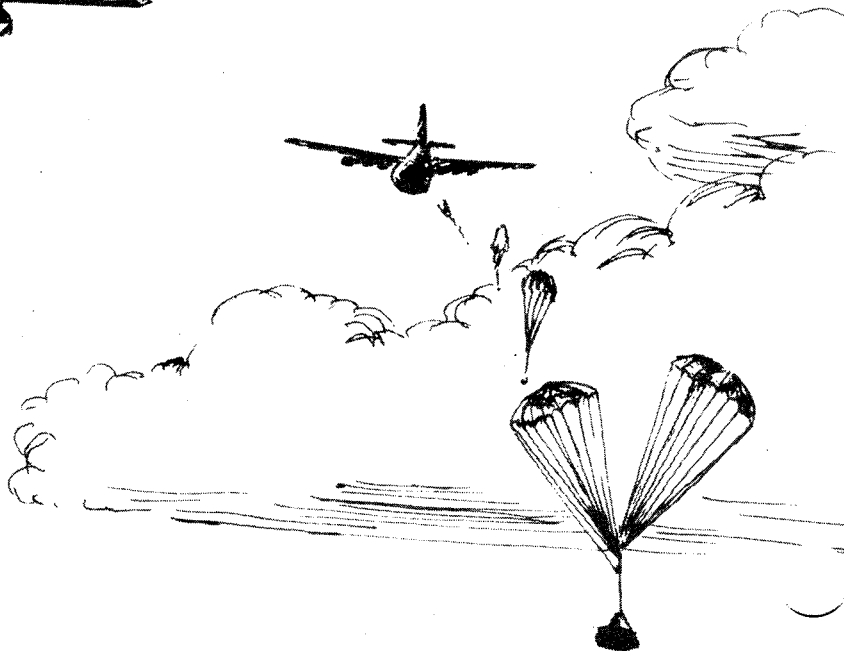
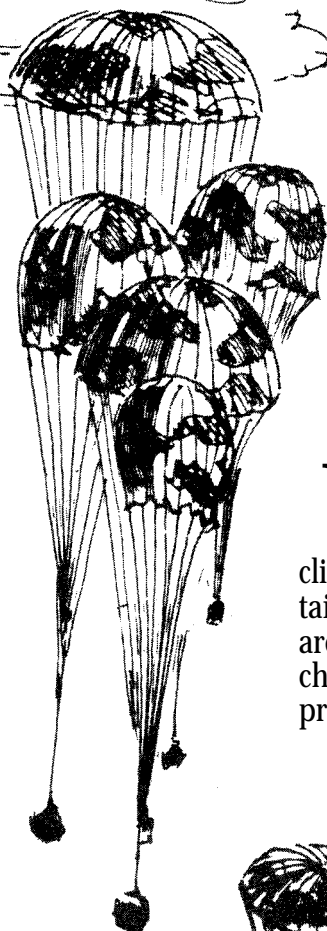
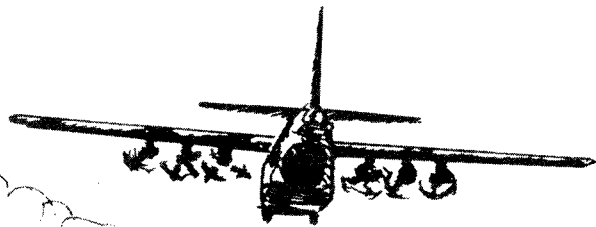


Chapter 8

CONSIDERATIONS FOR SPECIAL OPERATIONS



United States forces prepare to operate in any part of the world as directed by the national command authority (NCA). The area of operation may contain terrain or climate extremes. Engineers must be prepared to support forces tailored to accomplish specific missions. Engineers bring to this arena capabilities that are essential to battlefield success. This chapter outlines four special operations and discusses the preparation and problems of each one.

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SUPPORTING LIGHT FORCES

Light forces include infantry, airborne, air assault, ranger, and special forces units. Engineer support to these forces will be extremely important, particularly against an armor heavy enemy having equal or superior mobility. Countermobility support will normally have the highest priority among engineer tasks. Well-planned, coordinated, and rapidly-emplaced minefields and obstacles can offset enemy advantages.

Light forces are designed, organized, and equipped for air deployment and therefore have great strategic mobility. Engineer units organic to light forces are similarly organized and equipped. Generally, engineer equipment in light forces is smaller, lighter, and designed to support the specific missions of light forces.

INFANTRY

The infantry division is most effectively employed in urban areas, mountains, jungles, and other terrain favoring dismounted operations. The infantry division is organized without heavy weapon systems and requires increased support when facing a force more heavily equipped. Countermobility support can help to offset the advantage of an opposing mechanized force. Early identification of enemy avenues of approach and existing obstacles is extremely important in infantry operations. The infantry division is not highly mobile and depends upon a carefully prepared battle plan on terrain that has been well analyzed and reinforced.

Initially, a good defensive location must be selected and obstacles sited to close high speed armor approaches and create killing zones. Obstacle locations must support battle positions and be placed in range of direct fire antiarmor weapons. Depending upon the terrain, all types of reinforcing obstacles could be selected. Extensive use will be made of conventional minefields. These obstacles should be emplaced as early as possible. It is

not necessary to have battle positions occupied prior to obstacle emplacement. During the battle, scatterable mines should be used on targets of opportunity and also to enhance the stopping power of other obstacles such as tank ditches and road craters.

AIRBORNE

Airborne forces have the greatest strategic mobility of any US combat force. Once deployed, their tactical mobility is limited and they are vulnerable to ground attack by tank or motorized units. Engineer units supporting airborne forces are light and do not have the digging and earthmoving capability of other engineer units.

Upon landing, the first priority of airborne forces is to secure the airhead. Rapid obstacle construction is required. Demolition type obstacles and rapid mining using conventional or scatterable mines will be the initial countermobility requirement. High speed armor approaches are cut or mined and have the highest priority. Demolitions and mines will be limited and every effort must be made to insure that their expenditure will inflict damage to the enemy. Maximum use should be made of local equipment and materials. Obstacles must be covered by antitank fires and employed in depth. Survival of the initial force is critical. Well-planned and rapid countermobility effort will be a significant factor.

As the airhead is secured, more intensive obstacles can be planned and constructed.

AIR ASSAULT

Air assault operations play a major role in either offensive or defensive operations. The ability to quickly mass or disperse forces provides the commander with considerable flexibility. Air assault operations are characterized by careful planning and deliberate, bold, and violent execution.

Like the airborne force, the air assault force is vulnerable to attack by enemy motorized and tank forces. But the battle is very different. Air assault engineers emplace obstacles to give maximum time for antitank weapons engagement. Often, engineer supplies are limited and must be airlifted to the work site. Countermobility is normally the highest engineer priority. The distinction between offense and defense is never particularly clear in air assault operations. Ordinarily, the division is fighting in a large area and can choose optimum terrain for ground battles that focus on enemy units. Obstacles are used to create killing areas. Usually, the ground units shoot from restrictive terrain into trafficable corridors where the obstacles are specifically sited to enhance killing. Other

obstacles are sited for close-in protection of ground units and to facilitate disengagement. Engineers accompany raids to establish obstacles and battle positions that isolate the enemy unit being destroyed. Other pure engineer insertions install obstacles to support attack helicopter and tactical air kill zones. As combat power is quickly concentrated on the enemy unit, engineer demolition teams are used to complete the annihilation of the enemy force. Air assault combat power in the area then evaporates to other places of lesser vulnerability while major obstacles (such as big bridges and tunnels) that were closed early prevent enemy pursuit. Because withdrawal is by air, the need for reserve targets is minimal.

SPECIAL TERRAIN ENVIRONMENTS

Unfamiliar environmental conditions can severely affect engineer operations. Although engineer units are equipped for employment within a wide range of conditions, environmental extremes usually require specialized techniques, procedures, and equipment. The engineer, as an integral part of the combined arms team, takes on added significance in extreme environments. As the maneuver commander's terrain experts, engineers must fully understand and use the special advantages and disadvantages that such environments provide for countermobility. There are five special terrain environments encountered in areas of US strategic concern today:

- 1 Mountains.
- 2 Jungles.
- 3 Deserts.
- 4 Cold climates.
- 5 Urban terrain.

1 Mountains. Obstacles are particularly effective in mountainous terrain, since bypass is very difficult. Properly placed and covered by fire, obstacles can serve as a decisive force multiplier by making approaches and key routes impassable. An ADM which is detonated to destroy a mountain tunnel or close a high pass could close off an area to vehicular traffic for months.

Both antitank and antipersonnel mines are best laid along the relatively narrow approaches suited for vehicular movement. In mountainous terrain, scatterable mining is used more frequently than conventional mining. The use of scatterable mines should be considered as a means to conserve engineer resources and preserve the flexibility of the maneuver commander when short duration minefields are required. Artillery and air delivered mines are especially useful in delaying second echelon forces moving through mountains.

Other types of obstacles can also be used such as road craters, log cribs, and abatis. Destruction of bridges and creation of landslides to block routes are other possibilities. Together with the natural ruggedness of mountains, obstacles can be effectively employed to deny the enemy terrain, and delay and impede his movement. They are sited by the maneuver forces commander in coordination with available weapon systems and restrictive terrain.

2 Jungles. A jungle is that area within the humid tropics with a dense growth of trees and other vegetation. Vegetation in jungle areas includes lowland and highland tropical rain forests, dry deciduous forests, secondary growth forests, swamp forests, and tropical savannas. The difficulty of movement through jungle growth impedes military operations. Visibility is usually less than 30 meters. Good roads are rare and usually are narrow, winding, and incapable of supporting sustained military traffic. As the jungle itself is an effective obstacle to vehicles, reinforcing obstacles are normally confined to roads, trails, and patches of cleared ground. Anti-personnel mines are effective in jungles because of the large amount of dismounted movement. Antipersonnel mines can be effectively employed to delay, stop, and canalize the enemy, and to serve as warning devices.

The jungle lends itself to the use of mines and booby traps. The characteristics of the jungle cause emplacement to be comparatively easy and detection to be extremely difficult. Because mines have a tendency to shift during heavy rains, they must be securely implaced.

3 Deserts. The key to successful execution of the engineer countermobility role in desert operations is mobility. Engineers must move about the battlefield responding to mission requirements in a

timely manner. Due to the mobility inherent in desert operations, obstacles must be extensive and used in conjunction with each other and any existing obstacles. Isolated obstacles are bypassed easily.

The primary means of creating obstacles in the desert is through mine warfare. Mines, both conventional and scatterable, will be used to—

- Deny terrain.
- Delay and disrupt enemy movements.
- Interdict reinforcing echelons and reserves.
- Protect flanks and rears.
- Isolate an objective.
- Disrupt threat retrograde.

Mines are easily emplaced in a sand desert where blowing sand will effectively conceal evidence of emplacement. However, the following potential problem areas must be considered:

- Large quantities of mines are required for effectiveness.
- Sand can cause malfunctioning.
- Shifting sand can cause mine drift.
- An excessive accumulation of sand over the mines can degrade performance.
- Sand may be blown away, thus exposing the mines.
- Minefield marking may be counterproductive.

Scatterable systems will be heavily relied upon in deserts because of the many advantages they offer. Scatterable minefields—

- Can be rapidly and remotely emplaced.
- Reduce engineer effort.
- Preserve maneuver flexibility for friendly forces by self-destructing.

Conventional mining will also be used to establish desert strongpoints and to mine roads and trails.

Many desert villages depend on irrigation canals. These canals, when tied in with other obstacles, are effective in halting armor. In suitable terrain, antitank ditches that exceed the vertical step of enemy main battle tanks may be used. Because antitank ditches cannot be concealed, they must be dug so they do not outline a defensive front or flank. They have the advantage of not requiring as much logistic support as minefields. They must be covered by fire and mined to prohibit their use by enemy infantry as ready-made trenches.

4 Cold climates. In planning obstacles under cold climate conditions, several factors which complicate engineer tasks must be taken into consideration:

- Extreme and rapid temperature changes.
- Wind, snow, and ice storms.
- Alternate thawing and freezing.
- Terrain features such as mountains, tundra, and muskeg.
- Flooding.

More time must be allowed for preparation of obstacles systems in cold temperatures due to

decreased efficiency of personnel and equipment, and increased travel times.

Both antitank and antipersonnel mines are adaptable to cold climate operations. If pressure type mines are used, solid support for the mines is necessary; otherwise, when pressure is applied, they will sink in soft snow. If mines are buried too deeply in snow, it is possible that detonation will not occur because moisture may freeze and hinder the working parts. In snow-covered terrain, mines can be painted white for camouflage.

When using conventional antipersonnel mines, tripwire firing systems are most effective. Tripwires should be placed at various levels above the snow. Arming large quantities of conventional mines can be a difficult task in cold weather. On scatterable antipersonnel mines, snow may cause tripwires to malfunction. All mines can be placed on ski or snowshoe trails, but winter storms can cover or expose them.

In summer, the thousands of lakes, rivers, and swamps of the cold climate regions provide formidable obstacles to armor and personnel. In winter, when these bodies of water are frozen to sufficient depth, they provide excellent avenues of approach. A frozen body of water may become an effective obstacle by using explosives to break the ice. In blasting, the explosive is placed under the ice to take advantage of the excellent tamping effect of water. Holes are cut or blown in the ice by explosives, and the charges are held in position under the ice by bridging the holes with poles.

Existing obstacles in cold climates often need very little reinforcing. For example, snow-covered or icy slopes can seriously impede troops and vehicles; fallen trees covered with snow can delay troops on skis or snowshoes; avalanches make excellent obstacles for blocking passes and roads. Avalanches

hinder friendly forces as well as enemy forces, but in some cases likely locations for avalanches can be predicted. By artificially inducing the avalanche, it is possible to cause the slide at the desired time.

There are many types of reinforcing obstacles which are appropriate for winter use. Barbed wire normally employed makes an effective obstacle in soft, shallow snow. Concertina wire is another quick way to improve snow-covered obstacles. Triple concertina is especially effective since it is easy to install. Along trails, roads, and slopes, abatis can cause much trouble for skiers and vehicles. Obstacles can be formed by pumping water on road grades; the ice that results will seriously hamper vehicular traffic.

5 Urban terrain. Unlike deserts, mountains, and jungles, which confront the engineer with a limited variety of fairly uniform recurring terrain features, the urban battlefield is an ever-changing mix of natural and man-made features. Operations in urban areas restrict maneuver and are time-consuming, but they will be difficult to avoid because of the expanding urban belts in many industrialized countries. Tactical doctrine stresses that urban combat operations are conducted only when required, and that built-up areas are isolated or bypassed if possible.

A built-up area compares closely with a fortified area because it provides an environment which is easily converted to a fortified area. For these reasons, conditions favor the defender. Ready-made strongpoints exist with good cover and concealment. The attacker is easily canalized and surprised. Fields of fire and observation are dramatically reduced. Units in urban areas are vulnerable to nuclear and chemical attack because of the relative lack of dispersion and mobility.

Obstacles must be planned in depth, starting well forward of the urban area to delay and canalize the threat force. Possibilities for obstacles are unlimited in urban terrain. The objective will be to deny the enemy freedom of rapid advance through the built-up area. Obstacles, covered by fire, will accomplish this. Mines, wire, craters, and rubble all create effective obstacles. Streets are barricaded to halt tanks at the optimum range of antitank weapons. As enemy vehicles are disabled, they, too, will become obstacles as streets are clogged. Antipersonnel mines with antihandling devices are employed with antitank mines around and within obstacles, and are covered by fires to make reduction costly and time-consuming. Since the enemy will probably be forced to dismount in order to continue the attack, antipersonnel type obstacles must be integrated throughout the obstacle plan.

COMBINED OPERATIONS

The US Army engineers must be prepared to support combined operations conducted by forces of two or more allied nations acting together to accomplish a single mission. In Europe, under the North-Atlantic Treaty Organization (NATO), and in Korea, as part of the US-ROK Combined Forces Command (CFC), engineers will operate under procedures and principles that have been

planned, practiced, and standardized in peacetime.

NATO OPERATIONS

Countermobility in Europe has some unique considerations due to the amount of time required to emplace obstacles. The potential speed and mobility of threat forces have made detailed obstacle planning during

peacetime an absolute necessity. The NATO forces in Europe have made extensive use of preconstructed obstacles, such as prechambered bridges and roads and steel girder obstacles, as well as the use of obstacle folders. When preparing obstacle plans on the battlefield, the tactical commander must take these preconstructed obstacles into consideration.

Obstacle folders

When time permits, as in planning during peacetime, obstacle folders are prepared. For non-nuclear demolitions, STANAG 2123 governs. The non-nuclear obstacle folder is prepared to provide all information required to destroy a target. It consists of the following four parts:

- 1 Detailed target location.
- 2 Location of explosives and equipment.
- 3 Orders for preparing and firing.
- 4 Demolition report.

Situations could occur where the unit responsible for emplacing and/or firing a demolition is of a different nationality than the unit preparing the folder. To allow for this possibility, the obstacle folder is prepared in a multilingual form. The NATO obstacle folders are prepared in—

- Language(s) of the units concerned.
- Language of the host nation.
- One of the two official NATO languages (English or French).

Notes on maps, plans, sketches, and so forth are to be in one language only with a translation of relevant items shown at the bottom of the page.

Mine warfare

When employing minefields in NATO countries, all provisions of STANAG 2036 must be followed.

National territorial forces

In the Central Region, forward of the corps rear boundary, responsibility for denial operations is maintained by the German government through the “Wallmeister” organization. This organization of highly-qualified engineers performs the following functions:

- Control all preplanned obstacles such as prechambered bridges and roads.
- Assist allied engineers in procuring local resources such as lumber and crushed rock.
- Provide special and up-to-date maps of the areas.
- Conduct extensive reconnaissance to locate and record power plants, dams, water points, bridges, and so on.

German Territorial Forces provide coordination for host nation support to US Army and other allied forces. Their responsibility begins at the corps rear and extends west to the national boundary. Their primary engineer missions include:

- Insuring logistical and engineer support to NATO forces within the scope of national agreements.
- Supporting NATO forces by providing local resources.

United States Army engineers must make immediate contact with the Wallmeister organization or territorial force commander in the area of operations.

Virtually every NATO nation has organizations similar to the German Territorial Forces. United States Army engineers must be familiar with local organizations and foster close working relationships prior to the outbreak of hostilities.

KOREAN OPERATIONS

The chief instrument for the defense of Korea is the Combined Forces Command (CFC). The CFC Commander-in-Chief exercises combined operational command/control over all forces defending Korea. As in NATO, important differences in capabilities, doctrine, and equipment exist. Unlike NATO, few STANAGs currently exist to alleviate these differences.

United States Army engineers in Korea are part of a command structure which has developed since the Korean War. As in NATO, US Army engineers stationed in Korea conduct extensive interoperability training. The factors that affect engineer operations and interoperability in Korea include:

- North Korean Threat.
- Terrain and climate.
- Command relationships.
- Coordination, liaison, and language.

North Korean Threat

United States and Republic of Korea (ROK) forces face the forces of North Korea along the 151-mile demilitarized zone (DMZ). North Korean forces are positioned well forward in an attack posture and are in a high state of readiness. The highly-policed North Korean society makes intelligence collection difficult. Thus, North Korea has the capability to launch an attack with little warning.

Terrain and climate

While much of the mountainous Korean terrain favors light infantry operations, two major avenues of approach from the north are suitable for mechanized/armored employment. These two avenues of approach lead directly to Seoul, the capital of the ROK, only 40 miles south of the DMZ. Thus, the defense of Seoul depends on containing an enemy attack as far north as possible. This is a key factor in the defense plans of Korea. Heavy rains in summer often cause damaging floods which severely restrict mobility, while freezing rice paddies in winter increase mobility. Additionally, the mountainous terrain tends to channel vehicular movement. The mobility-counter mobility roles of the engineers will be critical during any allied operation.

Command relationships

Most engineer units in Korea will remain in their national organization. If a cross-attachment of allied engineer units is effected, the command relationship should be operational control (OPCON).

Coordination, liaison, and language

The CFC structure in Korea requires a high degree of coordination between US and ROK engineers at all levels. There are Combat Support Coordination Teams from HQ Combined Field Army, First ROK Army (FROKA), and the Third ROK Army (TROKA). These teams facilitate day-to-day working relationships between US and ROK units, and have elements familiar with engineer planning.

The language barrier, coupled with cultural and doctrinal differences, poses potential problems for US and ROK engineers. Early combined planning for engineer operations, and the use of trained liaison teams and Korean Augmentation to the US Army (KATUSA) personnel, will help to alleviate some of the problems.

CONTINGENCY OPERATIONS

A requirement to deploy US Forces may develop in any part of the world, and in all types of terrain or climate. There are two basic scenarios in which US armed forces might be involved. Combat might begin in an area where US armed forces are already stationed (combined operations), or in an area where there are a few or no existing US bases or units (contingency operations). In the latter case, deployment will probably occur under circumstances of great urgency. The lack of US military installations and support facilities generally means a requirement for extensive engineer support.

The US contingency force must be capable of defeating a threat which varies from guerrilla activity to well-organized regional forces armed with modern weapons. Contingency forces must be prepared for chemical and nuclear warfare, and also for air attack by modern, well-equipped air forces. Logistics and base support requirements will dictate operational capabilities to a much greater extent than in a mature theater.

The engineer force structure of the contingency force must be carefully tailored. General contingency plans must allow for rapid changes in the tasks, organization, and support to adapt to widely varied potential threats and environments. The composition of the contingency force must be sufficiently light to allow rapid strategic deployment. At the same time, it must possess sufficient combat power and earthmoving support to provide necessary engineer support. The lack of logistic support for the deployed task force requires a capability to fully exploit whatever host nation support is available.

Deploying engineer forces are responsible for all engineer functions. Initially, there will be little back-up support for engineers organic to combat forces. Engineer support in the countermobility effort will be essential. Due to the light force structure and limited logistical support, priorities must be established to determine where the engineers can best be utilized. The situation will determine whether shifts from those priorities are necessary.

SUMMARY

Countermobility support to light forces

Countermobility is normally the highest priority engineer task.

Countermobility is essential against mechanized enemy.

Countermobility support must be rapid and well-coordinated.

Special terrain environments

Countermobility tasks must be designed to the terrain requirements.

Terrain and climate restrictions require ingenuity to select and emplace the proper countermobility asset.

Combined operations

Preconstructed obstacles are generally in place.

National agreements may govern.

Familiarity with allied methods and equipment is essential.

Contingency operations

Countermobility efforts must be tailored to specific threat.

Countermobility will aid sustainment of the force.

Deployment restrictions may dictate that countermobility efforts are primarily mine and demolition oriented.