and signs of possible enemy presence. Try to put yourself in your enemy's place and guess his actions before he does. All information must be carefully weighed and evaluated by the team leader throughout the mission. Even the hunch of one member of the team must never be brushed off; he may have a superior instinct for sensing a situation. Never assume your enemy is careless. He may simply be baiting a trap by seeming so. The team must always move and function as if detection by the enemy may have already occurred, and should take the necessary precautions to avert surprise.

Become as wily and cunning as any guerrilla soldier. Develop a sixth sense for finding that one opening in the enemy's security net that allows you to penetrate his area or escape capture. You must be able to find that hole and take advantage of it silently.

Never do the obvious. Use your imagination and outsmart the enemy. Never set a pattern; be unorthodox. Don't allow the enemy to guess your next move.

Always know where you are. Periodically stop and check the actual coordinates. This will allow you to call in your exact location quickly if the need arises. Know the terrain in your AO. Memorize as much as you can about the area during the map study prior to deploymant and the visual recon if conducted prior to infiltration.

Use tree roosts. Properly selected and well sited, they make excellent observation points when no other alternative exists, and can also be useful in obtainiug a navigational fix on key terrain. In the tall bush, jungles, and tropical forests of Vietnam the NVA and VC made effective though infrequent tactical use of tree roosts, as did the Japanese in World War II. The upper branches serve well for observation, while the lower limbs can offer effective sniper platforms.

Fire discipline. Although this should be an obvious area of concern due to the difficulty of resupply, it nevertheless must always be stressed and reinforced. The LRP team must learn to avoid firing their weapons, using explosives, or employing other munitions except as a last resort. This can be further stressed by requiring a complete accounting upon return from the mission, with an accompanying explanation regarding expenditures. However, use caution in doing this, and do not try to second guess the leader on the ground. Rather, try to determine if the expenditures were reasonably justified.

Booby traps. Refrain from emplacing booby traps around a position you will be occupying. Although on initial thought they may sound useful, you automatically lose your control over their employment. A small patrol walking into it may be all right, but what if it turns out to be a company? If the enemy finds a booby trap it automatically announces the presence of a opponent in their area.

OBSERVATION AND SECURITY

Maintain 360 degree observation around the team's location or route of march at all times. Overlapping visual scans from tree top to ground level are a must.

If personnel are having difficulty staying awake, have them assume a kneeling, squatting, or sitting position to help maintain alertness. Provide as much sleeping and resting time as the mission permits.

If required to link up with friendly agents, guerrillas, or partisans, never take the entire team into view. Have one man go forward to make contact while the rest of the team provides cover.

Never run or turn your back on the enemy, except when performing an immediate action drill. Return fire and back off.

Do not request a fix from an aircraft unless absolutely necessary. Doing so could compromise your position. Notify aircraft before firing a pen gun flare overhead; they resemble a tracer. Never fire them directly at the aircraft. When using smoke grenades to mark your position, violet smoke is easier to see. Always have the pilot identify the color of your smoke after it has been thrown. If the enemy is monitoring your transmissions, he may pop the same color if you announce it beforehand. Let the pilot tell you what the color is; that way, even if the enemy overhears, your position has already been pinpointed by the pilot.

Never send "same" or "no change" when reporting your position. Always send the exact coordinates to ensure they have your correct location.

Maintain absolute noise discipline; avoid talking, snoring, undue movement, rustling vegetation, splashing during water crossings, rattling equipment, and so on. Use silent hand and arm signals for such things as short halt, long halt, eating, freezing in place, taking cover, forming hasty ambush right or left, taking prisoners, direction of movement, and assigning observation sectors. These are just a few of those possible, but require practice and rehearsal to achieve successful use. If you must cough, cough into your hat or a handkerchief to help smother the noise, or do it when an aircraft passes overhead. If a team member coughs or talks in his sleep, it may be necessary to gag him to avoid detection. Always force yourself to cough and clear your throat whenever an aircraft does pass overhead; it will help ease tension and clear your throat when it cannot be heard.

Be alert to odor security; tobacco, passing gas, stools, urine, food, after shave, soap, medications, and so on. Smoking should normally be forbidden during operations. The smell can carry to the enemy, and smoking tends to make the sense of smell less acute.

Enforce light security. Cover shiny objects and shade glasses, flashlights, and matches. Avoid exposing luminous watches at night.

Maintain police security over trash, broken twigs, leaves, disturbed ground. During breaks or rest stops never leave any trash on the ground. Always secure trash in your rucksack.

TIPS FOR THE TEAM LEADER

1. Always take your time and think; tired men get careless. Keep control.
2. If you show confidence, your team will have confidence.
3. Don't be afraid to take advice.
4. Always have an alternate plan; think ahead.
5. Losing your temper will affect judgment and reactions; keep your cool.
6. Constant training and practice result in success in combat.
7. Realism must be injected into training whenever possible.

8. Teamwork is a major key to success.
9. A good physical training program results in fewer illnesses and injuries, and increases field endurance.

15 Operations Scenarios

INTRODUCTION

I have left some of the more intriguing, and hopefully thought provoking, ideas for the last. Of course, having gotten to this point in the book will also allow a better understanding and appreciation of the hypothetical situations presented in this chapter, and the missions proposed as the counter.

Virtually everything I have discussed up to this point supports or provides clarification of each scenario. I have refrained from going into excessive detail in an effort to keep each one short and to the point. To aid in simplicity, clarity, and organization, each scenario will follow a standard operations plan format, although rather loosely.

If the ideas presented in this chapter, or the other fourteen, should in any way influence military operations, result in some future operation being executed in a more successful manner than it otherwise would have, or perhaps even save a life, then my efforts have been rewarded. I hope you have enjoyed reading this book as much as I have enjoyed writing it. If you should have suggestions or ideas for improving what is already here, please send them to the publisher who will forward them to me. I plan to update and improve on this initial effort in the years ahead.

OPERATION "EAGLE'S CLAW"

OPERATION "EAGLE'S CLAW"

Operation Order Number 1, Anti-Drug and Smuggling Task Force (Peacetime)

TASK FORCE ORGANIZATION

Task Force Headquarters:

Headquarters, Third Army

Operational Units:

- Hqs, 4th Ranger-LRP Battalion, LRP SO RGR Regt., Army
- Company A, Ranger-LRP (Reconnaissance)
- Company F, Ranger-LRP (Reconnaissance)
- Company H, Ranger-LRP (Riverine)
- Company K, Ranger-LRP (Reconnaissance)
- Company N, Ranger-LRP (Reconnaissance)
- 1st, 3rd, 6th, and 8th Air Cavalry Squadrons, Army
- 2nd Cavalry Squadron (FAV), Army
- 5th Military Intelligence Company (Provisional), Joint
- 1st Surveillance Battalion (Provisional), Joint
- 321st Patrol Boat Squadron, Navy
- 2d Squadron, Coast Guard
- 541st Special Reconnaissance Squadron, Air Force
- 1st MP Security Battalion (Provisional), Joint
- Special Unit, Federal Drug Enforcement Agency and FBI

Situation

Drug and other illegal smuggling operations have been on the increase over the last few years. Although local and federal law enforcement agencies have steadily increased their interception of smugglers, indications are that the smugglers' efforts have increased to the point where the law enforcement elements are unable to effectively intercept the majority of the smuggling missions.

The criminal organizations involved are large, well financed, and ruthless. Evidence has shown that they will stop at nothing to continue and increase their operations. They are frequently well armed, and tend to open fire without warning even in the vicinity of innocent bystanders. They have resorted to extortion, murder, and kidnapping to further their goals, and will undoubtedly continue to do so in the future. In some instances these criminal organizations are known to be aligned with and supported by terrorist and guerrilla elements.

All elements involved will be attached to the Task Force Headquarters for operational control for the duration of the operation. Local law enforcement agencies will provide liaison officers and assistance as needed through the Special Unit, DEA and FBI.

All operational field personnel will undergo special training in apprehension, search, seizure, and the use of force in a law enforcement environment by special training teams to be provided by the DEA-FBI Special Unit. This training will take place ________________________________.

Mission

The mission of the task force will be to locate, intercept, and apprehend or engage any criminal elements found to be conducting smuggling operations or illegal passage of national borders anywhere within the operational area.

Execution and Concept of Operation

All available means of reconnaissance, surveillance, and target acquisition available to the elements of the task force will be used to accomplish the mission. LRP elements and air-, ground-, and waterborne surveillance elements will conduct both stationary and mobile reconnaissance operations to locate and identify mission targets. Air, ground, and water lift elements will respond to any sightings with sufficient forces to intercept and apprehend or engage any targets sighted. A federal or local law enforcement official will accompany the responding forces whenever possible.

Rules of engagement are designed to protect uninvolved parties. Due to the nature and location of the operation, the utmost care will be taken to avoid the endangerment of innocent bystanders. Reconnaissance and surveillance efforts must be honed to the finest point of perfection to avoid the detainment or interception of innocent persons. However, if any doubt should exist as to the nature of their activities, they will be intercepted.

Sightings and intelligence information must be reported immediately.

Each LRP company will be paired up with an air cavalry squadron for operational employment within their assigned operational area. The air cavalry elements will provide insertion and extraction support and reinforcement capability within their assigned assets. Due to the low threat, three-man stationary hide teams will be used. However, the LRP unit commanders have the option of employing their standard six-man teams if desired. Air cavalry elements will conduct air scouting operations within their assigned operational area and respond to all sightings.

The 2nd Cavalry Squadron (FAV) will conduct mounted patrols in the desert region west of Timbuktu, and will coordinate all operations with Company A, Ranger-LRP, and the 1st Air Cavalry Squadron, which will also be conducting operations in the area.

The 321st Patrol Boat Squadron, and Company H, Ranger-LRP (Riverine), will conduct small patrol and surveillance activities in the swamp and marsh area southeast of Tinseltown, supported by the 3rd Air Cavalry Squadron.

The 2d Squadron, Coast Guard, and the 541st Special Reconnaissance Squadron, Air Force, will conduct coastal surveillance throughout the region, out to a distance of 50 miles, and respond to water surface sightings by LRP elements deployed in coastal surveillance hides.

The 1st MP Security Battalion (Provisional), will establish traffic control and checkpoints throughout the operational theater in support of the DEA-FBI Special Unit and local law enforcement agencies. Vehicles will be searched at random, using one of two techniques: every eighth vehicle, or in groups of five vehicles for every forty passing the checkpoint. All suspicious vehicles will be searched. All occupants will be required to submit to a strip search when probable cause exists.

The 5th Military Intelligence Company (Provisional), will provide assets to support DEA-FBI Special Unit surveillance efforts, and process all intelligence reports.

The 1st Surveillance Battalion (Provisional), will establish STANO and radar surveillance positions in support of all committed elements. Requests for support will be submitted to the Task Force G-2 for processing.

The Special Unit, Federal Drug Enforcement

Agency and FBI, will work closely with all elements and local law enforcement agencies. They will conduct undercover investigations and surveillance operations to support the overall operation, and will coordinate their efforts with the Task Force G-2.

Although most operations will be high visibility, the Special Unit and all LRP teams will utilize maximum stealth, concealment, and deception efforts to mask their operations. All task force elements must ensure that their operations do not jeopardize their efforts.

OPERATION "CLEAN STRIKE"

Situation

Elements of the "People's Revolutionary Brigade" insurgent group and the "Red Fist" terrorist organization are known to be infiltrating and conducting operations along the southern seacoast on a routine basis. They normally operate in small cells of less than six members, and are normally found wearing a mixed uniform of military and civilian clothing. They are all armed, and will fight if located. Their weapons include assault rifles, light machine guns, submachine guns, and pistols. They have been known to carry grenades, Claymore-type mines and explosives. It is suspected that they are maintaining clandestine bases in the dense jungle along the coast.

The local population generally does not support either group, and has been extremely free with providing information to support internal security operations. In most instances they can be relied upon to support operations.

The coastal area, to a depth of five miles, and within one mile of any city, has been sealed off, to the greatest extent possible, by local police and the 5th Military Police Group. A 24-hour-a-day curfew is in effect throughout the operational area. Personnel granted temporary passes to travel through the area are required to remain on the main highway, and must be out of the restricted area between the hours of 0800 to 1800.

The 5th MP Group will be restricted to highway and city operations for the duration of the operation, and will only leave those areas when requested to respond to a task force sighting.

Mission

The mission of the task force is to locate and capture or eliminate the members of the "People's Revolutionary Brigade" insurgent group and the "Red Fist" terrorist organization, and to destroy any facilities, equipment, or base areas suspected of belonging to either group. Prisoners will be taken when they surrender; however, special efforts will not be taken to capture personnel if it should endanger the safety or security of task force members.

Execution and Concept of Operation

The LRP elements, supported by the 1st Air Cavalry Squadron, 321st Patrol Boat Squadron, and the 1st Surveillance Company (Provisional), will conduct reconnaissance and strike operations throughout the operational theater. All other operations will be developed around the LRP missions and the intelligence data they acquire.

Company H, Ranger-LRP (Riverine), 1st Ranger-LRP Battalion, will conduct river and swamp patrols in Sector Tango, supported by the 321st Patrol Boat Squadron and Troop A, 1st Air Cavalry Squadron.

Company L, Reconnaissance, 1st Ranger-LRP Battalion, will conduct operations in Sectors Charlie, Victor, and Bravo, supported by Troops B and C of the 1st Air Cavalry Squadron and the 1st Surveillance Company (Provisional).

The 2d Coastal Patrol Squadron and 121st Special Operations Wing will conduct interdiction, patrol, and reconnaissance operations from the shoreline out to a distance of 50 miles along the

---

OPERATION "CLEAN STRIKE"

Operation Order Number 2, Coastal Interdiction Task Force (Low-Intensity)

TASK FORCE ORGANIZATION

Task Force Headquarters:
- Headquarters, Second Coastal Fleet

Operational Units:
- Company H (Riverine), 1st Ranger-LRP Battalion, Army
- Company L (Reconnaissance), 1st Ranger-LRP Battalion, Army
- 1st Air Cavalry Squadron, Army
- 1st Surveillance Company (Provisional), Joint
- 321st Patrol Boat Squadron, Navy
- 2d Coastal Patrol Squadron, Navy
- 121st Special Operations Wing, Air Force

---

entire operational area's coastal boundary. They will respond to water surface sightings reported by LRP coastal surveillance hide teams.

All intelligence information and sightings will be reported to the task force G-2 immediately. Requests for mission support from the 1st Surveillance Company will be submitted to the G-2 for clearance.

OPERATION "NOBLE STRIKE"

Situation

Within the operational area are located the 114th, 28th, 72nd, and 43rd Battalions of the insurgent army. The 5th Regiment is also suspected of operating and/or moving through the northwest sector of the area. The enemy is operating in squad and platoon size elements, with occasional company sized operations conducted against military and government outposts.

They are generally well armed with communist bloc weapons, but will generally only carry light weapons. They seldom stand and fight, and will normally try to break contact and leave the area as soon as possible. The only exception will be major base camps where they have been known to defend in up to company strength in the past. Their operations currently consist of attacking or harassing isolated villages and outposts with attacks in platoon to company strength.

Sector Alpha in the operational area is suspected of being a major infiltration route through the area. The local civilian population is friendly, but leary of supporting either side actively. Other than task force elements, no friendly forces will be operating in the assigned operational area.

Mission

The mission of the task force is to locate, engage, and destroy insurgent army elements located in the operational area, and provide security and civilian affairs assistance to the local population.

Execution and Concept of Operation

Company I and Company G, Ranger-LRP, and the 7th and 9th Air Cavalry Squadrons will conduct reconnaissance and strike operations throughout the operational area. Their primary task will be to locate and engage the insurgent army's forces. The LRP elements will conduct area saturation missions with air cavalry support. Both air cavalry squadrons will maintain hunter-killer teams on station at all times in cleared operational areas.

The 3rd Infantry Battalion (Mechanized) and the 33rd Military Police Company will be responsible for maintaining transportation, base, and village security within the operational area. Both units will conduct mounted road patrols on a routine basis.

The 14th Infantry Battalion (Airmobile) and the 24th Composite Field Artillery Battalion (T) (105/155mm), will provide tactical combat support and reinforcement capability for the task force. They will maintain forward fire support bases as needed to support LRP operations.

The 512th Special Operations Wing, Air Force, will conduct air interdiction and CAS missions in support of all task force elements, with mission priority granted to deployed LRP teams except in immediate threat situations. At least one AC-130 gunship will be maintained on station at all times, and when not supporting an ongoing operation will engage targets of opportunity in designated fire zones.

The Special Forces detachment, 581st Medical Company (Field), 29th Civil Affairs Company, and

---

OPERATION "NOBLE STRIKE"

Operation Order Number 3, Counterinsurgency Task Force (Low-Intensity)

TASK FORCE ORGANIZATION

Task Force Headquarters:
- Headquarters, III Corps

Operational Units:
- Hqs., 6th Ranger-LRP Battalion, LRP SO RGR Regt.
- Company I, Ranger-LRP
- Company G, Ranger-LRP
- 7th and 9th Air Cavalry Squadrons
- 3rd Cavalry Squadron (FAV)
- 4th Military Intelligence Company
- 3rd Surveillance Company
- 512th Special Operations Wing, Air Force
- 581st Medical Company (Field)
- 33rd Military Police Company
- 29th Civil Affairs Company
- Company C, 43rd Engineer Battalion
- 24th Composite Field Artillery Battalion (T) (105/155mm)
- 298th Helicopter Battalion
- 14th Infantry Battalion (Airmobile)

Company C, 43rd Engineer Battalion, will conduct area stability operations throughout the operational area. Their efforts will be directed towards assisting, winning over, and securing the local population. The 3rd Infantry Battalion (Mechanized) and the 33rd Military Police Company will provide security assistance as required.

The 299th Helicopter Battalion will provide tactical, logistical, and administrative airlift support for all task force elements, and will maintain a standby element for reaction force use as required.

The 3rd Surveillance Company will establish surveillance positions as requested by task force elements. Mission priority will go to the LRP elements. Requests for mission support will be submitted to the G-2.

The 4th Military Intelligence Company will provide intelligence support through the G-2 and conduct counterintelligence and intelligence operations throughout the operational area. Their priority mission will be to establish a viable agent net within the operational area.

OPERATION "STING"

Situation

Enemy forces are conducting offensive and defensive operations, to include deep thrusts using armor-heavy forces throughout the operational theater. They have substantial air defense capability within most areas, and have been able to maintain almost total air superiority in Sectors Delta and Echo. Their rear area is generally secure; however, they are seriously overextended in Sectors Golf and Hotel. Intelligence reports indicate that their rear area security patrols are generally efficient, but frequently are lax in operational security measures. Their operational airfields are widely dispersed in field locations with infantry units providing perimeter security. Convoy routes are provided only light security.

The civilian population is ripe for exploitation, and are highly supportive of friendly forces. The enemy has been oppressive as an occupation force. The local population can generally be relied upon to provide assistance to downed fliers and isolated friendly forces. The A-31 Operational Detachment of the 7th Special Forces has successfully established an evasion and escape net within the operational area, and is currently advising a resistance force estimated to number 800-900 personnel, based in Sector H.

The 3rd Division is currently conducting static defensive operations in their sector, and have experienced only light action over the last ten days. Elements of the division are slated to reinforce the 8th and 10th Divisions for a deep attack in the next ten days. The 8th and 10th Divisions are currently opposed by only light enemy forces. We have overall air superiority, and the 1st Airborne is available for offensive operations along with the 3rd Ranger Battalion (Light Infantry).

The weather has been generally favorable to air and ground operations for the last six weeks, and is forecast to continue for at least another two weeks.

Mission

The mission of the 7th Ranger-LRP Battalion will be to provide long range reconnaissance and strike support for Ninth Army forces for the next three weeks. LRP elements will provide deep STANO, area reconnaissance, and strike operations in direct support of designated units.

Execution and Concept of Operation

Headquarters, 7th Ranger-LRP Battalion, will serve as the planning and control headquarters for all LRP operations under direct supervision of the Ninth Army G-3. Operations will be coordinated with the G-2 to ensure that they support the overall

OPERATION "STING"

Operation Order Number 4, LRP Force Deployment (Mid- to High-Intensity)

TASK FORCE ORGANIZATION

Operational Control Headquarters: Ninth Army

Operational Units:

- 7th Ranger-LRP Battalion, LRP SO RGR Regt.
- 1st Platoon, Company C, Ranger-LRP (Fast Attack Vehicles
- 2nd Platoon, Company C, Ranger-LRP (Motorcycle)
- Company D, Ranger-LRP (Sniper)
- Company K, Ranger-LRP (Reconnaissance and Strike)
- Company P, Ranger-LRP (Reconnaissance)
- 17th Air Cavalry Squadron
- 1541st Special Operations Squadron, Air Force

intelligence acquisition effort.

1st Platoon, Company C (Fast Attack Vehicles) will conduct deep reconnaissance and strike operations in the desert area located along the southern flank. Particular attention will be given to striking isolated airfields and logistics positions.

2nd Platoon, Company C (Motorcycle) will operate in conjunction with the 1st Platoon, Company C, but will deploy teams to shadow enemy motorized and mechanized forces within the sector.

Company D (Sniper) will deploy one platoon to the 10th Division and one platoon to the 8th Division to provide sniper capability. One additional platoon will be committed to conduct deep penetration sniper missions in Sectors Golf and Hotel. Operations in Sector Hotel will be condncted in support of the Special Forces operational detachment.

Company K (Reconnaissance and Strike) will conduct intensive strike and reconnaissance operations throughout Secter Golf, with emphasis in disrupting troop movements, destroying equipment, and generally disrupting their lines of communication. Airfields and air defense artillery positions will be considered priority targets.

Company P (Reconnaissance) will provide two platoons to perform an economy of force mission in support of the 3rd Division. Primary emphasis will be on short-range patrols to support their reinforcement of the 8th and 10th Divisions. The third platoon will be placed in direct support of the planned deep assault by elements of the Ninth Army. The third platoon will also function as the pathfinder element for the 1st Airborne and 3rd Rangers during the deep assanlt.

The 17th Air Cavalry Squadron and 1541st Special Operations Squadron, Air Force, will fly dedicated support for all LRP operations. Mission planning, coordination and clearance will be handled by the Ranger-LRP Battalion S-3.

OPERATION "EAGLE LIFT"

Situation

While on a rontine operation LRP Team 28 located an enemy POW camp in a well-concealed site 30 kilometers north-northeast of our current defensive line. The camp is estimated to contain approximately 125 to 150 prisoners, and is currently beiug guarded by a company size force with a tank platoon in support.

OPERATION "EAGLE LIFT"

Operation Order Number 5, Raid (Mid- to High-Intensity)

TASK FORCE ORGANIZATION

Operational Units:

Hqs, 1st Ranger-LRP Battalion, LRP SO RGR Regt.
1st Platoon, Company B, Ranger-LRP
1st Air Cavalry Squadron
5th Special Forces, A-51 Operational Detachment
3rd Ranger Battalion (Light Infantry)

Mission

The mission of the task force will be to conduct a deep raid to free the prisoners and return them to friendly lines.

Execution and Concept of Operation

Headquarters, 1st Ranger-LRP Battalion, will function as the task force headquarters, with all elements placed under their direct operational control. Initial deployment of the first elements will be accomplished no later than 2400 hours tonight, with the raid to be conducted within the next seven days.

The 1st Platoon, Company B, Ranger-LRP, will immediately deploy one surveillance team to maintain observation of the camp from the south side while LRP Team 28 remains in position on the north side. Additional teams will be deployed as follows:

- One team will deploy as a pathfinder element, locate and prepare a suitable drop zone for use by the 3rd Ranger Battalion.
- Four teams will deploy to block likely avenues of approach to the camp, and will take action to block those routes and prevent enemy reinforcement once the raid gets underway. Dedicated air snpport will be available for their use in this effort.

The 1st Air Cavalry Squadron will provide dedicated air support for the duration of the operation, and will establish a continuous air umbrella in and around the camp as the raid commences, and until evacuation of all personnel has been completed.

The 5th Special Forces A-51 Operational Detachment will provide additional blocking forces and diversionary actions in the area through the use of local resistance forces. They will also provide assistance for any downed aircraft. The 3rd Ranger Battalion (LI) will provide a reinforced company to conduct the actual raid, and will maintain the remainder of its force in reserve.

Dedicated tactical air support, to include air interdiction, CAS, and tactical airlift will be available for all elements.