

CHAPTER 5

OFFENSIVE OPERATIONS

Great tanks fitted with special mine plows and rakes jump forward clearing initial paths through obstacles. Combat engineers position mine-clearing charges immediately behind the tanks. When minefield are discovered, engineers fire a rocket over the tanks that pulls out a long line of explosives. The line charge is then detonated, creating an unbelievable blast. This marks a lane, clears some mines, and renders any enemy troops in the area completely ineffective. Bulldozers have been fitted with special steel protection. They push into the breach, clearing and widening each lane. The M9 armored combat engineer vehicle is used to attack bunkers and trenches with its sturdy blade. There is resistance, but Iraqi soldiers begin to surrender in large quantities. Those that stay and fight are quickly overrun. The tanks are busy destroying Iraqi tanks and fighting vehicles. Engineers are clearing bunkers and blowing up enemy equipment. The M9 armored combat earthmover (ACE) crushes bunkers and destroys trenches. Those who do not surrender are covered and crushed. Within minutes, eight lanes are opened through the first obstacle belt. In short order, sixteen lanes are opened, marked, and divided for one-way, two-way, wheeled, or tracked traffic. Everywhere there are engineers blowing up enemy fortifications. Giant engineer equipment pushes aside debris and roads appear in the desert. Everywhere there is noise, dust, smoke, and the deafening roar of gunfire. It is synchronized perfectly.

From "A Commanders Perspective" by Colonel Samuel C. Raines, Commander, 7th Engineer Brigade (Corps), during Operation Desert Storm, 9 April 1991.

PURPOSE OF THE OFFENSE

The corps conducts offensive operations to defeat, destroy, or neutralize the enemy force. The offense is the decisive form of war. Offensive operations are designed to defeat the integrity of the enemy's defense system by driving into his rear and destroying artillery, reserves, C2 systems, CPs, and logistics support. These operations may also be conducted to secure key or decisive terrain, to deceive or misdirect uncommitted enemy forces, to fix or iso-

late units, to gain information, or to spoil an enemy's offensive preparation. Seizure and retention of the initiative come with offensive action. Corps are expected to conduct offensive operations to defeat or destroy a designated portion or formation of an enemy's defense. A corps may conduct an offensive operation as part of a TA operation, independently as the Army component of a JTF, or internally as part of its own operation.

This chapter provides a doctrinal foundation for corps engineer support to offensive operations. It serves as an extension of FM 100-15. It examines how corps engineers fit into the

offensive framework and assist the corps in achieving success. The engineer estimate focuses on the process used to meet the needs of corps offensive planning.

OFFENSIVE CHARACTERISTICS

The offensive operation is the corps's primary means of taking and maintaining the initiative. Successful engineer support of corps offensive operations depends on the corps engineer's understanding and application of the four offensive characteristics: surprise, concentration, tempo, and audacity.

SURPRISE

Surprise is achieved by striking the enemy at a time or place or in a manner for which it is not physically or mentally ready. To give the corps the element of surprise, corps engineers overcome operational and tactical obstacles rapidly and provide the corps with mobility over restricted terrain. Corps engineers also prepare forward logistics bases, assisting in the rapid forward movement of corps forces.

CONCENTRATION

Concentration is achieved by massing the effects of combat power at the point of attack. The corps engineer task-organizes and develops a scheme of engineer operations that supports this concentration of maneuver forces by massing the right type of engineer support at the right place and time. Allocating the proper mix and amount of corps engineers to divisions that are making the main corps attack permits them to adjust to changing circumstances without time-consuming and confusing reorganizations. The massing of corps engineer

general engineering support to corps logistics operations may also be appropriate to ensure adequate corps logistics support during the attack such as MSR construction immediately following combat formations.

TEMPO

Tempo is the rate of speed of military action that maintains relentless pressure on the enemy to prevent him from recovering from the shock and effects of the attack. Corps engineers help achieve this tempo by maintaining a responsive engineer C2 system and decision cycle. Establishing corps engineer task organizations and command or support relationships that do not change during the course of the battle allows the maneuver forces to retain relentless pressure against the enemy.

AUDACITY

Audacity is required to boldly execute simple plans that negate the disadvantages of numerical inferiority. Commanders understand when and where they are taking risks but don't become tentative in the execution of plans. The corps engineer facilitates audacious offensive action by seeing the battlefield and anticipating future engineer requirements. He constantly postures the engineer force so that the corps can rapidly take advantage of narrow windows of opportunity such as in the case of forward river crossings.

FORMS OF THE CORPS TACTICAL OFFENSE

Successful engineer support of corps offensive operations also depends on the corps engineer's understanding and ability to support

the four forms of the tactical offense: movement to contact (MTC), attack, exploitation, and pursuit.

MOVEMENT TO CONTACT

The corps conducts an MTC to gain or regain contact with the enemy and to develop the situation. The MTC is characterized by rapid movement along multiple axes, centralized planning and decentralized control, and the rapid transition of combined arms formations from the march to the attack. The corps focuses on intelligence collection and security to the main body. During the MTC, the corps is normally organized with a covering force, an advance guard, a main body and flank and rear security elements. A variant of the MTC is the approach march, used when commanders are relatively certain of the enemy's location and are a considerable distance from the enemy. Limited-purpose applications of the MTC include the *search and attack*, conducted by light maneuver units or air cavalry and *reconnaissance in force*, conducted by heavier units. Both operations seek enemy information and probe for enemy weaknesses; or they may deny terrain to the enemy, and possibly destroy the enemy. The desired result of the MTC is to find the enemy.

An MTC has several possible outcomes. First, a corps may not make contact with the enemy and reach its objective unopposed. This could result in continuing the MTC to a subsequent objective or establishing a hasty defense oriented on key terrain. Second, a *meeting engagement* may occur where the corps meets an unexpected moving or stationary force and where friendly action takes place without hesitation. If the covering force or the unit in contact is unable to defeat or contain the enemy force, the corps will rapidly decide to conduct a hasty attack, hasty defense, or a combination of both, normally with units from the main body. Another possibility is to bypass the enemy force altogether. When the corps has a clear picture of a moving enemy's disposition, it may try to gain the advantage by moving to advantageous terrain and preparing for a hasty defense, hasty attack, or a combination that destroys the enemy force.

The corps engineer supports the MTC by configuring corps engineer forces forward to accomplish needed mobility, countermobility, general engineering, and limited survivability operations. The corps engineer understands the MTC's objective, contingencies, branches, and sequels. He then identifies engineer tasks and allocates forces. Figure 5-1, page 5-4, shows the basic engineer tasks germane to a corps MTC. The corps engineer considers each component of the MTC and the inherent engineer missions that are performed in support of the covering force; advance, flank, or rear guards; and the main body. He then task-organizes units based on his available forces and C2 requirements. He ensures that deep operations scatterable mining is fully synchronized during the MTC so that emplacement times, lanes, and durations facilitate future corps operations. Figure 5-2, page 5-5, shows a possible engineer force laydown to support the engineer missions needed during an MTC.

Covering Force

The corps normally uses the cavalry regiment as the covering force but may use a division or separate brigade. In addition, the corps commander may direct that leading divisions establish division-controlled covering forces in support of the MTC. The corps covering force develops the situation and prevents the unnecessary delay of the main body. Covering-force missions include destroying enemy resistance, securing key terrain, or containing enemy forces. When attacking a defending enemy army, the corps covering force is usually expected to penetrate the enemy's security zone, identify the location and deployment of forces in the main defensive belt, and limit the enemy's intelligence-gathering activities.

Engineer support for the corps covering force includes reconnaissance (to gain terrain and enemy engineer intelligence) and mobility operations (to sustain the covering force's freedom of maneuver). Engineers help identify the best routes for forward movement along with lateral

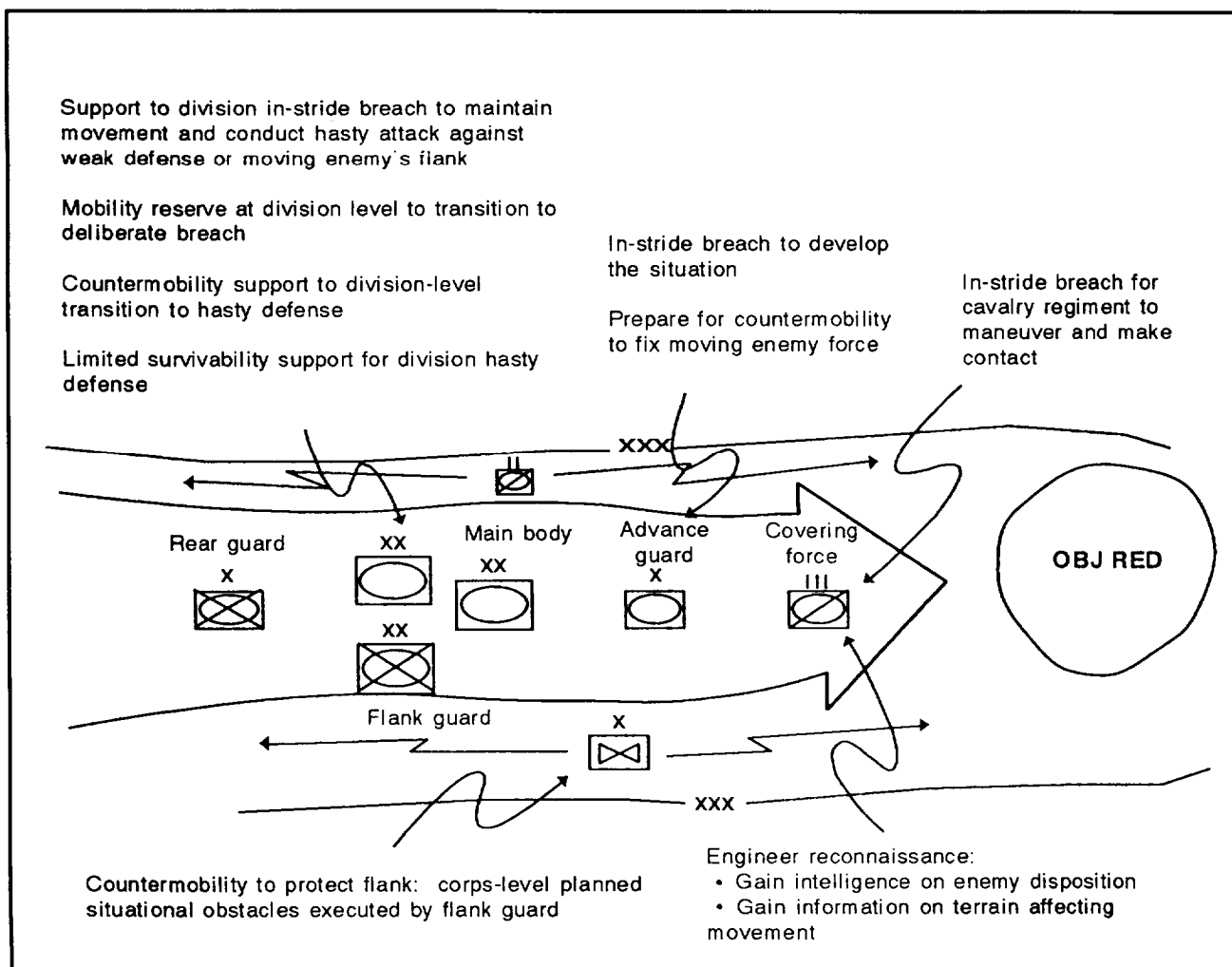


Figure 5-1. Engineer support to a corps MTC

routes for additional flexibility. Engineers with the covering force allow it to move independently through undefended obstacles and restrictions. The cavalry regiment or separate brigade will normally have a corps engineer battalion attached, augmenting organic engineer company capabilities to allow for rapid earth moving, minefield breaching, and assault bridging. If the corps covering force is a division, the organic division engineer brigade or battalion normally provides support for engineer missions. Engineer support to covering-force operations is characterized by early linkup, detailed combined arms planning and rehearsals, and thorough integration into the combined arms team.

Advance Guard

The corps advance guard is normally furnished and controlled by the leading divisions in the main body. The advance guard maintains contact with and provides liaison to the covering force. It is task-organized to support the uninterrupted movement of the main body. Engineer support for this operation normally comes from the leading division engineer brigade or battalion. The corps engineer may augment with bridging and breaching assets. The primary mission of the engineer force supporting the corps advance guard is to maintain the advance guard's freedom to maneuver with mobility support, allowing it to fight through defended obstacles without reinforcement.

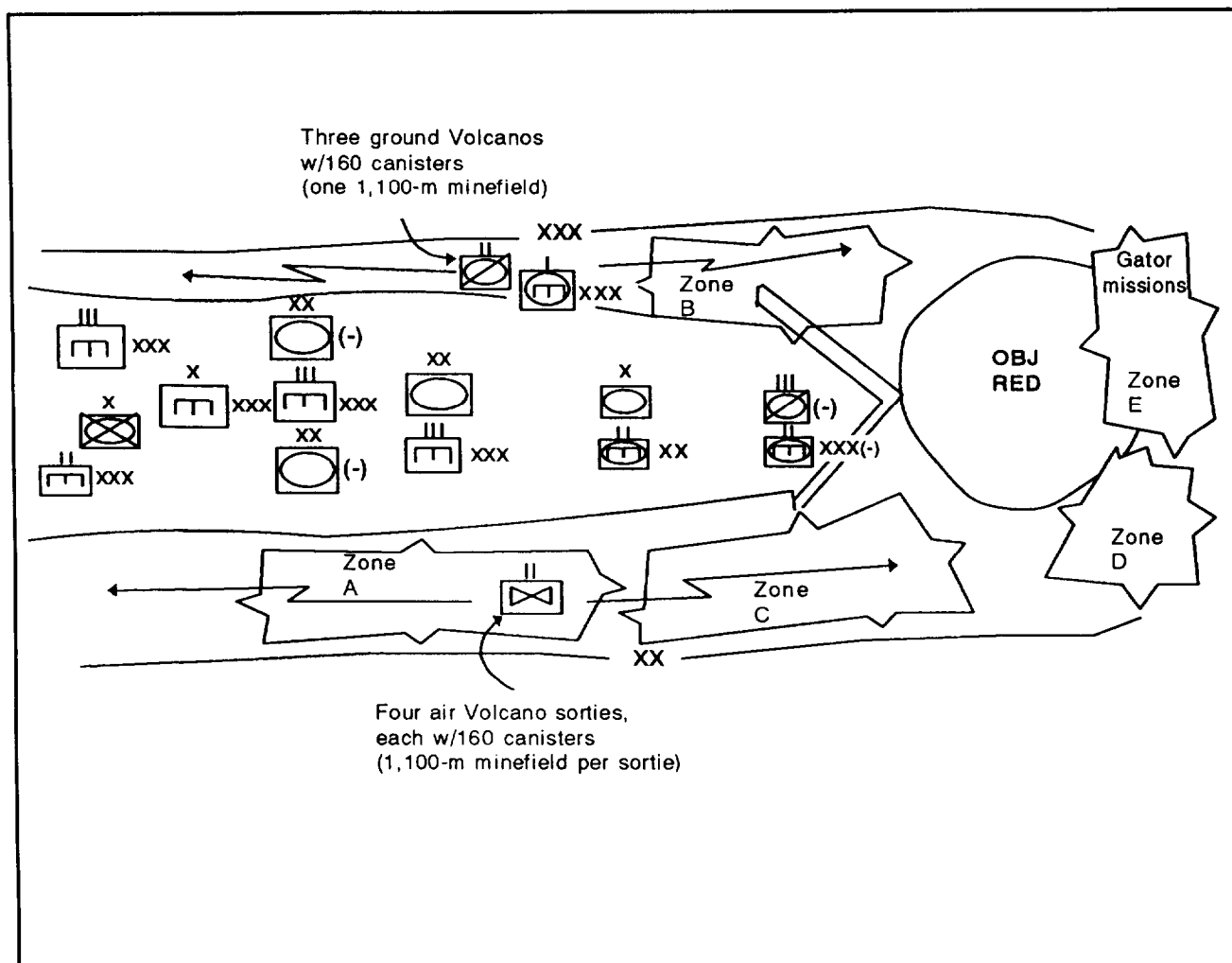


Figure 5-2. Engineer force laydown for a corps MTC

Engineers with the advance guard assist in rapid movement, develop the situation, and maintain the momentum of the main body. In-stride breaches are conducted along routes where the main body is moving. The advance guard may require countermobility support, especially if the intent is to fix the enemy and allow the main body to attack a flank. Situational obstacles are planned and executed as required.

Flank and Rear Security

Corps flank security is normally furnished and controlled by main body forces. If flank security forces are required to be under corps control, specific security missions (normally

screen or guard) are assigned to these units. While there is not necessarily a dedicated engineer force with the flank security force, countermobility support is an inherent task. Situational obstacle emplacement will normally be the responsibility of main body division engineers or corps engineers supporting screening or guarding cavalry regiments and separate brigades.

The corps normally controls rear security forces due to the extensive distances created by supporting logistics forces. Countermobility support, including situational obstacle planning and emplacement is also inherent to support rear security operations. The corps engi-

neer plans corps reserve demolition targets and ORAs to ensure freedom of maneuver in the corps rear area.

Main Body

The main body contains the bulk of the corps's combat power. Units are task-organized into march columns to facilitate a hasty attack or a hasty defense from the march. Elements of the main body may be committed to reduce pockets of resistance contained or bypassed by the covering force. Engineers supporting the main body focus primarily on forward mobility and countermobility operations. Corps engineer battalions augmenting divisions widen breached lanes, breach bypassed obstacles, and emplace situational obstacles on the flanks. Corps bridging units are located in march columns for responsive support to the main body CSE companies and combat heavy engineer battalions construct follow-on MSRs and logistics bases.

ATTACK

The attack's purpose is to defeat, destroy or neutralize the enemy. The same fundamentals apply to each type of attack. Attacks with enemy-force objectives are preferable to terrain-oriented objectives. The corps will normally transition into an attack following an MTC, but the attack may also occur after defensive operations, exploitations, and pursuits. Successful attacks depend on the skillful massing of fires, maneuver, EW, and other effects against the enemy force. To defeat the enemy force, the corps attacks to destroy the continuity of the enemy defense by making the enemy positions untenable so that he either abandons his defense or eventually faces piecemeal destruction. To destroy the enemy force, the corps achieves overwhelming combat power through the use of fire and maneuver. When attacking a comparable-size force, the corps accepts a risk in a part or parts of its zone of action to achieve concentration at decisive points while using deception and economy of forces in other areas. Several forms of the attack may be used by the

corps commander, including the hasty attack, deliberate attack, spoiling attack, counterattack raid, feint, demonstration, or any combination thereof.

The corps engineer supports attacks by configuring corps engineer forces to accomplish needed forward mobility, countermobility, general engineering, and limited survivability operations. The corps engineer understands the attack's objective, contingencies, branches, and sequels. He then identifies engineer tasks and allocates forces. He considers each type of attack and the inherent engineer missions that are performed. He then task-organizes units based on his available forces and C2 requirements. He ensures that deep operations, scatterable mining, is fully synchronized during the attack so that emplacement times, lanes, and durations facilitate future corps operations.

Hasty Attack

The hasty attack is an offensive operation with minimum preparation by the unit in contact with the main body. The attack destroys the enemy before he can concentrate forces or establish an effective defense. It is the most likely result of a meeting engagement. A corps uses hasty attacks from the march with main body units and covering forces that are immediately available. The hasty attack may be conducted as part of a planned contingency during an MTC or as an unforeseen contingency during hasty or deliberate defenses and deliberate attacks. Sound IPB and prior war gaming of situations, battle drills, and rehearsals are critical to success. The hasty attack is normally initiated by the use of FRAGOs. It is followed by the use of reserve forces or immediate reinforcement.

Prior to the attack, the corps engineer anticipates and task-organizes needed engineer forces to provide responsive support to divisions, separate brigades, cavalry regiments, and reserve forces without delays. Figure 5-3 shows the basic engineer tasks germane to a

corps hasty attack. Special topographic products that assist in terrain analysis and effective engineer and terrain reconnaissance allows some planning to make these attacks less improvised. During the MTC, the corps engineer closely monitors the battlefield to discern the disposition of enemy and friendly forces when transitioning to a hasty attack. Critical information is forwarded directly to subordinate engineer units. The corps engineer also focuses on coordinating engineer operations between adjacent units during the hasty attack. He initially focuses on forward mobility support, such as breaching and bridging, that maintains the attacking force's freedom of maneuver. Countermobility support is planned to isolate the battlefield and protect the corps

flanks. Countermobility and survivability support become the priorities when objectives are secured and in order to repel enemy counterattacks. General engineering support to build and upgrade MSRs and logistics bases is required to exploit the hasty attack's success, especially when attacks turn into pursuits. The ability to maintain the momentum of the attack is directly affected by the corps's ability to sustain the force, including the pre-positioning of engineer forces and material. The corps engineer has little impact during the hasty attack's actual execution. His responsibility revolves around planning and providing a trained, tailored, flexible, and well-rehearsed engineer task organization before the battle. Figure 5-4, page 5-8, shows a corps conducting

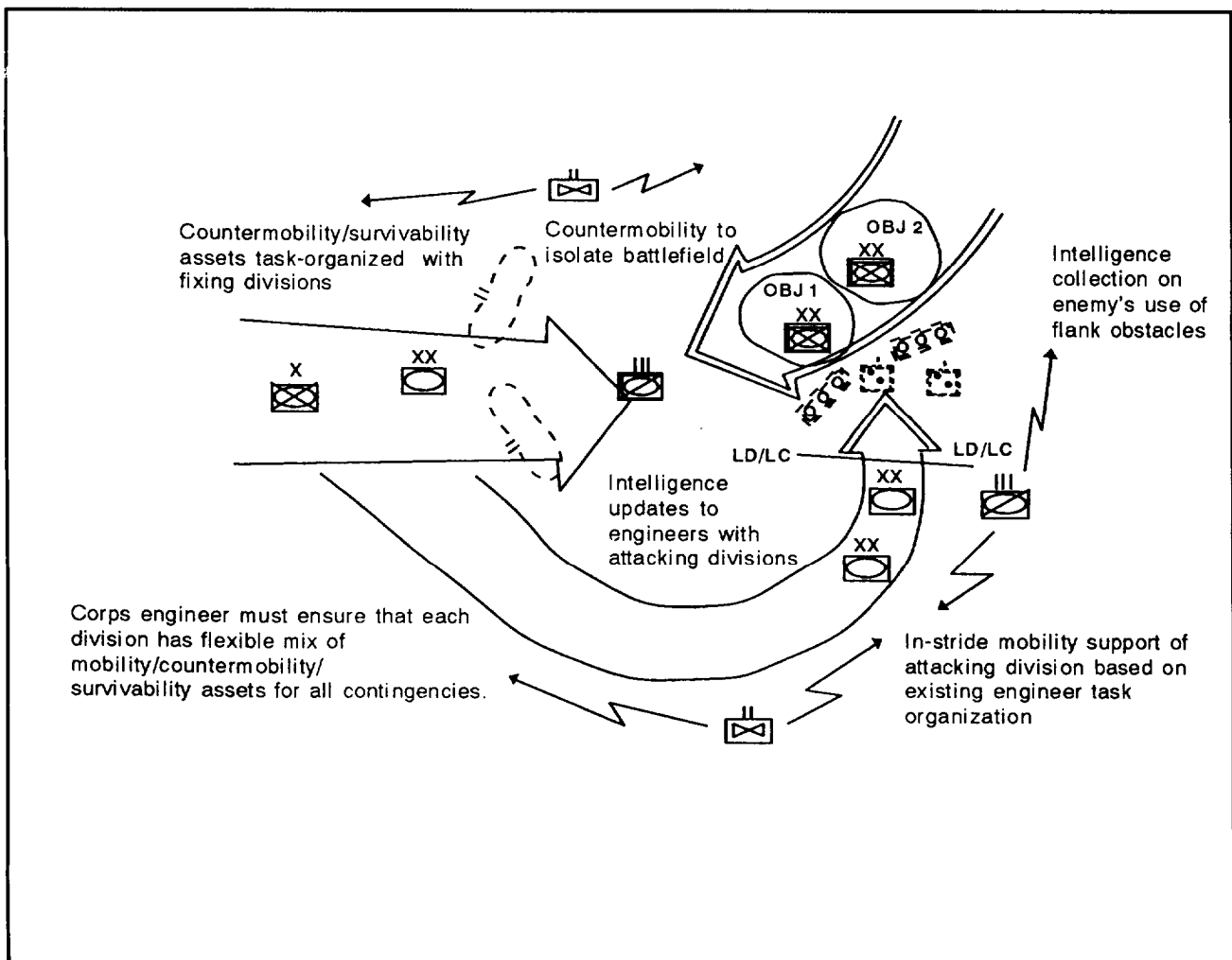


Figure 5-3. Engineer support to a corps hasty attack

a hasty attack on a moving force from an MTC and the engineer task organization that supports the inherent corps engineer's tasks.

Deliberate Attack

The corps conducts a deliberate attack against a well-organized defense or when—

- Ž A hasty attack has failed or cannot succeed.
- Ž The enemy situation is known.
- Ž The combined arms team can be employed with sufficient combat power to defeat the enemy.

The deliberate attack is a fully synchronized operation that employs the effects of every available asset against the enemy defense. It is often conducted from the defense. This type of attack requires massed combat power on a narrow front in an area where there is a high probability of surprise. The corps develops intelligence and a flexible scheme of maneuver that uses indirect approaches, deception, and surprise as a basis for the deliberate attack.

The corps engineer develops a scheme of engineer operations that focuses on providing forward mobility support throughout the depth of the corps's deliberate attack. This allocation of engineer forces is based on the IPB, the EBA, and the mission analysis conducted during the

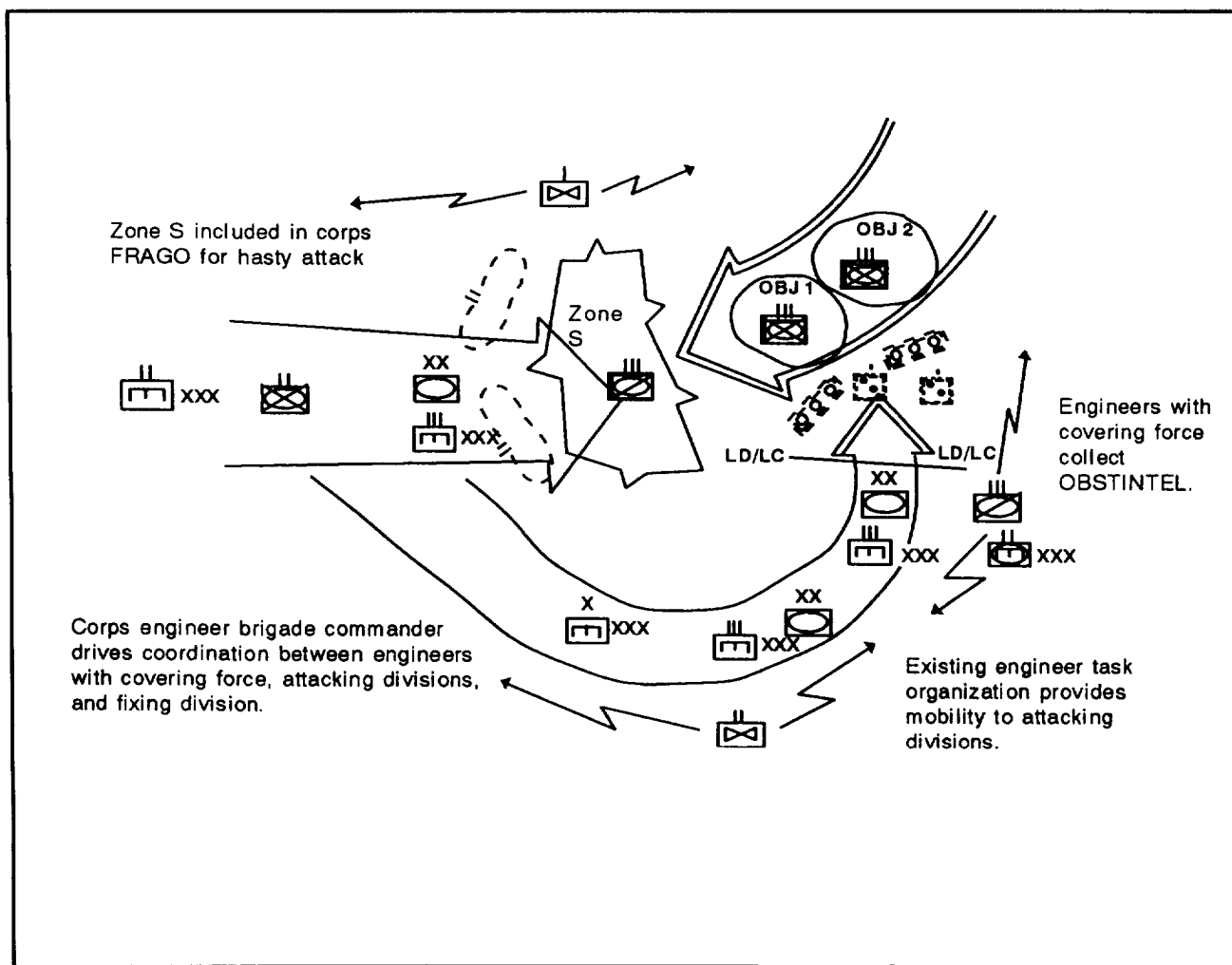


Figure 5-4. Engineer force laydown for a corps hasty attack

command estimate (see Figure 5-5). The corps engineer thoroughly understands the corps commander's intent and scheme of maneuver; anticipates how divisions, separate brigades, the cavalry regiment, and reserve forces will fight and comprehends the threat situational template in order to properly conduct the engineer mission analysis. The corps engineer then looks at the maneuver-brigade level and identifies the number of lanes or crossing sites required for each brigade, regiment, or reserve force. He then compares the capabilities of division, separate brigade, cavalry regiment, and reserve force engineer units to the numbers of required lanes or crossing sites. If a shortfall exists, he allocates available corps engineer battalions and/or bridge companies to the ap-

propriate division, separate brigade, cavalry regiment, or reserve force. If required, he allocates engineer group headquarters to divisions in order to bolster engineer C2. Countermobility and survivability operations are also significant in supporting a deliberate attack. Countermobility operations assist in isolating the battlefield and protecting the corps from enemy flank attack and counterattack. The corps engineer understands the corps commander's intent, follow-on missions, and contingency plans to allocate engineer forces to support them. Using the corps's DST and the synchronization matrix, the corps engineer estimates the time available to conduct needed corps countermobility operations, including the transportation of ob-

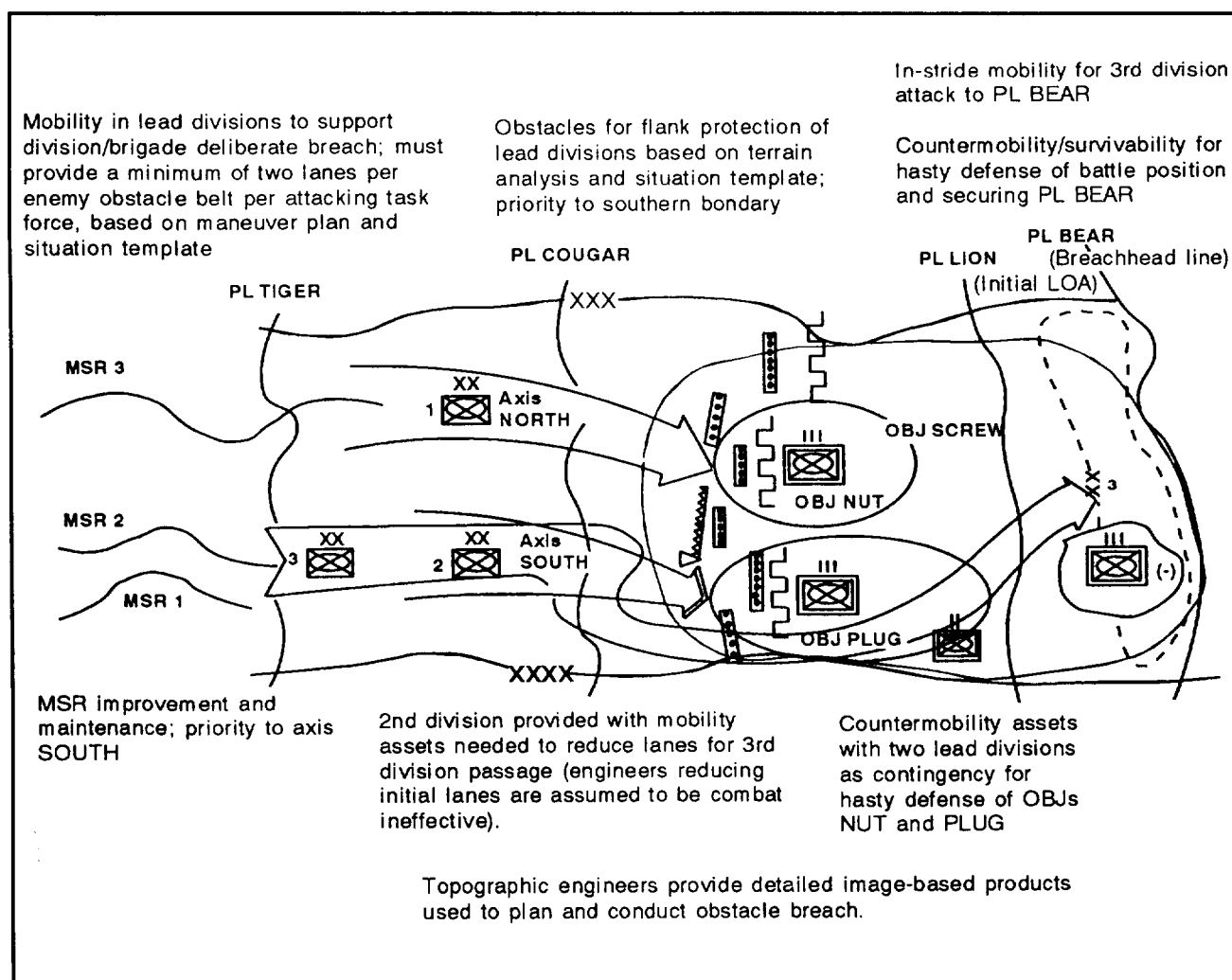


Figure 5-5. Engineer support to a corps deliberate attack

stacle material to corps-directed obstacle locations. He coordinates with the COSCOM to ensure that mission-required Class IV obstacle materials and Class V mines and demolitions are pushed forward to support a hasty defense on the objective and to corps-directed obstacle locations. He influences countermobility operations during the deliberate attack's execution by tracking the battle and advising the corps commander on the use of deep scatterable mines. The corps engineer supports survivability operations by ensuring that divisions, separate brigades, the cavalry regiment, and reserve forces have sufficient earth-moving assets in their task organization. General engineering support to build and upgrade MSRs and logistics bases is required to exploit the success of deliberate attacks, especially when attacks turn into pursuits. The ability to maintain the momentum of the attack is directly affected by the corps's ability to sustain the force, including the pre-positioning of engineer forces and material. Figure 5-6 shows a corps conducting a deliberate attack and the engineer task organization that supports the inherent corps engineer's tasks.

Spoiling Attack

Corps commanders mount spoiling attacks from a defensive position to disrupt an expected enemy attack. A spoiling attack attempts to strike the enemy while he is most vulnerable. Spoiling attacks are conducted like other attacks; they may be hasty deliberate, or exploitive. Corps engineers support spoiling attacks the same way they support hasty or deliberate attacks, primarily in the mobility area.

Counterattack

The corps commander conducts a counterattack with either reserve forces or lightly committed forward forces. The corps counterattacks after the enemy launches his attack reveals his main effort or creates an assailable flank. Counterattacks are conducted much like other attacks, but synchronizing them

within the overall defensive framework requires careful timing. Counterattacks can be rehearsed and timing-controlled, and the ground may be traversed and prepared.

Corps engineer support begins with a detailed terrain analysis to determine how to shape the battlefield. The corps engineer plans for counterattacks by ensuring that a proper engineer support force is task-organized with reserve forces. Corps engineers operating in rear areas can have on-order support-type missions to counterattacking forces. They can also prepare counterattack routes in the corps defensive area. The corps engineer recommends corps ORAs and corps-directed obstacles that ensure clear and protected routes for counterattacking forces. Corps engineers support counterattacking forces in the same manner as those conducting hasty and deliberate attacks, primarily with mobility assets.

Raid

A raid is a limited-objective attack into enemy territory for a specific purpose other than gaining and holding terrain. The corps commander conducts raids to destroy key enemy facilities and installations, to capture or free prisoners, or to disrupt enemy C2. Corps engineers support raids based on specific mission requirements, including demolition or breaching support.

Feint and Demonstration

A feint is a supporting attack designed to divert the enemy's attention from the main effort. It is usually a shallow, limited-objective attack conducted before or during the main attack by divisions, brigades, or smaller units. A demonstration is a show of force in an area where a decision is not sought. A demonstration threatens attack but does not make contact. Feints and demonstrations deceive the enemy as to the true intentions of the attacker, pinning him in place, diverting his attention, and allowing decisive action elsewhere. If they unveil an enemy weakness, they may be followed by a hasty or deliberate attack.

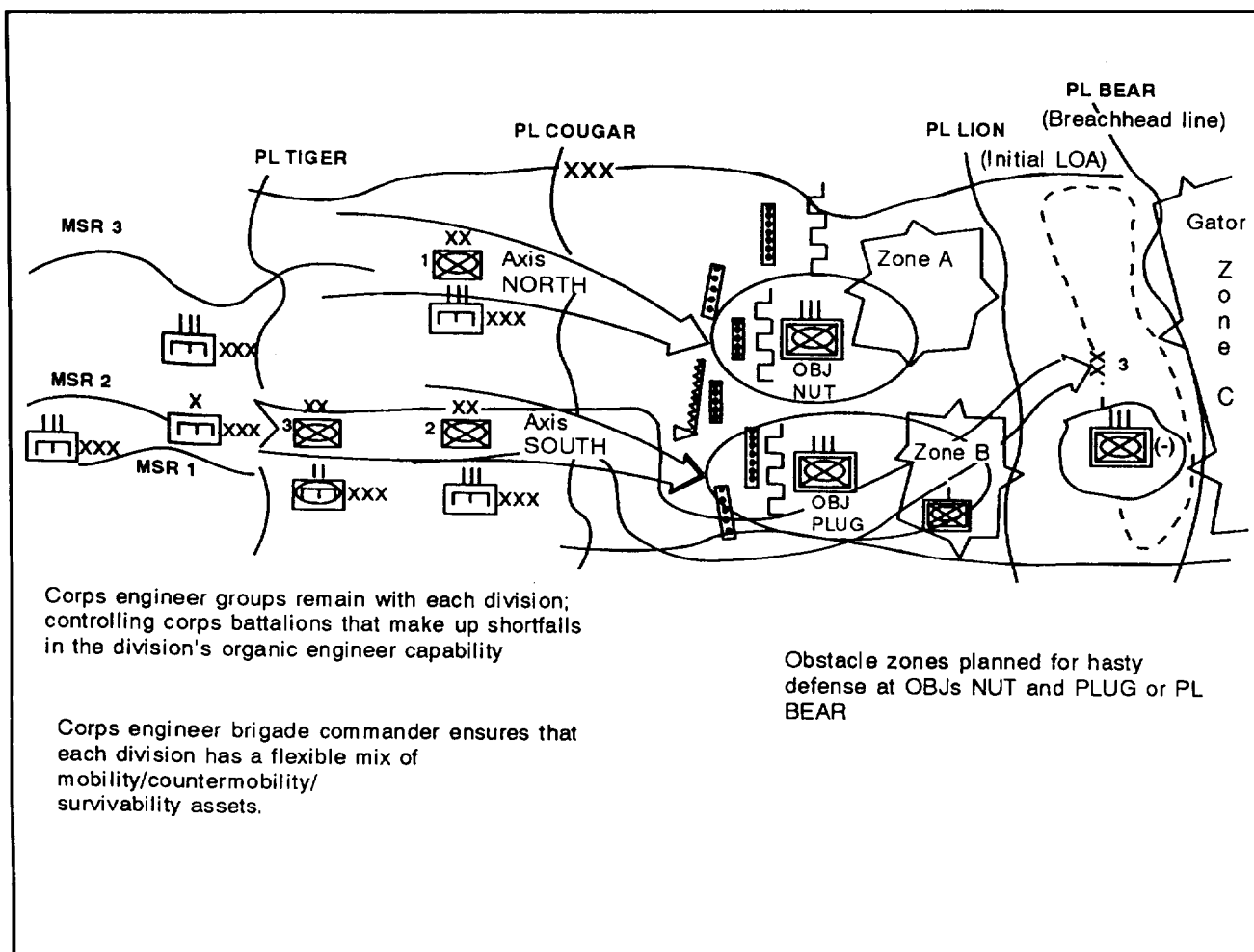


Figure 5-6. Engineer force laydown for a corps deliberate attack

Corps engineers support feints and demonstrations by providing needed mobility and counter-mobility support. Engineer support to limited (but visible) breaching, obstacle-emplacement, and survivability operations contribute to these deceptive operations.

EXPLOITATION

An exploitation of the disruptive effects caused by a successful attack will either support the securing of deep friendly objectives, or it will prevent the enemy from reconstituting an organized defense, counterattacking, conducting an orderly withdrawal, or continuing to support operations. The attacker extends the defending force's destruction by

maintaining offensive pressure through exploitation. It is the chief means of translating tactical success into operational advantage and can be directed by the theater or corps commander. An exploitation is normally initiated by already-committed units using available forces to form both an *exploiting force* and a *follow-and-support force* (see Figure 5-7, page 5-12). An exploitation is characterized by decentralized execution. The employment of exploitation and follow-and-support forces is similar to an MTC. The corps can either exploit its own success or act as the exploiting or follow-and-support force for a higher theater command. Potential missions for the exploiting force are securing objectives deep in the enemy rear, securing LOC, surrounding and destroying

enemy forces, denying escape routes to an encircled force, and destroying enemy reserves. The follow-and-support force initially prevents the enemy from closing the gap in a penetration and secures key terrain gained during the penetration or envelopment. As the exploiting force advances, the follow-and-support force secures LOC, mops up or destroys bypassed forces, expands the area of exploitation from the exploiting force's axis of advancement, and blocks the advance of reinforcements into the area. As the exploitation continues, the corps commander will establish and communicate a limit of advance, a series of objectives for the attacking divisions, and a general plan for the next battle. He will organize the corps to facilitate his next scheme of maneuver.

The corps engineer force supports the exploitation in similar fashion to an MTC. The major difference is the very limited time available to plan and prepare for the exploitation. Because of this, the corps engineer configures the supporting engineer force from the engineer assets already task-organized with the exploiting force. Forward mobility assets, including breaching and bridging equipment, are required to maintain the force's momentum so that it can rapidly execute its mission. Countermobility operations are required to secure objectives, block enemy forces, and provide flank protection for the exploiting force. Survivability operations are conducted to protect the force with the mission to secure terrain or deny escape

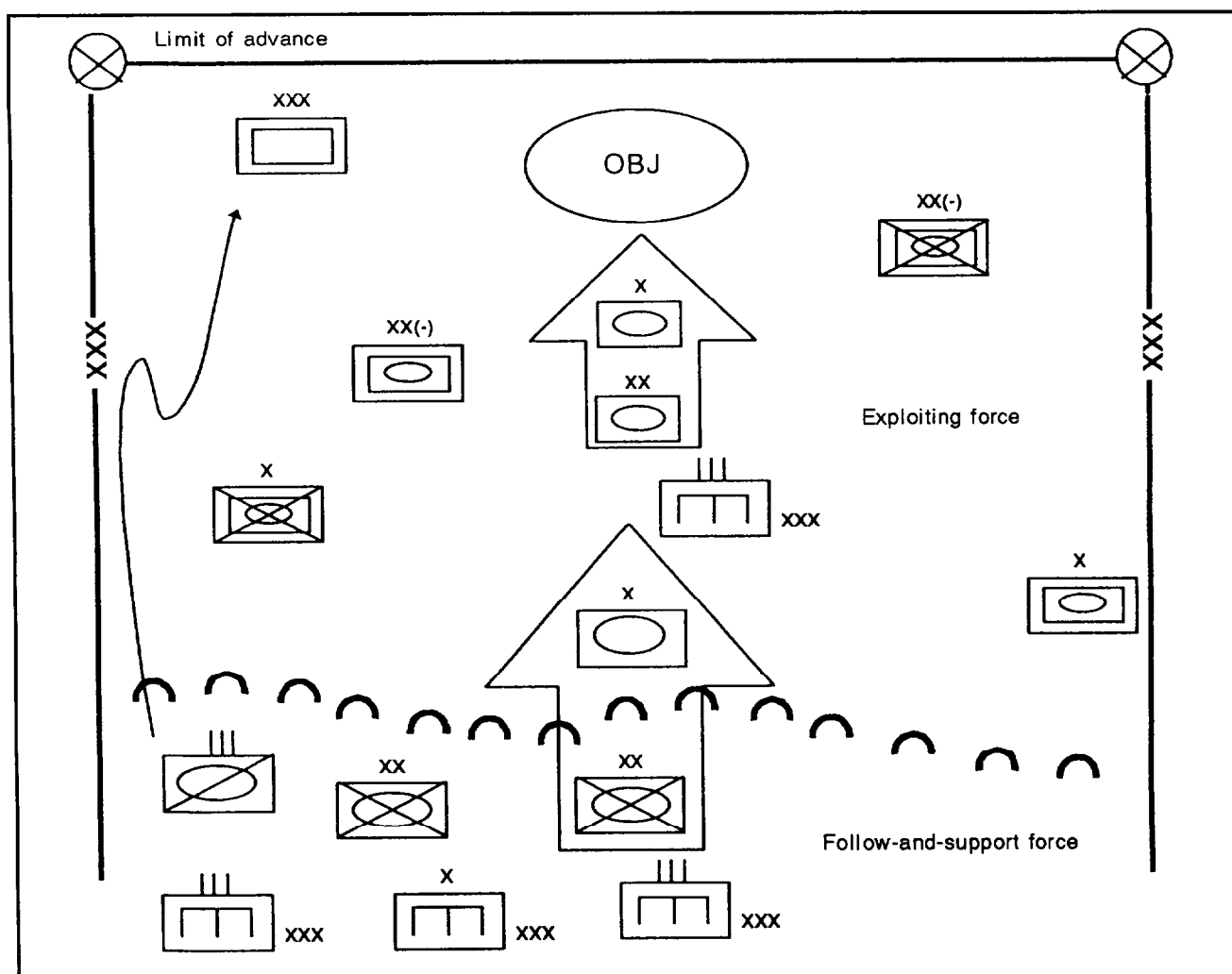


Figure 5-7. Exploitation

routes. Engineer support to the follow-and-support force includes the same mobility, countermobility, and survivability requirements as the exploiting force, along with extensive general engineering work being needed to keep LOC and MSRs open. Corps engineer support to the follow-and-support force is normally provided by engineer assets already in place. There may also be some time to plan and move other corps engineer units into position to provide needed general engineering support.

The corps engineer has several responsibilities when the corps conducts an exploitation. First, he plans to support the exploitation before the battle begins by providing a flexible corps engineer task organization to the attacking divisions. The exploitation mission is likely to be assigned to the corps follow-and-support force or its reserve. The corps engineer ensures that both of these forces contain enough engineer assets to support future contingencies, including exploitation operations. Second, because the situation is unclear during an exploitation, the corps engineer supports the G2 by assisting in the development of terrain intelligence-gathering requirements pertaining to the area being exploited. He provides information requirements for engineer missions, including locations and sizes of obstacle belts and zones and the location of enemy forces covering them, any friendly or enemy use of scatterable mines that will impact on the mission, the status of specific bridges key to the operation, and the impact of weather and terrain on mobility support. Third, the corps engineer is sensitive to the logistics posture of the engineer force supporting corps exploitation operations. He coordi-

nates closely with the CO SCOM, ensuring that engineer logistics requirements are identified and met, especially with fuel and maintenance support.

PURSUIT

Pursuit is an operation against a retreating enemy force. It normally follows a successful exploitation. The pursuit's object is the destruction of the opposing force that is in the process of disengagement. Pursuit operations require a *direct-pressure force* and normally an *encircling force*. The direct-pressure force prevents enemy disengagement and subsequent reconstitution of the defense, and inflicts maximum casualties by attacking constantly on a wide front. The encircling force's mission is to get to the enemy's rear rapidly, block his escape and, together with the direct-pressure force, complete his destruction (Figure 5-8, page 5-14).

The corps engineer's initial priority is to support both forces with mobility assets. The direct-pressure force requires the capability to conduct decentralized, in-stride breaching operations. The encircling force requires mobility support to get into position, followed by countermobility and survivability support to block the enemy force. Due to the fast pace of pursuit operations, follow-on general engineering support to both pursuit forces is especially critical for timely logistics support to the corps. Due to the nature of the pursuit and its similarities to the exploitation, the corps engineer planning considerations and actions are the same as those of an exploitation.

CORPS OFFENSIVE FORMS OF MANEUVER

The corps normally uses a combination of the basic forms of maneuver--envelopment turning movement infiltration, penetration, and frontal attack--when attacking, exploiting, or pursuing. They provide a useful means of con-

veying the corps commander's scheme of maneuver and what he intends his subordinate units to accomplish. For example, a corps commander may direct one division to effect a penetration while another division envelops a de-

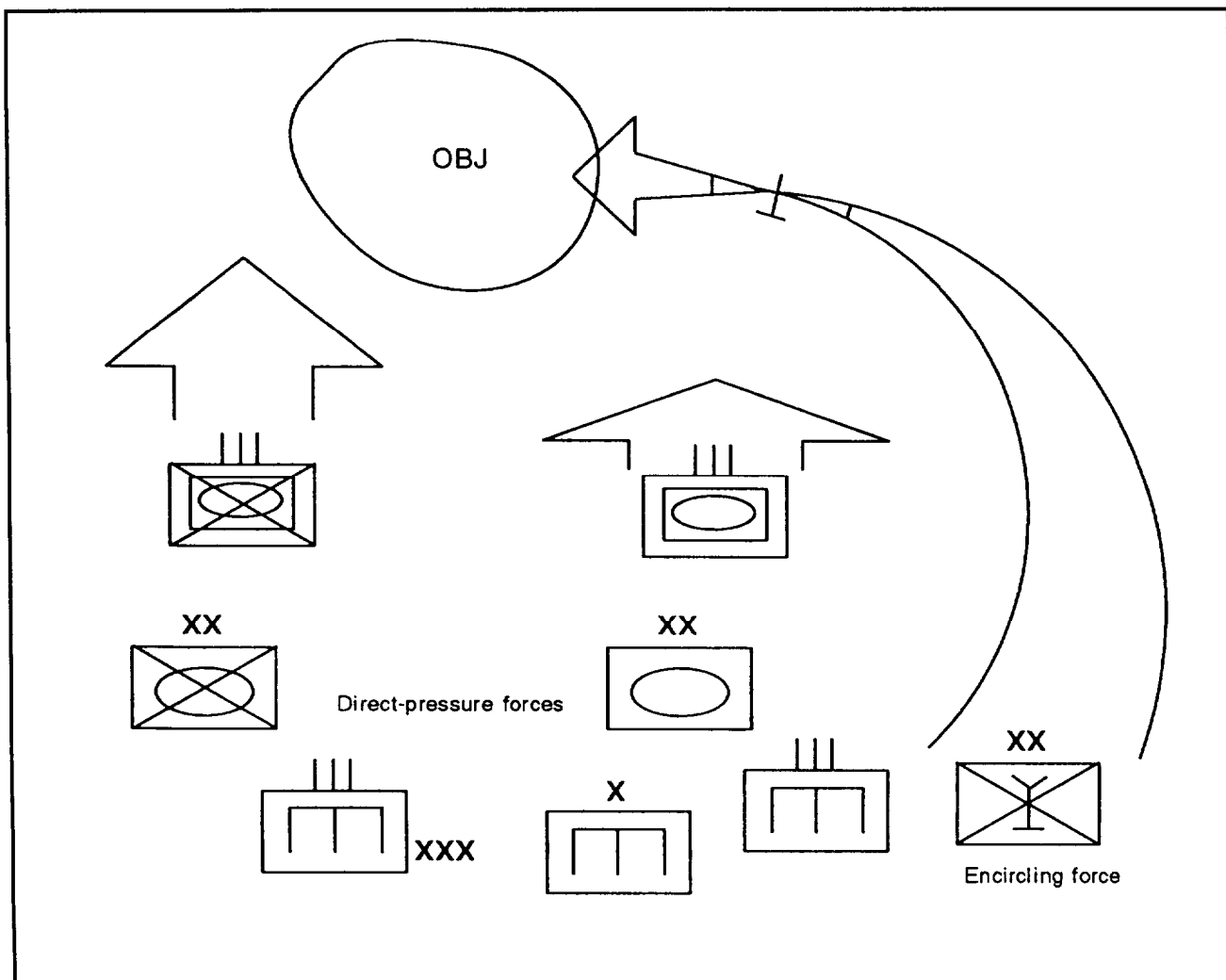


Figure 5-8. Pursuit

fending enemy force. The corps commander determines which form of maneuver to use based on METT-T. He uses the form of maneuver as an expression of intent and overall concept of the operation that gives focus to corps planning. The corps engineer understands each form of maneuver and its implications in developing the scheme of engineer support operations and task organization.

ENVELOPMENT

When attacking, the corps will normally attempt to envelope the enemy force along indirect approaches. This is especially true if the enemy force is of comparable size. To use this

form of maneuver, commanders find or create an assailable flank, pitting their strengths against the enemy's weaknesses. The enemy is usually freed in place from the front by a supporting attack to hold him in position while the main effort passes around the main defense and attacks a flank (Figure 5-9). This is designed to delay or disrupt his reaction to the enveloping force and cause him to commit his reserve prematurely or ineffectively. The main attack's objective can be either force- or terrain-oriented. The main attack may be used to attack and roll up forces in the main defensive belt, second-echelon defense, or reserves. When the objective is terrain-oriented, the main attack is normally focused on securing

key terrain, which cuts the enemy's LOC or escape routes.

In support of envelopments, the corps engineer develops a scheme of engineer operations that focuses on the mobility of the enveloping force and protection of its extended flanks and objectives, along with construction, improvement and maintenance of MSR and logistics bases. The divisions and separate brigades that make up the enveloping force normally organize for in-stride breaching and flank obstacle-emplacment operations. The corps engineer develops a flexible and redundant engineer task organization that augments division and separate brigade breaching, bridging, and obstacle-emplac-

ment capabilities with corps assets. The corps engineer may plan corps obstacle zones and directed obstacles that protect extended flanks and objectives. ORAs may be designated, allowing free movement of enveloping forces. The corps engineer also provides horizontal-construction capability to divisions and separate brigades serving as the enveloping force for extended MSR and logistics base construction improvement and maintenance.

The corps engineer develops engineer requirements for corps supporting attacks during the envelopment. Extensive obstacle breaching may be required by the supporting attack divisions or separate brigades. The main effort's

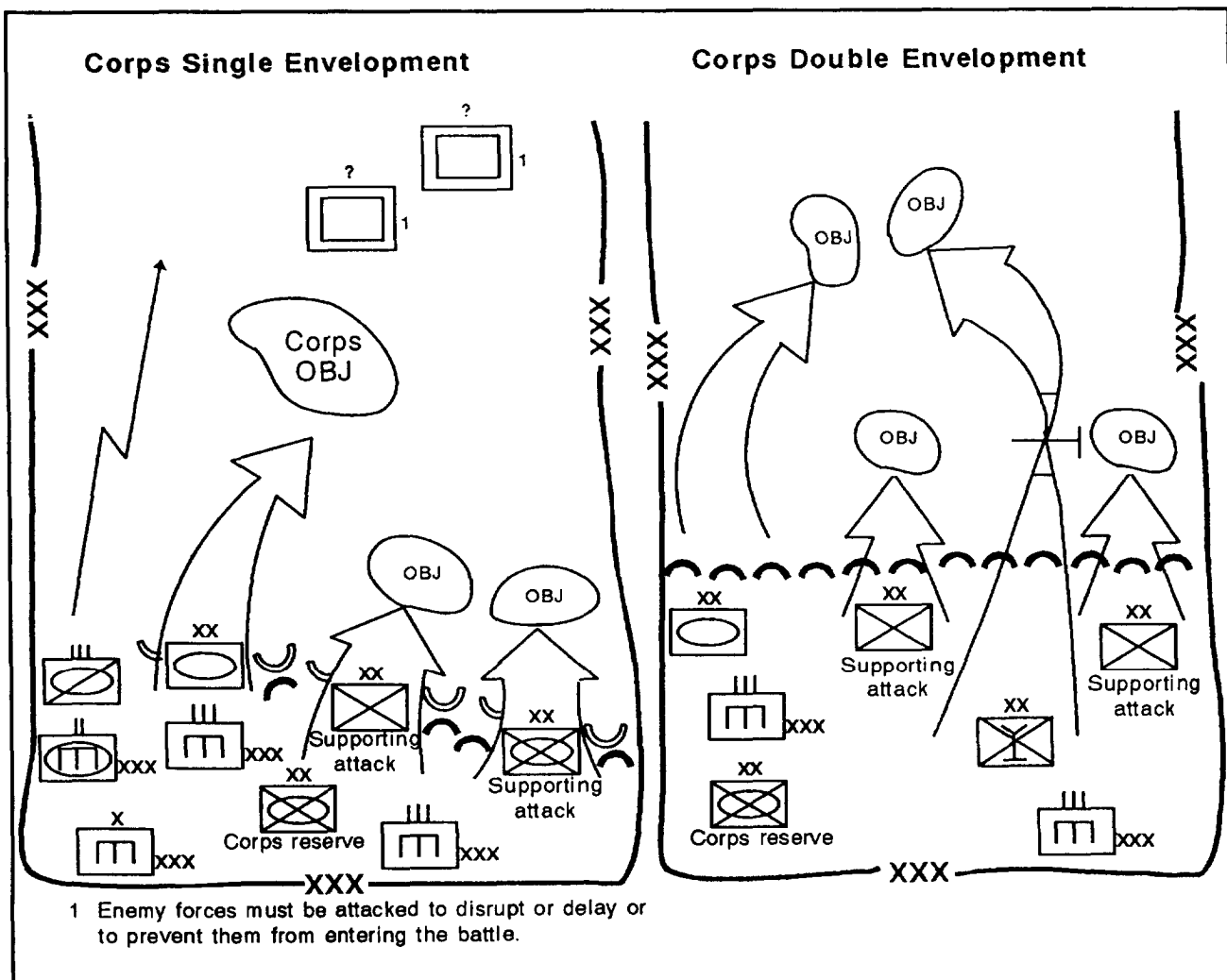


Figure 5-9. Corps single and double envelopment

success may hinge on the ability of the supporting attacks to penetrate the obstacles and cause the enemy to fight in two directions. Corps engineer augmentation to the supporting attack may be limited in scope, forcing the division or separate brigade to rely on organic engineer assets. The corps engineer may have to accept some risk and allocate the minimum essential engineer force needed to augment corps supporting attacks. To minimize this risk, he works closely with the corps G2 on a thorough IPB and obstacle intelligence (OBSTINTEL) collection effort to verify or deny enemy defensive capability facing the supporting attack.

TURNING MOVEMENT

The corps conducts a turning movement to envelop the enemy by striking at areas deep in the rear and at his LOC. The turning movement uses freedom of maneuver to create a decisive point where the enemy is unprepared. It is distinguished from an envelopment primarily by the depth of its objectives and by what the commander intends for it to accomplish. In a turning movement, the corps seeks to avoid the main enemy force, in pass around his defensive belts, and to secure an objective deep in the enemy rear to make the enemy position untenable (Figure 5-10). Due to the large distances involved, a turning movement does not always require a supporting attack to fix the enemy force.

In support of turning movements, the corps engineer develops a scheme of engineer operations similar to an envelopment. It focuses on the mobility of the turning-movement force and protection of its deep extended flanks and objectives, along with construction, improvement, and maintenance of long MSRs and many logistics bases. The divisions and separate brigades that make up the turning-movement force organize for in-stride breaching and flank obstacle-emplacement operations. The corps engineer develops a flexible and redundant engineer task organization that augments

division and separate brigade breaching, bridging, and obstacle-emplacement capabilities with corps assets. The corps engineer may plan corps obstacle zones and directed obstacles that protect extended flanks and deep objectives. ORAs may be designated, allowing free movement of turning-movement forces. The corps engineer also provides extensive horizontal-construction capability to divisions and separate brigades serving as the turning-movement force for extended MSR and logistics base construction, improvement, and maintenance.

INFILTRATION

Infiltration uses the covert movement of forces through enemy lines to attack positions in the enemy's rear. Corps light infantry units are best suited to conduct an infiltration. The corps commander may use infiltration in conjunction with other forms of maneuver to attack lightly defended positions or stronger positions from a flank and rear, to secure key terrain in support of the main effort or to disrupt enemy rear operations. The size, strength, and composition of infiltration forces will usually be limited to avoid detection until the objective is reached. Limited objectives and tasks are also the norm with infiltration forces.

The corps engineer supports infiltration operations with light corps engineer units and equipment as required. Covert obstacle-breaching, obstacle-emplacement, and long-range communications capabilities are packaged with supporting engineer forces. Engineers perform any needed reconnaissance of terrain, obstacles, and enemy engineer capabilities.

PENETRATION

The corps commander uses penetration when the enemy's flanks are not assailable, to attack through the enemy's principal defensive positions, to break the integrity of the enemy defense, and to defeat the enemy in detail. Penetration is conducted when the enemy force is overextended, a weakness is detected, or an



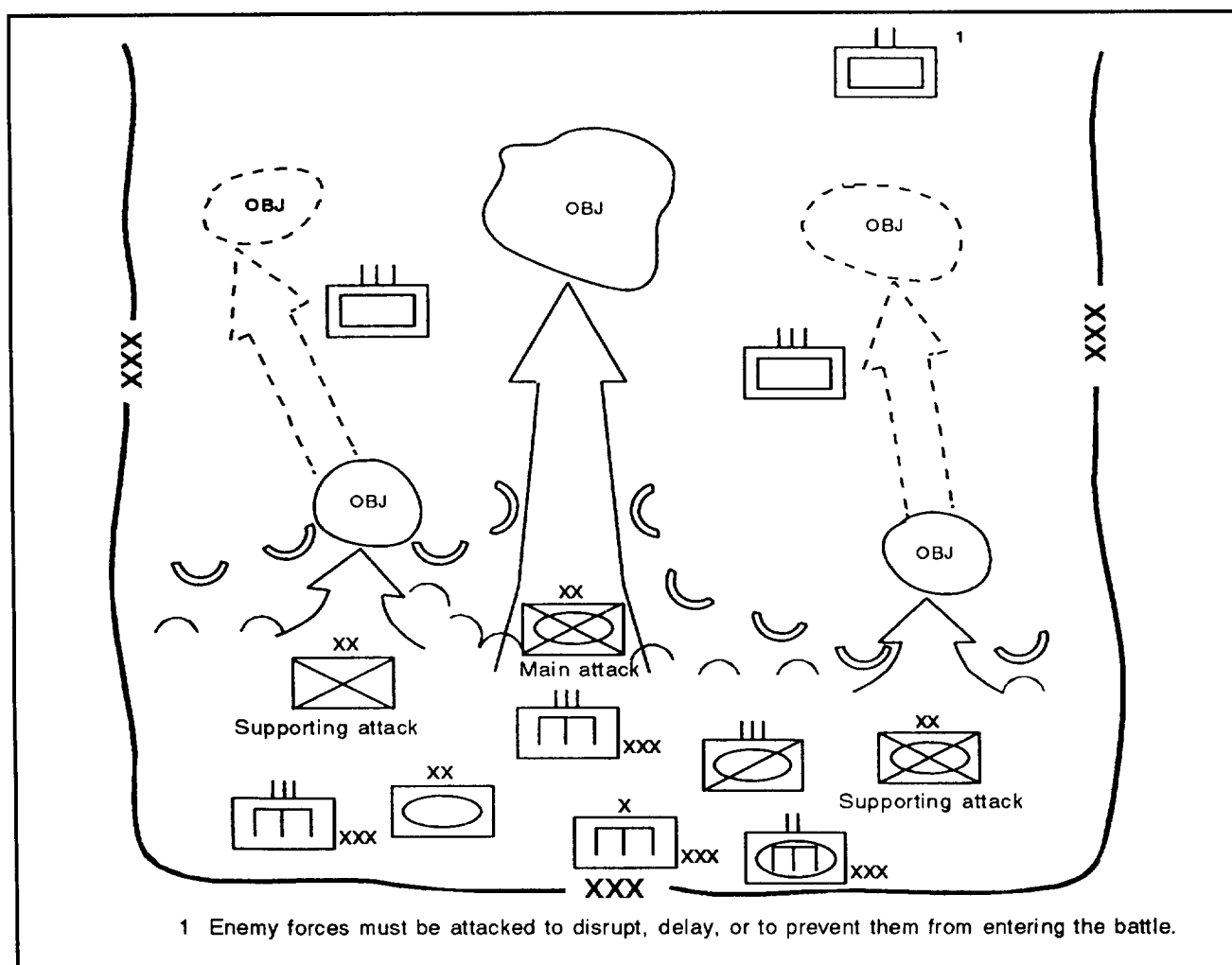


Figure 5-11. Corps conducting a penetration

weighs the advantage of penetrating on multiple axes versus the higher costs and casualties that may be inflicted.

The corps engineer supports a corps penetration by providing the lead division in the main effort with overwhelming mobility to decisively rupture the enemy's obstacle system. This remains the engineer's main effort until the penetration is achieved. The corps engineer masses obstacle-reduction assets into the main attack's division engineer brigade or battalion. Penetration requires the creation of more lanes along a more narrow front than normally associated with breaching operations. As penetration is achieved, the engineer main effort shifts

to providing mobility to supporting attack and follow-and-support forces widening the gap. Depending on the enemy situation, countermobility may become the main effort to defeat counterattacks against the lodgment. The corps usually uses follow-and-support forces to secure the lodgment and defeat any counterattacks. The corps engineer anticipates the size of expected counterattack forces, analyzes likely avenues of approach, and allocates the countermobility assets needed to fix or disrupt counterattack forces. He may plan situational obstacle zones and directed corps targets that only become active on the corps commander's order. Once the lodgment is secured, the engineer priority shifts to assisting the corps in

exploiting its success by ensuring the mobility of its exploiting divisions. The corps engineer develops a scheme of engineer operations that allows for the rapid development of a lane network within the penetration. The lane network supports both the uninterrupted passage of the corps reserve to subsequent objectives and the logistics flow to forces in the penetration. The corps engineer constitutes an engineer follow-and-support force to expand, upgrade, and maintain the lane network. The corps engineer also ensures the corps reserve has enough engineers to maintain its own mobility as it attacks deep into the enemy's rear area.

FRONTAL ATTACK

The corps uses a frontal attack to overrun, destroy or capture a weaker enemy force in position. The frontal attack strikes the enemy across a wide front, over the most direct approaches, or against an enemy weakness or assailable flank. The frontal attack is used when the corps has overwhelming combat power and the enemy is at a clear disadvantage. A corps may employ a frontal attack as part of a supporting attack of a TA envelopment. It is the least desirable form of maneuver because it inherently wastes lives and material unless there is some additional reason for it. Such reasons could be the lack of an assailable flank, critical time constraints, or the desire to deal a severe psychological blow to the enemy. In the frontal attack, the corps

strikes along a wide front with two or more divisions abreast attacking in the zone (Figure 5-12, page 5-20). The frontal attack is an appropriate form of maneuver to be used by a fixing division conducting a supporting attack to an envelopment.

The corps engineer supports the frontal attack by providing adequate mobility support across a wide front along multiple axes. The mission's nature may prevent massing overwhelming mobility support from the corps perspective. However, the corps engineer ensures the task organization allows attacking divisions to mass engineers as required at their level. The corps engineer tries to balance mobility assets with each attacking division to allow the flexibility needed across the front. Follow-and-support corps engineers are decentralized and balanced across the front. They focus on widening lanes, breaching bypassed obstacles, and constructing and improving MSRs. The corps engineer also provides balanced countermobility and survivability assets for each division to establish a decentralized hasty defense on the objective. If the corps's plan is to establish a deliberate defense immediately upon consolidation, the corps engineer allocates needed corps engineer forces to the division at the outset of the frontal attack. He also plans for and coordinates with the corps G4 to pre-position and push necessary Class IV obstacle supplies and Class V mines and demolitions to the divisions.

CORPS OPERATIONS IN DEPTH

The corps engineer thoroughly understands the corps offensive framework to integrate effectively into offensive operations as both the engineer planner and the unit commander throughout the depth of the battlefield. Corps engineers supporting maneuver elements during offensive operations will normally be placed in a command relationship that provides responsive support to the division, separate brigade, or cavalry regiment. Corps engineers

will normally weight the main effort but are prepared to shift the main effort rapidly to reinforce success. Maintaining the maneuver elements' mobility is the engineer effort's first priority in offensive operations. Corps engineer units can be task-organized to provide support for river-crossing operations, obstacle breaching, construction of combat trails, MSR maintenance, and other types of support. Corps engineers augment maneuver force engi-

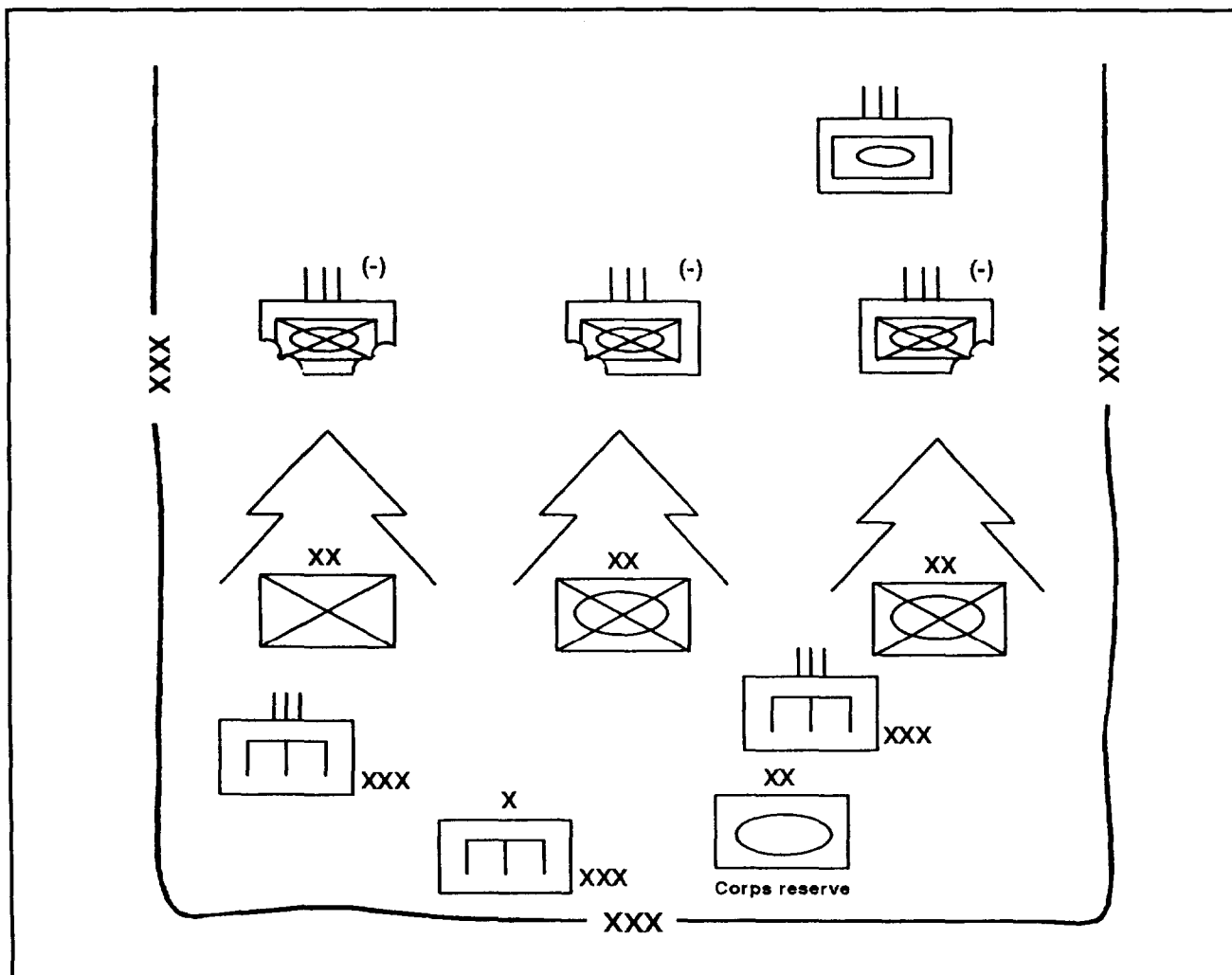


Figure 5-12. Frontal attack

neers to help develop and maintain multiple approach and attack routes. These routes allow forces to enter the fight quickly, building combat power at the point of concentration. During the offense, corps engineers fully support deep, close, rear, reconnaissance and security, and reserve operations simultaneously throughout the entire battlefield.

DEEP OPERATIONS

Corps engineer support to deep offensive operations is primarily accomplished in the areas of topographic engineering countermobility and ground maneuver mobility operations. Deep topographic support enhances the com-

mander's ability to see the battlefield and develop courses of actions. Needed terrain analyses include the identification of MSRs, determining the current condition of MSRs and attack routes, the classification of bridges along the attack route, and the status of damaged or destroyed bridges. Various trafficability overlays and other terrain products are also developed. The corps engineer participates in deep countermobility targeting that synchronizes future mobility requirements and assists in the identification of HVTs such as dams, bridges, and other man-made facilities. Bridges in key mobility corridors may intentionally be left intact if their destruction might inhibit future offensive operations. The corps engineer also

recommends the employment of deep scatterable mines, such as the Gator and other air-delivered munitions, to disrupt the enemy's follow-on echelons and his logistical resupply. Light engineers with SOFs may be employed deep in the enemy's rear to protect key choke points or to interdict enemy movements and reinforcements. Corps engineer tasks in support of deep ground maneuver include augmenting ground forces with obstacle-breaching capability obtained from corps combat engineers equipped with breaching equipment, constructing combat trails and aerial resupply points, maintaining logistics supply routes, and providing countermobility and survivability support at deep objectives and to protect flanks.

CLOSE OPERATIONS

Close offensive operations are normally described in terms of the main attack supporting attacks, and follow-and-support forces. Close offensive operations must also consider implications of contingency and deception plans.

Main Attack

The corps engineer's main effort during close offensive operations is to provide dedicated engineer support to the main attack division with mobility assets. Corps engineers should remain focused on this effort until the mission and objectives are accomplished.

Supporting Attack

The corps engineer identifies the engineer requirements of the supporting attack by considering how the supporting attack assists the main effort. He then identifies the critical engineer tasks necessary to render that assistance. While the supporting attack is not normally the main effort of engineer support, certain essential engineer missions may receive priority resourcing. For example, the corps may task its supporting attack division to conduct a deliberate river crossing to fix an enemy counterattack force in position before

it can be committed against the main attack. In this case, corps engineers committed to this supporting attack may be task-organized with the bulk of the corps's float-bridging assets, taking some flexibility away from the main effort. Corps engineers normally support division and separate brigade supporting attacks with mobility assets, countermobility (primarily through the use of scatterable mines) to the flanks, and survivability to units engaged in economy-of-force operations. Corps engineer units not committed to main or supporting attacks upgrade breach lanes and logistics supply routes and support deliberate river crossings for forward passage of exploiting divisions and separate brigades. They assist in rearward passage of covering-force units as well as support reserve forces, should they be committed.

Follow-and-Support Forces

The corps engineer understands the corps commander's intent for the use of follow-and-support forces during close offensive operations. He analyzes the engineer tasks inherent in the possible missions assigned to the follow-and-support force and task-organizes engineer support accordingly. Corps engineer forces may provide the bulk of engineer support to follow-and-support forces, especially to widen breaches or breach bypassed obstacles. However, the corps engineer avoids allocating corps engineer forces to follow-and-support missions at the undue expense of the corps main effort.

Contingency Plans

Corps engineers are sensitive to the corps's contingency plans, branches, and sequels. The corps engineer anticipates engineer requirements and plans for the improvement of routes between divisions to facilitate lateral shifts in combat power. In addition, the corps engineer develops plans for shifting critical engineer assets between divisions as the main effort or mission changes.

Deception Plans

The corps engineer participates in planning deception operations by identifying engineer requirements needed to support the overall deception plan. He also identifies the impact that committing engineer resources to the deception effort has on support to the corps main effort. For example, the corps may use a demonstration by a division to cause the enemy commander to position his reserve tank division away from the friendly main effort. This deception picture may not be complete without a show of engineer force, including corps augmentation to conduct breaches. The corps engineer determines the trade-offs necessary to accomplish this demonstration versus supporting the corps main attack.

REAR OPERATIONS

Corps engineers support offensive rear operations by constructing, maintaining, and improving fluid LOC necessary to sustain the force. The corps engineer, with help from the ACE and corps rear CP engineers, assists the corps deputy commander in developing and controlling engineer units committed to rear operations. The corps rear CP engineer, in coordination with the corps TAC and main CP engineers, anticipates mission requirements for Class IV obstacle supplies and Class V demolitions and mines to be pushed forward to attacking divisions. The ACE may develop clearly defined EWLs between corps, forward division, and theater engineers to support rear operations. EWLs are delineated to maximize engineer support and battle command. Because of this, they may or may not coincide with corps maneuver graphics, such as boundaries and phase lines. When all available corps engineer forces must be committed into the forward corps area, the ACE recommends movement of the corps rear boundary forward. If the boundary is not moved, an EWL should be designated to allow theater or host-nation engineers to work forward of the corps rear boundary. The ACE, the rear CP engineer, and the supporting rear engineer

group designate, locate, establish and maintain follow-on bridging assets in corps bridge parks. As requirements are anticipated, bridge stocks are pushed to forward bridge parks. During offensive operations, the corps normally operates two airfields in the rear area until such time as joint or multinational services start to operate in or out of these airfields. Corps airfields and heliports are kept operational by corps engineers expeditiously repairing damage to facilities using landing mats and other surface and subgrade repair techniques. The ACE and the rear CP engineer, working with the corps G4, identify locations for the corps map depot. They also work with the G4 and corps chemical officer to provide construction support in order to develop operational decontamination and unit reconstitution sites that provide responsive support to corps units. In coordination with the corps RTOC, corps engineers assist in the development and survivability of logistics bases and base cluster defenses to protect sustainment units from threats in division and corps rear areas. This includes rear-area countermobility support in the areas of protective obstacles and on-order scatterable mining. Mobility support to designated TCFs is normally provided by corps engineers operating in the rear area.

RECONNAISSANCE AND SECURITY OPERATIONS

Corps engineers assist in reconnaissance in multiple roles. The corps engineer and ACE work closely with the corps staff to integrate engineer information requirements into the total corps intelligence-collection effort. The corps engineer assists the G2 cell in interpreting and analyzing this intelligence. He assists the corps commander and his staff in analyzing the impact engineer intelligence has on current and future corps operations. Because engineers are normally spread throughout the width and depth of the corps's AO, they make maximum use of engineer channels to forward engineer reconnaissance information and combat intelligence to higher headquarters and to

pass analyses to subordinates. Corps engineer battalions attached to cavalry regiments directly participate in corps reconnaissance operations. Other forward corps reconnaissance units are augmented with engineers to provide needed breaching assets and other mobility enhancements and to assist with obstacle reconnaissance. Corps engineer bridge companies with diving capability conduct extensive river reconnaissance when required. Engineer construction units continually assess the availability of local construction materials and equipment.

The corps engineer assists in corps security operations by identifying with the G2 likely mobility corridors and avenues of approach that threaten the corps's flanks and rear. He analyzes the threat and makes recommendations on the use of situational obstacles to assist guard and screening forces in their security missions. Security forces that are augmented with corps engineer forces emplace situational obstacles along the flanks. Topographic engineers actively collect engineer reconnaissance data for integration into the topographic data base and ensure that updated

data bases and products are disseminated to corps units.

RESERVE OPERATIONS

The corps engineer understands all of the corps reserve forces' be-prepared missions and analyzes the engineer tasks involved. In the offense, engineers task-organized to support the reserves are essential. The premise that engineers are never held in reserve must not delay the commitment of the corps reserve by changes in engineer task organization necessary to accomplish its mission. Avoid the use of on-order support missions for engineers supporting corps reserve forces. Dedicated engineers are allocated to the reserve well in advance of their commitment due to travel, reorganization, and rehearsal time effecting task-organization changes. Corps engineer units supporting these reserves focus primarily on mobility operations. They can be used to guide maneuver units through breached obstacles. Task-organized corps reserve force engineers can also work rear-area type missions in the area of the reserve force as long as they can quickly react to commitment of the reserve force.

ENGINEER OFFENSIVE PLANNING

This section focuses on planning support for offensive missions. The engineer estimate provides the planning framework for the corps engineer to integrate into the corps command-estimate process. It provides a systematic procedure for developing the engineer task organization and scheme of engineer operations to support the corps in offensive operations. The corps engineer staff (the engineer brigade commander, the brigade staff, and the SES) conducts offensive engineer planning using the engineer-estimate process. Each staff element plans offensive engineer operations simultaneously sharing required information. The corps engineer blends this planning process into an engineer support plan that meets the corps

commander's intent and concept of the operation. The basic engineer-estimate process is found in Appendix B.

MISSION ANALYSIS

The mission analysis phase occurs from the receipt of the mission through the identification of required engineer tasks. It includes analyses of terrain, enemy and friendly engineer capabilities.

Mission Receipt

The engineer-estimate and offensive planning processes begin with the corps engineer receiving his mission. This mission is extracted from

the TA, JTF, or other higher headquarters OPORD; the engineer annex; graphics; and the corps WARNORD. Based on the identified mission the corps engineer staff participates in the corps mission-analysis process by developing facts and assumptions. Working simultaneously with the G2 and G3, the corps engineer staff conducts an EBA. This EBA consists of analyzing the terrain and assessing the enemy and friendly engineer capabilities.

Terrain Analysis

Terrain analysis is conducted by the corps engineer staff with the corps G2, corps terrain-analysis teams, and the corps topographic company using the observation and field of fire, cover and concealment, obstacles, key terrain, and avenues of approach (OCOKA) framework. The terrain analysis is then used to develop the enemy situation template and corresponding scheme of maneuver. The corps topographic company will produce a detailed, large-scale (1:5,000 to 1:10,000) image map annotated with known obstacle locations, enemy positions, and key terrain features of the decisive terrain (obstacle belts and key objectives) for use in detailed planning. For the offense, the terrain analysis focuses on identifying where an enemy will defend, where the corps can move while conducting its offensive operation, and where the corps is vulnerable to flank attack and enemy counterattack.

Enemy Engineer Capability

The corps engineer staff works with the G2 in identifying the engineer capability of both the enemy maneuver and engineer forces. Based on the knowledge of how enemy engineers support defensive operations and the specific enemy engineer capability to support the defense, the staff plots enemy obstacle belts and the estimated survivability status on the enemy situation template. Based on the situation template, the staff develops specific engineer intelligence requirements and nominates NAIs to incorporate in the corps reconnaissance and surveillance (R&S) plan.

Friendly Engineer Capability

Working with the corps G3, the corps engineer staff analyzes friendly engineer capabilities based on the available engineer force to the corps, including organic division separate brigade, cavalry regiment, and theater engineers working in the corps area. The staff accounts for all available and mission-capable engineer assets that support the corps. Additionally the staff accounts for corps mobility assets, including specific breaching and bridging equipment, and checks scatterable-mine availability.

Engineer Tasks

The corps engineer staff continues the mission analysis by conducting a complete review of the higher command OPLAN or OPORD, including operational graphics. The staff focuses on identifying specified and implied tasks, additional engineer assets available in the task organization, the specified acceptable risk, and the time available to conduct the mission. Based on this analysis, the staff determines which engineer tasks are mission essential and provides this information to the G3 for inclusion in the restated mission.

COURSE-OF-ACTION DEVELOPMENT

Once mission-essential engineer tasks are identified, the corps engineer-staff analyzes the corps commander's intent and each developed COA for engineer implications. This includes weighting the engineer main effort, engineer C2 requirements, and engineer logistics requirements for each COA. The COAs are then war-gamed and recommended to the corps commander.

Corps Commander's Intent

The corps commander issues his guidance and intent following the development and approval of the restated mission. Based on his guidance and intent the corps engineer staff identifies the form of maneuver and the type of attack the corps will employ. The engineer staff confirms specified, implied, and essential engineer tasks

and prepares to support COA development by the corps staff.

Course-of-Action Analysis

Based on each corps's proposed COA, the corps engineer staff looks two levels down to the maneuver-brigade level and develops a scheme of engineer operations, focusing on essential engineer tasks. The staff uses the corps commander's intent, the terrain analysis, and the enemy situation template to identify the required mobility tasks and engineer assets needed to perform them. Next, the staff looks at countermobility tasks, including those required to provide flank and rear security during movement and those required to support hasty defenses on the objective. The staff identifies assets required to accomplish those missions and conducts the same analyses for general engineering and survivability missions.

Engineer Main Effort

Having identified the tasks and assets required for a COA, the corps engineer and his staff establish where the engineer main effort must be. The staff reviews the engineer and maneuver assets available, allocates engineer assets and recommends the allocation of maneuver assets, and identifies any shortfalls. If shortfalls exist, the staff confirms them by verifying available assets and requesting additional assets, including host-nation assets, from the higher headquarters command through the G3. If additional assets are not available, the corps engineer focuses on main effort tasks and reallocates assets to compensate for the shortfall. Any risk associated with the shortfall of engineer assets is identified and addressed during war gaming and COA comparison.

Engineer Command and Control

Following the allocation of engineer assets, the corps engineer staff focuses on engineer C2. The staff ensures assets assigned to each subordinate engineer headquarters do not exceed

their span-of-control capability. If a shortfall exists, the staff analyzes all available C2 headquarters and upgrades the C2 structure. As a rule of thumb, an engineer C2 headquarters can effectively control five to seven subordinate units. Engineer communications capability is also identified, ensuring that corps engineer C2 headquarters can be adequately supported by the corps area signal network. If the engineer C2 capability cannot be upgraded, this shortfall is identified during war gaming and COA comparison. Other C2 considerations include identification of future task-organization changes, changes in effort, and essential tasks.

Engineer Logistics Support

The corps engineer staff analyzes logistics support requirements for each COA. Especially critical is the identification of shortfalls in engineer breaching and bridging equipment, Class V demolition supplies (such as MICLIC), fuel supplies, maintenance, and transportation capability. Critical engineer personnel shortages are also identified. If shortfalls exist, the staff verifies them and requests additional logistics capability from the higher headquarters command through the G3. If additional logistics capability is not available, the corps engineer focuses logistics support on main effort tasks and reallocates other logistics capability to compensate for the shortfall. Any risk associated with the shortfall of engineer logistics support is identified and addressed during war gaming and COA comparison.

ORDERS DEVELOPMENT

Once COAs have been war-gamed, compared, and recommended to the corps commander, he decides how the offensive mission will be conducted and gives his intent and concept of the operation. Based on this, the corps engineer staff refines the corps engineers' missions and develops a scheme of engineer operations that integrates engineers into the total corps scheme of maneuver. This scheme is included in the execution paragraph of the corps basic OPLAN or OPORD by the SES. To accomplish

these tasks, the SES finalizes the engineer task organization and command or support relationships, assigns engineer tasks to the corps's subordinate units (divisions, separate brigades, and the cavalry regiment) in subunit paragraphs and the coordinating instructions, provides engineer-specific input into the service and support paragraph and develops the engi-

neer annex to the OPLAN or OPORD. The SES then briefs the corps engineer's plan to the corps' subordinate maneuver commanders using the corps orders brief. Simultaneously the corps engineer brigade staff develops the engineer OPLAN or OPORD in coordination with the SES. It ensures complete dissemination to all engineer units working for the corps.

PREPARING FOR ATTACKS

During offensive operations, corps engineer commanders maximize time available for planning and issuing orders. Attack orders embody the commander's intent and concept of operation. During the offense, synchronization of engineer support to the combined arms team is especially critical. The corps engineer brigade staff produces an engineer DST and a synchronization matrix that fully supports corps offensive plans. Both are updated and modified as the attack progresses. The engineer DST and the synchronization matrix could highlight engineer support activities such as the following

- Ž Integrated engineer participation in all combined arms planning, back briefs, and rehearsals prior to the attack.
- Ž Corps topographic engineer units providing detailed terrain products of attack routes that assist corps planners in the IPB process. These products, especially the MCOO, can help identify obstacle and bypass locations.
- Ž Forward staging of corps engineer battalions in forward attack positions with other field artillery (FA), ADA, and logistics units to allow the corps to strike quickly and deeply.

- Ž Corps engineers operating in rear areas constructing mock-up complex obstacle systems and other terrain features that may be encountered, allowing integrated, combined arms, in-stride breaching rehearsals.
- Ž Engineer participation with attack route reconnaissance forces ensuring that follow-on engineer forces are task-organized to meet the mobility requirements needed to keep the maneuver force moving.
- Ž Pre-positioning bridge stocks and obstacle-breaching material forward to assist in forward movements.
- Ž Constructing forward logistics bases prior to attacks, allowing uninterrupted logistics support during the attack.
- Ž The loading and carrying of mines and other obstacle-emplacement material, ensuring protection against flank and objective counterattacks.
- Ž Situational obstacle decision points concerning the emplacement of deep scatterable mines, such as the Gator, along with flank and rear corps-directed obstacles.

CONDUCTING ATTACKS

The corps engineer and his staff closely monitor the preparation and execution of the offensive mission refining the plan as necessary based on the situation. The staff reviews subordinate engineer unit OPLANs and OPORDs, along with the engineer annexes and engineer portions of maneuver unit OPLANs and OPORDS, for compliance with the corps commander's intent. The staff maintains continuous liaison with other command and staff organizations to ensure the synchronization of

engineer actions within the scope of the corps offensive plan. Continuous communications between the corps staff, the corps SES, the corps engineer brigade, and subordinate engineer headquarters is vital to influencing engineer support to corps attacks. The goal is to avoid major engineer task-organization changes and shifts in engineer priorities during the attack through effective offensive planning.