

CHAPTER 6
COMBAT SUPPORT

The battalion task force commander uses combat support elements as combat multipliers to enhance the combat power of his maneuver companies. Knowing combat support capabilities, employing them appropriately, and synchronizing their operations are essential to applying superior combat power at the decisive time and place.

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Section I. RELATIONSHIPS AND RESPONSIBILITIES

Combat support elements provide the task force significant amounts of additional combat power. These elements support the task force under established command and support relationships. Regardless of the relationship of the combat support element to the task force, the task force commander is responsible for integration and synchronization of available combat support to accomplish his mission.

6-1. COMMAND AND SUPPORT RELATIONSHIPS

- a. Specific applications of the command and support relationships are in the discussion of combat support elements throughout this chapter. Table 6-1 provides an illustration of the relationship between the task force and combat support elements.
- b. The leader of a combat support element that is attached, under OPCON, or DS to the task force also serves as a special staff officer to the task force commander. During planning, preparation, and execution of the task force mission, he provides assistance, advice, and recommendations on employment of his unit to the task force commander and staff. He employs his unit as directed by the task force commander.

UNIT	ATTACHED	OPCON	DS	GS
Under Command/ Control of—	TF CDR	TF CDR	Parent Unit	Parent Unit
Task Organized by—	TF	Parent Unit	Parent Unit	Parent Unit
Receives Missions, Tasks, and Priorities from—	TF	TF	TF	Parent Unit
Positioned by—	TF	TF	Parent Unit*	Parent Unit*
Maintains Communications and Liaison with—	TF	TF and Parent Unit	TF and Parent Unit	Parent Unit
Receives CSS from—	TF***	Parent Unit**	Parent Unit**	Parent Unit

* With specific approval of the task force commander if within the task force area of operations. (Any unit in the task force area requires positioning approval.)

** CSS requirements beyond the capability of the parent unit are provided by the task force after specific request and coordination between the task force, parent unit, and brigade headquarters has been made.

*** Attached element brings an appropriate slice of combat service support equipment and personnel to supplement the task force's assets.

Table 6-1. Task force command and support relationships.

6-2. COMBAT SUPPORT TO COMPANY TEAMS

As a result of his estimate of the situation, the task force commander decides how to employ his combat support assets. He retains centralized control of the organic and attached combat support assets by specifying tasks and assigning priority of support to his subordinate company teams. However, in some circumstances a combat support element may need to be attached to a company team along with sufficient logistical support.

Section II. INDIRECT FIRE SUPPORT

The mission of fire support is to mass firepower to delay, disrupt, or destroy enemy forces in support of the scheme of maneuver.

6-3. PLANNING CONSIDERATIONS

- a. The task force commander and his FSO integrate the firepower of mortars, field artillery, close air support, and, when available, naval gunfire with the maneuver of combat units (including available attack helicopters) to defeat the enemy.
- b. One of the commander's greatest challenges is in synchronizing and concentrating all of his combat power at the critical time and place. There will be a multitude of targets to engage in a short time and a time lag from the time the decision is made to use supporting fires until the target is hit. The commander alone will not have the time to integrate all the weapons available to him in terms of concentrated combat power. The FSO assists the commander by developing the fire support plan concurrently with the maneuver plan. During the battle, the FSO and fire support section monitor the execution of fire support to ensure compliance with the commander's intent and to provide continuous support.
- c. In using fire support, the task force commander considers the following.
 - (1) **Fire support to complement maneuver systems.** Fires are used to accomplish missions that maneuver forces cannot, or that would otherwise divert maneuver forces from the main effort, such as suppressing an enemy position to allow concentration of maneuver forces elsewhere.
 - (2) **Surprise.** Massed surprise fires are most effective — the destruction that can be achieved by supporting fire is proportional to the preparedness of the enemy.
 - (3) **Most effective roles.** To best integrate fire support, the task force commander must know the capabilities and limitations of all supporting fires and ensure that fire support is used where and when it will be most effective. The combined fires of an FA battalion and the battalion's mortar platoon can cover less than a square kilometer and, therefore, must be judiciously planned.
- d. The planning and coordination processes begin when the mission is received or assumed, and they never stop. The commander, XO, S3, S2, and FSO interact throughout the planning and execution of the mission to ensure that fire planning is a continuing process.
- e. As the task force commander develops his plan for the employment of maneuver forces, he and the FSO develop the best use of fire support resources by determining:

- Which subordinate units to weight with fire support.
 - What targets to attack.
 - What fire support means to use.
 - What target effect to achieve.
 - What priorities to set for engaging targets and allocating fires.
- f. The commander must ensure that he clearly states his intent for fire support, that his fire support plan is developed accordingly, that all available fire support is considered, and that each phase of the maneuver plan is supported by the fire plan. The FSO must ensure that he understands the commander's requirements for fire support. Areas that the commander must coordinate with the FSO include the following.
- (1) Scheme of maneuver — area of operation, timing of advance, rate of movement, passage of lines, army aviation in sector.
 - (2) Priority of fires — which unit has priority of artillery and/or mortar fires.
 - (3) Targets of concern — those targets which if not fired upon will seriously impede mission accomplishment.
 - (4) Priority targets — what the priority targets are and how long they will be in effect.
 - (5) Effects of fire —
 - (a) *Suppression* limits the ability of personnel in the target area to perform their jobs. The effects of suppressive fire last only as long as the fires continue.
 - (b) *Neutralization* temporarily knocks the target out of action, producing 10 percent or more casualties. Most planned missions are neutralization fires.
 - (c) *Destruction* renders the target ineffective for a prolonged period of time. Destruction requires large quantities of ammunition or special munitions.
 - (6) Use of mortars — mission, target effects, control, displacement, locations, and ammunition mix.
 - (7) Close air support — in coordination with the FAC, what is available, when it is available, and how it will be used (including target selection and desired effects).
 - (8) Fire support coordination measures — existing or proposed permissive or restrictive control measures established by higher headquarters or the task force itself.

- (9) Ammunition restriction — limitation on the use of smoke, improved conventional munitions, or other ammunition (including established CSRs).
- g. At battalion task force level, the FSO is assisted by the FSS and company FISTs. They provide personnel for continuous planning and coordination of supporting fires.
 - (1) The FSS, battalion S3 Air, and advisers from the other fire support means are collocated in the battalion main CP for the planning and coordination of fire support and form the battalion fire support element (FSE). A TACCS from the TACP is part of the FSE and, if naval air or naval gunfire support is available, the FSE may also include a supporting arms liaison team (SALT) or shore fire control party (SFCP). The FSE coordinates and works closely with the brigade FSE, the FSE of other battalions, the DS field artillery battalion FDC, the S2 and the S3, the mortar platoon leader, the engineer platoon leader, and the company FISTs.
 - (2) The company FIST provides the fire support planning and coordination required by the company. The FISTs are provided by the DS FA battalion. The FIST is supervised by a field artillery lieutenant (company FSO) who is the company commander's FSCoord. Occasionally, spotter teams for naval gunfire (NGF) and forward air controllers for CAS will collocate at the company to advise and assist the company FSO in the use of their assets.
- h. The planning process determines how fire support will be used — what type of targets will be attacked, when, and with what means. The plan is flexible to accommodate the unexpected in combat.
 - (1) The depth and detail of fire support planning depends on how much time is available. Many of the fire support actions that occur in response to battle situations are established in SOPs or directed in FRAGOs.
 - (2) Fire support planning is continuous and concurrent at all levels.
 - (3) The fire support plan outlines the way artillery, mortars, and close air support will be used to complement the scheme of maneuver, and it provides instructions for executing those fires. It ranks targets in priority order, matches them with the available fire support systems, eliminates duplication with brigade targets, and allows fires to be executed quickly, without specific direction from the commander once the battle starts. A task force fire support plan may include:

- A general concept of how fires will support the battle.
 - A target list that includes locations where fires are expected or likely to be used. Known enemy locations should be carefully targeted, but too many targets complicate the fire plan and delay fires.
 - A priority of fires telling which element will receive fire support in case of conflicting needs.
 - A priority of targets telling which type of mission to fire first.
 - An allocation of priority targets and FPFs, if available.
 - An execution matrix for indirect fire weapons.
 - Informal airspace coordination areas.
 - Coordination measures for providing troop safety and synchronizing supporting fires.
- (4) The fire support plan is developed by the FSO with assistance and input from the FAC, company FSOs, heavy mortar platoon leader, S2, and S3. A fire plan is constantly refined or modified as the operation continues, so as to provide responsive fires to the task force wherever they are needed.
- (5) At task force level, the FSO disseminates, in the OPORD, a fire plan to support the task force. This plan usually contains all the elements listed above, and it is modified as company team fire plans are received. Updated fire plans are sent back to FISTs and disseminated to the mortar platoon, DS battalion FDC, and brigade FSE.
- (6) Company FSOs accompany the company team commanders to receive the task force OPORD. This allows the company FSOs to hear the concept of the operation simultaneously with their commanders. Within minutes after the OPORD is given, they can get together to develop their fire support plans. This arrangement also allows the task force FSO to brief the company FSOs on plans the task force commander wants implemented. Written fire plans are disseminated, questions answered quickly, and conflicts resolved with minimum confusion.
- i. The task force commander and FSO may develop an event-oriented scheme of fire support in conjunction with developing the selected course of action. This fire support plan will require a specific FO, company FSO, or other element to fire a specific indirect fire system at a designated target when or if a specific event occurs. For example, when the lead platoon of Team B

reaches Highway 40, the B team FSO will fire group A1B; when Company C begins crossing phase line Red, an FO attached to the scout platoon will fire smoke from the mortar platoon on targets AB2712 and AB2713; when the enemy reaches and attempts to breach the obstacle at NA395678, the Team A FSO will fire FASCAM on target AB2203; if the enemy moves to the south of checkpoint 6, the Company D FSO will shift fire from target AB2521 to engage the lead elements of the enemy column. This scheme of fire support is a result of IPB, and forms the basis of the fire support execution matrix.

6-4. COORDINATION

- a. Effective fire support depends on centralized planning and decentralized execution and coordination. Based on the commander's intent and concept of operations, the FSOs and FISTs execute the plan during the battle with minimum specific instruction. The battalion FSOs coordination includes all of the following actions.
 - Ensure that the DS battalion FDC, the mortar platoon FDC, and any other supporting elements have the correct fire support plan and understand their portion of it and the supported unit's mission. Fire support rehearsals are conducted before the battle.
 - Verify that the task force mortars are in position to support.
 - Keep the brigade FSE and the supporting field artillery main CP informed of the tactical situation.
 - Select fire support means to attack targets during the battle.
 - Ensure that the task force commander and S3 are kept informed concerning any degradation of fire support.
 - Modify the fire support plan during the battle to react to battlefield changes, and make sure that FISTs are aware of changes.
 - Coordinate requests for additional fire support with higher level fire support elements.
 - Monitor execution of the fire support plan. Normally, the task force FSO does not personally direct adjust fires. He usually directs a company FSO to do so.
- b. The task force FSO must ensure that the plan developed remains supportable. He must immediately inform the battalion commander if there is not enough fire support allocated to make the

- plan work, or if circumstances dictate changes in the plan. To do this, he must be forward with the tactical CP during the battle, and will normally ride with the commander.
- c. The FSO must keep abreast of the tactical situation and coordinate all fire support affecting his zone, including that requested by the task force. He ensures that fires do not jeopardize troop safety, interfere with other fire support means, or disrupt adjacent unit operations. For this coordination, the FSO relies on the FSE at the main CP to keep him abreast of all information including fire support coordination measures, fire support asset locations, and fire support status.
 - d. During the battle, shifts in priorities of fire, changes to the fire plan to support a changed scheme of maneuver, and requests for immediate CAS are all made well forward by the FSO and FAC at the tactical CP. The FSE at the main CP continues its planning responsibilities and provides backup support to the tactical CP.
 - e. The task force FSO will normally be limited to operating on one fire support net when forward. The FSE must keep the FSO and other elements of the task force informed of fire support status and keep the FA abreast of the tactical situation of the task force. Likewise, the FSE must be kept informed of the forward tactical situation and of actions of the mortar platoon. Frequently, the FSE will have to relay calls for fire. The FSE must ensure communications with the forward FIST and the supporting FA system. In the event of loss of the FSE, the FSO must designate the least committed FIST to assume the FSE functions.
 - f. Lateral coordination between the battalion and company FSOs, the FSE, and the mortar platoon is the key to responsive and effective fires. The TF fire support net is used for this coordination.

6-5. TARGETS

Every target can be classified as either a target of opportunity or a planned target.

- a. A *target of opportunity* is one that has not been planned.
- b. A *planned target* is one on which fire is prearranged. Artillery and mortars precalculate firing data to expedite the execution of fires. To enhance accuracy, resection, hasty survey, GLLD polar location, or registration may be used to determine precise target locations. A planned target may be scheduled or on-call.

- (1) A *scheduled target* is a planned target on which fire is to be delivered at a specific time or upon occurrence of a specific event or maneuver phase.
- (2) An *on-call target* is a planned target to be fired on request rather than in accordance with a time schedule or specific event.
 - (a) A *priority target* is a planned target that takes precedence over other targets. A firing unit is prepared to engage it whenever the unit is not firing another mission. The maneuver commander designates priority targets. He should provide specific guidance to the FSCOORD as to when certain targets become priority targets, when they cease to be priority targets, the desired effects on the target, and any special type of ammunition to be used (such as smoke or VT). Priority targets are usually allocated one per artillery battery or mortar platoon. FA priority targets are allocated to the task force by the brigade commander. FA and mortar priority targets may be suballocated to company teams or other elements by the task force commander. A type of priority target used in a defensive situation is the final protective fire.
 - (b) *Indirect final protective fires (FPFs)* are a type of priority target used to create a barrier that impedes enemy dismounted movement across defensive lines or areas. This fire is integrated with the battalion commander's defensive plans. The brigade commander allocates priority targets to a maneuver battalion task force, and they may be further allocated to companies for use as FPFs. The task force commander may also allocate one FPF from the mortar platoon or one for each mortar section. The size of the FPF depends on the type of weapon:
 - 107-mm mortar platoon (6-gun): 300 by 40 meters.
 - 107-mm mortar section (3-gun): 150 by 40 meters.
 - 155-mm howitzer battery (6-gun): 300 by 50 meters.
 - 155-mm howitzer platoon (4-gun): 200 by 50 meters.The maneuver commander is responsible for the location of each FPF. It may be any distance from the friendly position that supports the current tactical plan (normally 200 to 400 meters). Authority to call for the FPF is given to the maneuver commander (the company

commander or platoon leader) to whom the FPF is allocated. The FSO is responsible for:

- Reporting the desired location of the FPF to the FDC.
- Adjusting the (by weapon) on the desired location.
- Transmitting the call to fire FPF to the supporting FDC.

6-6. MULTIPLE TARGETS AND TARGETING

Targets and targeting are discussed in detail in FM 6-20 and in FM 101-5-1. The following discussion covers only multiple targets and targeting techniques of most concern to the task force commander. Multiple targets call for special considerations. When fire is desired on several targets, groups, series, or programs of targets may be established. As with other targets, they may be planned at TF level, but must be approved by the DS battalion.

- a. **Group of Targets.** A group of targets consists of two or more targets on which simultaneous fires are desired. A group is graphically portrayed by circling the targets and identifying them with a group designation (Figure 6-1). The group designation consists of the letters assigned to the maneuver brigade or the division artillery TOC with a number inserted between them. The fact that targets are included in a group does not preclude the attack of individual targets within the group.

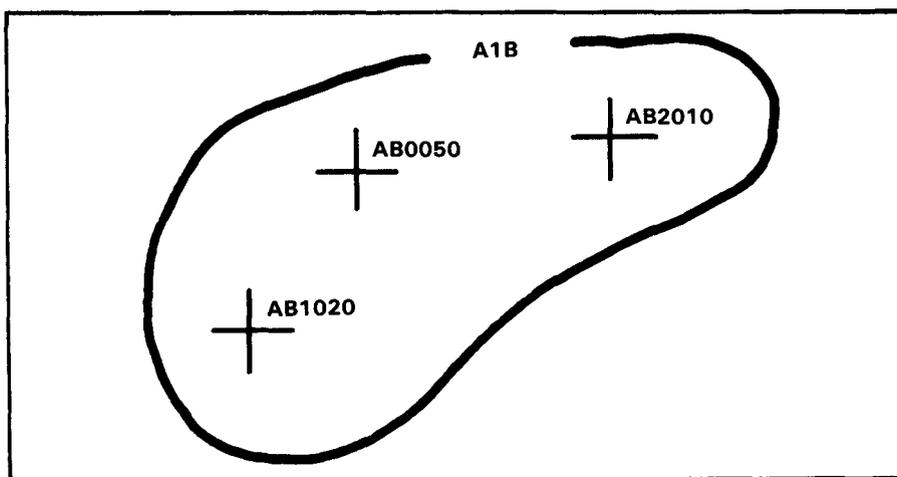


Figure 6-1. Example symbol for a group of targets.

- (1) **Offense.** This method is used when the battalion commander wants to attack several targets simultaneously or to suppress some enemy positions as he attacks others.

(2) **Defense.** In the defense, a group of targets can be used to destroy enemy stopped at minefield, or to destroy vehicles waiting to cross rivers or bridges. Individual targets in the group can be selected based on how the battalion commander thinks the enemy would form at these activities.

b. **Series of Targets.** A series of targets is a number of targets or groups of targets planned to be fired in a predetermined sequence to support the scheme of maneuver. A series may be either on call or scheduled. Graphically, a series is shown as individual targets or groups of targets within a prescribed area. The series is given a code name (Figure 6-2). Once a series is initiated, targets and groups of targets within the series are fired on a predetermined time sequence. Simultaneous engagement of targets in a group within a series is not mandatory. Phasing of targets within a series is as requested by the initiator or as determined by the fire planner, based on the nature of the targets and the desires of the force commander. The fact that a series of targets has been formed does not preclude the attack of individual targets or groups of targets within the series.

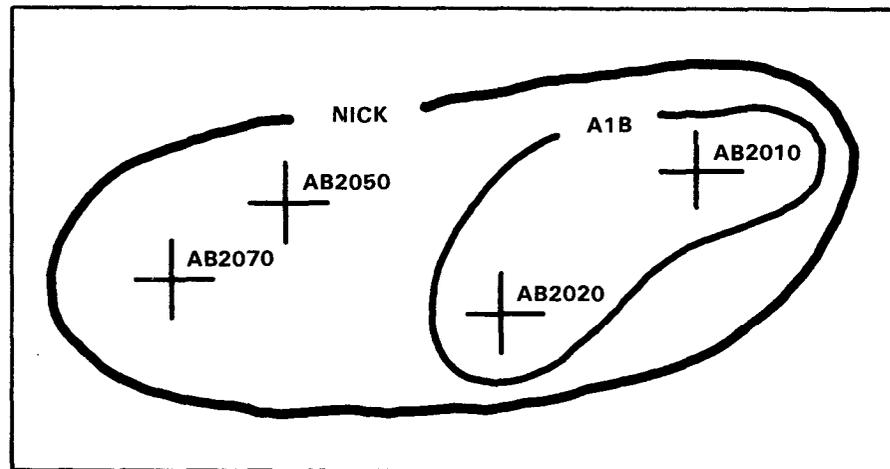


Figure 6-2. Example symbol for a series of targets.

(1) **Offense.** The series should be planned to support the assault timing on the objective. The series allows for fires to shift automatically to engage individual targets or groups of targets as the task force fights across an objective. The series can also be planned for targets beyond the objective.

(2) **Defense.** In the defense, the series allows for fires which, once again, are tied to speed; but in this case it is the speed at which the enemy will attack. A series of linear targets

may be planned to destroy the enemy attack echelons. Attack of linear targets 1,000 meters apart (3 minutes at 20 kilometers per hour) will keep fire automatically falling on the enemy.

- c. **Programs of Targets.** A program is a number of planned targets of a similar kind. All targets in a particular program are of the same type (for example, all enemy ADA, all mortar targets). A program may be scheduled or on call. Once a program is initiated, targets within the program are fired on a predetermined time sequence as listed in the schedule. At battalion level in both the offense and defense, a suppression of enemy air defenses (SEAD) program is the typical program fired.

6-7. OTHER FIRES

Commanders have several other fire support techniques available to complement the task force maneuver. Those most commonly used by the task force commander are preparation fires and interdiction fires.

- a. **Preparation Fires.** These fires provide an intense volume of fire delivered in accordance with a time schedule to support an attack. The preparation is normally planned at brigade or higher echelon. The battalion provides input for development of preparation fires.
 - (1) The fire normally commences before LD time. It may start at any prescribed time or may be on call. The duration of the preparation is influenced by fire support needs of the entire force, number of targets and firing assets, and ammunition available.
 - (2) A preparation is phased to permit successive attacks on certain types of targets. The first phase provides for the early attack of hostile fire support means and all observation systems. The second phase includes attack of command posts, communication facilities, assembly areas, and reserves. The final phase includes attack of defensive areas in the forward portion of the enemy position and targets that pose an immediate threat to the attacking force.
 - (3) When assigning fire support systems to targets in the preparation, planners make sure that some firing units remain available to attack targets of opportunity.
 - (4) Plans for firing preparations are continually updated to delete old targets and incorporate new ones. The division

or brigade commander, with the advice of his FSCOORD, makes the final determination as to whether the preparation should be fired.

- (5) The task force FSO must ensure that the preparation fires, especially those fired during the final phase on forward enemy positions, do not interfere with the task force scheme of maneuver. This is critical when the task force commander plans to infiltrate dismounted infantry forward of the LD before LD time. The FSO will ensure that any fires within the task force area of operations have the approval of the task force commander.
- b. **Harassing Fires.** Harassing fires are delivered on confirmed and suspected enemy locations for the purpose of disturbing the rest, curtailing the movement, and lowering the morale of enemy troops by the threat of casualties or loss of equipment. Fires may also be delivered on selected terrain for the purpose of denying the enemy the unrestricted use of these areas or to delay enemy second-echelon elements and prevent them from joining the battle.

6-8. SPECIALIZED CONVENTIONAL MUNITIONS

The task force commander must know the capabilities of several types of munitions that can aid maneuver operations.

- a. **Artillery-Delivered Smoke.** Artillery-delivered smoke is used to obscure or screen. WP provides a quick smoke build-up. HC, under the right weather conditions, provides sustained concealment.
 - (1) **Obscuration fire.** Placed on or near the enemy, this category of firepower uses smoke and WP ammunition to isolate the enemy and obscure his view of the battlefield. Because smoke is susceptible to changes in wind direction and the configuration of the terrain, its use must be coordinated with the maneuver commander and all other friendly units affected by the operation.
 - (2) **Screening fire.** Screening fire also involves the use of smoke and WP. Screening fire, however, is used to mask friendly maneuvering elements in order to disguise the nature of their operations.
- b. **Illumination.** Even with the greater capability of night observation devices of US forces over potential adversaries, illumination fires are planned to assist command and control and, to a lesser extent, target acquisition. Although always

planned, illumination fires are normally on order of the TF commander. The following are considerations for employing illumination:

- (1) Illumination fires are often necessary to assist dismounted operations.
 - (2) Since the amount of illumination in basic loads is often low, expenditures must be monitored.
 - (3) Wind and other atmospheric conditions can affect the time it takes to get effective illumination.
- c. **Scatterable Mines.** The family of scatterable mines (FASCAM) gives the commander a rapid, flexible, and effective means of delaying, canalizing, harassing, or wearing down enemy forces. Field artillery delivered scatterable mines are used in both defensive and offensive operations.
- (1) The brigade commander may release authority for the task force commander to employ short-duration FASCAM minefield. FASCAM employment is then planned by the task force commander and S3 in coordination with the engineer, S2, and FSO. Scatterable mines are included in the maneuver and obstacle plan. Upon approval of this plan, the FSO integrates field artillery delivered scatterable mines into the task force fire support plan. The scatterable mines are then fired as directed by the task force commander.
 - (2) The standard low density (target of opportunity) field artillery delivered scatterable minefield requires that a total of 30 rounds be fired to form a pattern roughly 400 x 400 meters. Employment time is generally 15 minutes (planned) to 30 minutes or longer (unplanned) from the call for fire. The submunitions are set to self-detonate in either less than 24 hours (short duration) or more than 24 hours (long duration). Exact self-destruct times are classified and are in TM 43-0001-28-1. Authority to employ long duration self-destruct scatterable mines is normally not delegated to task force level.
 - (3) A FASCAM minefield is observable on the ground. These mines are most effective when tied into existing or reinforcing obstacles, and as with other obstacles, FASCAM minefield must be covered by observation and direct and indirect fires.
 - (4) The firing unit is responsible for reporting the location of the minefield to the brigade FSE. The brigade then informs higher, lower, and adjacent units of its location.

- (5) The task force FSE notifies the engineer and other elements of the main CP. The main CP notifies subordinates and maintains the location and status of the minefield until it self-destructs.
 - (6) Aerial employment of scatterable mines may be requested from the division's aviation brigade. (See TC 6-20-5 for more information on employment of scatterable mines.)
- d. **Laser Guided.** The Copperhead round is effective against stationary targets out to 5,000 meters from the laser designator (aerial or ground). Depending on the skill of the operator, Copperhead can hit moving targets at 3,000-4,000 meters. However, it takes almost 5 minutes from the initial call for fire for the round to be fired, which limits the utility of this round for targets of opportunity. In addition, the requirement for the laser designator to "spot" the target for the final 13 seconds of flight restricts the utility of this round.

6-9. MORTARS

- a. The mortar platoon can operate as a platoon or as two firing sections. When operating in split sections, the configuration is one FDC and three gun tracks per section. The size of the sections may vary but they must consist of at least one gun track and an FDC.
- b. The mortar platoon leader assists the FSO in developing fire plans, but during operations his function is leading his platoon.
- c. The S3 is responsible for the positioning of mortars, but he normally delegates this positioning authority to the FSO. The mortar platoon leader recommends positions to accomplish his assigned missions. Because of range limitations, mortars must be emplaced well forward to provide continuous and effective fire support. This frequently puts mortars in company positions in the defense or moving with companies in mobile operations. The mortar platoon leader is responsible for continuous coordination with the company in whose area he is positioned or with whom he is moving.
- d. The normal mission of the platoon is to provide fire support to the entire task force (general support) under the direction of the FSO. During the planning phase and subsequent coordination, the FSO determines the targets that are to be engaged by mortars. The FSE monitors the mortar FDC nets.
- e. In fast-moving offensive or defensive operations where there is a need for decentralized control, the mortar platoon or a mortar

section may be given a direct support mission or attached to one company. In this case, the mortar element is on the net of the supported company and moves and positions to support that element at the direction of the company FSO.

- f. Prepositioned resupply should be considered for mortars during the defense. It may be placed on both initial and supplementary positions. In addition, the combat trains normally include emergency mortar resupply. (Detailed coverage of mortar platoon operations is in FM 7-90.)

6-10. NAVAL GUNFIRE

- a. When operating near a coastline with gunfire support ships within range, naval gunfire can be an effective fire support means.
- b. US Army units have only a limited organic capability to control naval air or naval gunfire. This capability is normally provided to a division by the US Marine Corps in the form of an air naval gunfire liaison company (ANGLICO). There are two organizations within the ANGLICO. Depending on which organization is available, the battalion task force will receive either a shore fire control party (SFCP) or a battalion supporting arms liaison team (SALT) and firepower control teams (FCT). These ANGLICO elements have the mission to request, coordinate, and control naval air and naval gunfire.

Section III. TACTICAL AIR SUPPORT

Tactical air support provided by the USAF consists of offensive air support (OAS), counterair, air interdiction, and tactical airlift (Figure 6-3, page 6-18).

6-11. OFFENSIVE AIR SUPPORT

- a. OAS is the element of tactical air support normally conducted in support of ground operations. It consists of tactical air reconnaissance, battlefield air interdiction, and close air support.
 - (1) Tactical air reconnaissance is the acquisition of intelligence information using visual observation and/or sensors in aircraft.
 - (2) Battlefield air interdiction is air action against enemy forces and resources that are in a position to directly affect friendly forces.

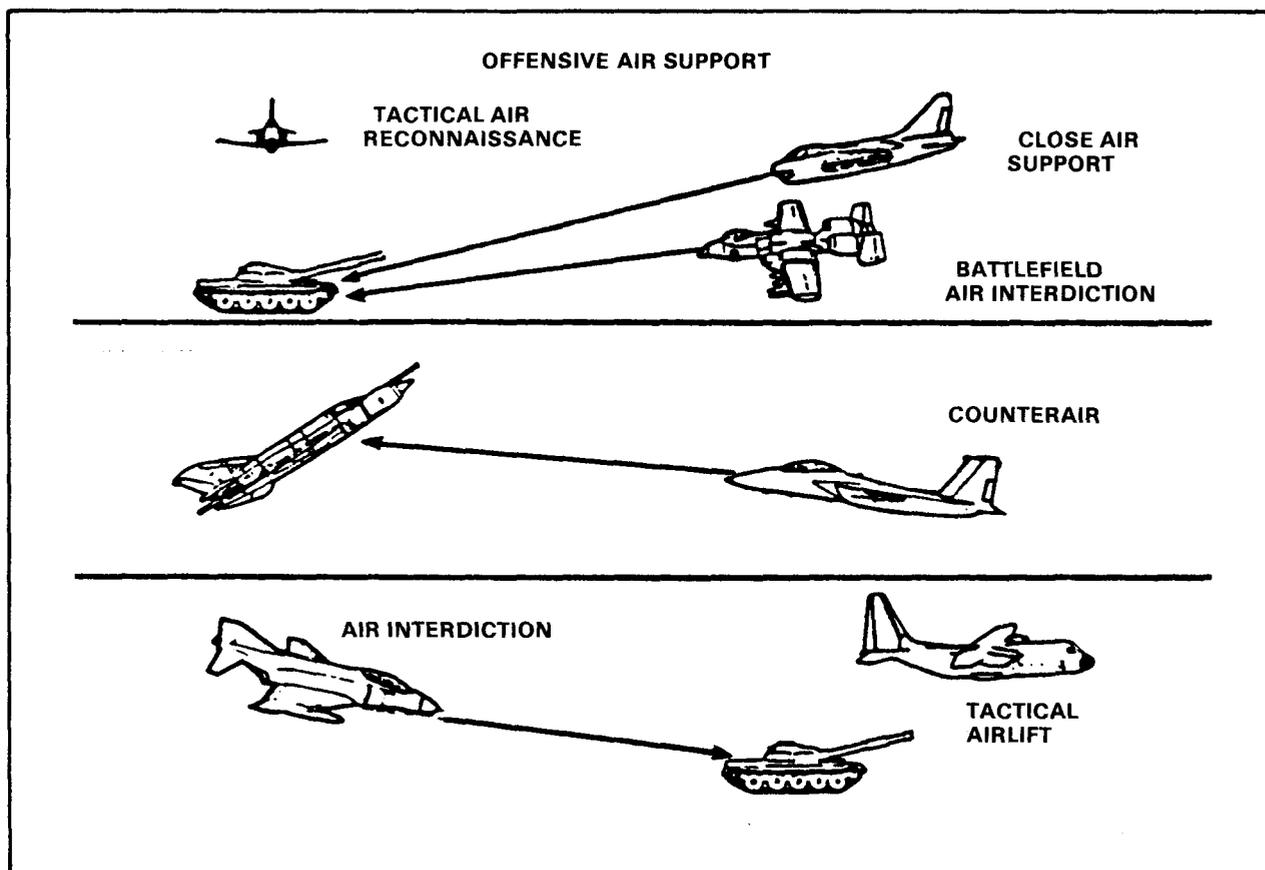


Figure 6-3. Tactical air support.

- (3) Close air support (CAS) is air action against targets close to friendly forces. Each mission must be carefully controlled and requires detailed integration with the fire and movement of those forces. This is the role in which USAF aircraft will normally support the task force. CAS provides a variety of ordnance and high payloads. The payload of a single A-10 is the equivalent of firing five to seven volleys from a 24-tube, 155-mm howitzer artillery battalion.
- b. The use of aircraft to support ground forces is subject to the following planning considerations.
- (1) Air support is not available at all times. Even when planned, it may be diverted to a higher priority mission (immediate).
 - (2) Immediate requests may restrict indirect fires and will come with whatever ordnance has already been loaded — not necessarily the optimum weapon for a particular target.

- (3) Air support may be limited by weather and enemy air defense systems.
- (4) Different support aircraft have varying capabilities to remain on station (loiter time).
- (5) Target identification is difficult, so marking of enemy and friendly locations is required when in close contact.
- (6) As long as the enemy has an effective air force, the emphasis will be on counterair. As the battle progresses and the enemy's air capability is reduced, the emphasis will shift to CAS or other OAS.

6-12. CLOSE AIR SUPPORT

- a. A tactical air control party (TACP) operates with the task force to advise the commander and his staff on integration of close air support with ground operations and to coordinate and direct close air strikes. The TACP consists of a forward air controller (FAC) and two tactical aircraft command and control specialists. Normally, the FAC operates with the command group in a tracked vehicle provided by the task force.
- b. Tactical air strikes are normally controlled by forward air controllers. The FAC is a fighter pilot who is familiar with the ground tactical situation and is trained to control strikes. In an emergency, when a FAC is not available, an artillery fire support team or the leader on the scene can perform the FAC function. The basic requirement is to locate and describe the target and friendly position for the fighter pilot. This information may be relayed to the pilot, using any means available. Normally, the fighter aircraft employs only UHF radio equipment for voice communication. The ground commander can use FM to contact aerial FACs, ALOs, and Army aircraft, all of whom have a UHF relay capability.
- c. CAS missions may be either preplanned or immediate. Preplanned missions are requested a day ahead through S3 Air channels. Preplanned missions allow detailed coordination and integration of maneuver, CAS, and other combat support elements into the tactical plan. They also allow ordnance loads to be tailored precisely to the enemy forces to be attacked. At task force level, preplanned CAS missions are usually planned in support of deliberate attacks because times on targets are fixed. Preplanned missions do have a measure of flexibility in that the location of the strike can be adjusted by the TACP after the aircraft arrive.

- d. Requests for planned CAS missions are developed and listed in priority order during the planning phase. The FSO, S2, and ALO determine the suitability of the target for air attack and consider potential airspace conflict. CAS requests are then forwarded to brigade. The brigade informs the battalion of the missions that were approved, and the fire support plan is adjusted.
- e. Immediate missions are most frequently used by the task force. Immediate requests are filled by aircraft on ground alert or by diverting aircraft from other missions. Requests for immediate CAS go directly from the task force FAC through Air Force channels and are processed unless intermediate monitoring headquarters disapprove the request within 5 minutes. Immediate missions normally take at least 30 minutes to arrive on station.
- f. The FAC must position himself to control the friendly aircraft. He notifies the task force commander that friendly aircraft are inbound. This warning is retransmitted to the task force to prevent mistaken engagement of friendly aircraft during the strike. He gives the aircraft personnel a briefing on the friendly and enemy situation. Positive identification of friendly forces must be made before the strike. This may require marking actions by forward elements (for example, colored smoke grenades) or marking of the target area by artillery, and mortars.
- g. The FAC and FSO coordinate airspace coordination areas (ACAs) with brigade and the task force's senior air defense representative. ACAs are normally developed and coordinated by brigades with recommendations from the task force. ACAs are either two-dimensional (informal) or three-dimensional blocks of airspace whose purpose is to give friendly aircraft the airspace needed to enter, attack enemy targets, and exit. Friendly indirect fire weapons are not allowed to fire into ACAs. The size of ACAs is a function of the type of aircraft, terrain, and CAS tactics required. ACAs are selected to allow both effective CAS tactics and minimum restriction of indirect fires. ACAs must follow prominent terrain to allow identification by pilots and have sufficient room for aircraft maneuver. A planning figure for ACA width that permits aircraft to employ proper attack tactics is 5 to 6 kilometers. Ingress and egress corridors can be as narrow as 1 kilometer and are usually keyed to prominent terrain features such as ridgelines, valleys, or roads.
- h. Insofar as possible, ACAs are coordinated to decrease a friendly aircraft's vulnerability. In addition, engagement priorities for direct fire weapons are given to destruction of enemy ADA weapons when CAS is being used.

- i. Because of the difficulty in coordinating optimum ACAs, timing ACAs is important. They should be implemented just before arrival of aircraft and be cancelled immediately as the aircraft leave.

6-13. JOINT AIR ATTACK TEAM

- a. The joint air attack team (JAAT) is a combination of US Army attack helicopters and US Air Force close support aircraft (normally A-10's) operating together to locate and attack high priority, lucrative targets. Simultaneously employing attack helicopters and A-10's against the same target array increases the lethality and survivability of both systems. The JAAT operates in concert with field artillery or mortars, air defense artillery, and ground maneuver forces against enemy armored formations, command vehicles, and enemy air defenses. Information flow between the maneuver commander, the attack helicopter team leader, and the FAC is essential.
- b. The JAAT is best employed against armor formations on the move. It is least effective when attacking strongly fortified, dug-in positions. During offensive operations, the JAAT can best be employed against counterattacks. During defensive operations, the team is used to destroy or disrupt enemy formations before they reach the FLOT, to reinforce committed ground maneuver units, to blunt enemy breakthroughs, to provide vital intelligence about enemy strengths and locations, or to form an independent force to attack enemy forces attempting to bypass the battle area.
- c. A JAAT is rarely formed and executed at the battalion level. JAATs are coordinated and executed by brigades because it takes at least 30 minutes to coordinate and get one assembled. The JAAT is controlled by the attack helicopter leader. When JAATs are employed in the task force sector, designation of specific engagement areas, coordination of supporting fires, designation of enemy and friendly locations, and the other specifics of directing the JAAT will be made by the task force commander through the attack helicopter leader.
- d. The task force commander, with the advice of his FSO and FAC, may initiate the request for a JAAT mission through the normal close air support channel (immediate if necessary), specifying the JAAT mission. Task force requests may be approved and executed at brigade level if the attack helicopters are in an OPCON status.

Section IV. ARMY AVIATION SUPPORT

Army aviation assets can move rapidly about the battlefield providing combat, combat support, and combat service support as missions require.

6-14. ARMY AVIATION ASSETS

- a. Aviation assets are centralized at division and corps level. The aviation brigade is normally employed by division as a brigade and no less than an aviation battalion.
- b. Army aviation provides the division commander a responsive, mobile, and flexible combat multiplier. Attack helicopters can mass rapidly and concentrate their firepower against enemy armor and mechanized units. Scout helicopters aid the ground commander in command and control and perform reconnaissance and observation missions. Utility helicopters provide the commander the assets needed to conduct air assault operations and move supplies and equipment to critical points on the battlefield. The division aviation brigade is the primary aviation resource for the division's maneuver brigades and their tank and infantry battalion task forces. The aviation brigade provides the division commander with an antiarmor and reconnaissance capability and troop and equipment movement capability not impeded by terrain.

6-15. SYNCHRONIZATION OF ATTACK HELICOPTERS

- a. **Employment.** A maneuver brigade may receive an attack helicopter battalion (ATKHB) OPCON for a specific mission or time period. The battalion is the smallest aviation unit that is placed OPCON to a brigade. This allows the ATKHB commander to cycle his companies into the fight until the mission is complete. The ATKHB is normally employed under brigade control. When a battalion task force is in heavy contact and receives attack helicopter support from brigade, the ATKHB is used to attack targets in designated engagement areas. The maneuver battalion will rarely receive aviation assets to solely support its tactical plan, but may normally be required to work closely with aviation units in support of a brigade or division scheme of maneuver. Working with the battalion task force commander, the ATKHB commander maneuvers his forces to attack. Coordination is made

by either the ATKHB commander or the attack helicopter company commander with aircraft actually on station. If at all possible, this coordination should be face to face. (See FMs 1-100 and 1-112.)

b. Coordination.

- (1) **Ground and air.** During the normal course of aviation support to the division, elements of the aviation brigade will use ground and air controlled by the battalion. To fully synchronize operations, ground and aviation commanders should coordinate:
 - Current enemy situation.
 - Friendly situation and location of friendly units.
 - The ground commander's mission and scheme of maneuver.
 - Fire control and restrictive fire control measures.
 - Suppression of enemy air defense weapons.
 - Available indirect fire support (and unit locations).
 - Target priority, firing positions, and engagement areas for the attack helicopters.
 - The low-level entry and exit routes to be used by the aviation unit.
 - Selection of holding areas and proposed attack positions for the attack helicopters.
 - Location of the aviation unit's FARP.
 - Visual or other signals or markers to be used.
 - Call signs and frequencies to be used.
- (2) **Air passage of lines.** When coordination for an air passage of lines is necessary, the exchange of information between the air and ground units should include the following elements.
 - (a) The disposition and scheme of maneuver of friendly forces (maneuver units, ADA, and artillery unit).
 - (b) The location of passage points along the FEBA or FLOT. Attack helicopters will use multiple passage points for cross-FLOT operations. All FEBA units must be aware of heavy aviation activity, forward and rearward, and positively identify friend from foe.

- (c) The estimated time of passage. This may be either a short period or extended over a few hours, depending on the time required to conduct a forward passage of lines to the engagement area, return through friendly elements to the FARP, and then re-cross friendly lines en route back to the battle area.
- (d) The type and, if available, the number of aircraft to make the passage. The number of helicopters maybe difficult to estimate because of maintenance, battle losses, or FARP rotation.

Section V. AIR DEFENSE SUPPORT

An effective system for the dissemination of timely early warning greatly enhances the effectiveness of both active and passive air defense measures.

6-16. PASSIVE AND ACTIVE AIR DEFENSE

- a. **Passive Measures.** Passive air defense measures consist of all the measures taken to preclude the enemy from locating the unit. Target detection and acquisition from high-performance aircraft is difficult. In most cases, enemy pilots must be able to see and identify a target in order to attack. The task force should follow certain guidelines.
 - (1) When stopped, occupy positions that offer natural cover and concealment, dig in, and camouflage vehicles that are exposed; when moving, travel by covered and concealed routes.
 - (2) Disperse vehicles as much as possible, to make detection and attack difficult.
 - (3) Wipe out track marks that lead to a position.
 - (4) If moving when an enemy aircraft attacks, disperse and seek cover and concealment.
 - (5) Do not fire on a hostile fixed-wing aircraft unless it has identified a friendly vehicle or location. Premature engagement will compromise friendly locations.
 - (6) Require air guards in each section or in each position.
 - (7) Establish an air warning system in the SOP; include both visual and audible signals.

- b. **Active Measures.** Air defense for the task force is provided by its organic individual and crew-served weapons, and by nonorganic supporting air defense artillery units. The firepower of the task force's machine guns, 25-mm guns, and small arms massed against an attacking aircraft is a formidable air defense system. TOWs and tank main guns can also be used against slow moving helicopters. Use of small arms against attacking aircraft is described in FM 44-8.

6-17. RELATIONSHIPS AND MISSIONS

- a. The brigade commander may retain all available ADA under his control, or assign a portion of the ADA to the task force with a support relationship such as DS or attached. Normal task force organization may include a section of Stingers and a platoon of air defense gun systems.
- b. The senior air defense officer functions as a special staff officer during the planning process. He provides his estimate and recommendations to the task force commander. ADA elements with a GS mission may, in many instances, provide incidental coverage over the task force area, and should be considered in the planning process.
- c. To properly employ air defense assets, the commander must —
- Assign tactical missions to the ADA element.
 - Establish priorities for air defense; for example, main effort, choke points, axes.
- d. The ADA unit leader positions his weapons as necessary to support the task force. The task force provides CSS to the attached ADA elements and coordinates with the ADA headquarters for the additional CSS equipment and personnel required for the ADA attached element.

6-18. SYSTEMS AND CHARACTERISTICS

This paragraph contains an overview of air defense weapons systems most often placed in support of the task force.

- a. **Stinger.** The Stinger man-portable air defense system (MAN-PADS) is used to counter high-performance, low-level ground attack aircraft, helicopters, and observation and transport aircraft. A Stinger section includes a headquarters element with a section chief and a driver and three to five Stinger crews. Each two-man Stinger crew has an M998 with six infrared homing

(heat-seeking) Stinger weapons in the basic load. The range of the stinger is in excess of 4,000 meters.

- b. **Vulcan.** The Vulcan system is used for forward area air defense against low altitude aircraft. Because its aerial range is only 1,200 meters, it is normally employed in conjunction with Stinger. Each Vulcan carries a four-man crew and two Stingers. The Vulcan's maximum rate of fire is 3,000 rounds per minute, but it only carries 1,100 rounds in the weapons and 1,000 rounds ready to load. Ammunition resupply for the four-squad Vulcan platoon is provided by a 5-ton cargo truck or M548. The platoon also has an M113 and M998.

6-19. WEAPONS CONTROL

- a. Air defense rules of engagement are directives that specify the circumstances under which an aircraft can be engaged. Weapons control status is established by higher headquarters. Stinger crew leaders and Vulcan squad leaders are responsible for deciding whether an aircraft is hostile or friendly. Weapons control status describes the relative degree of control exercised over air defense weapons:
 - **WEAPONS FREE.** May fire at any aircraft not positively identified as friendly (least restrictive).
 - **WEAPONS TIGHT.** May fire only at aircraft positively identified as hostile.
 - **WEAPONS HOLD.** Do not fire except in self-defense or in response to a formal order (most restrictive).
- b. Weapons control status is disseminated by the airspace management elements at division and corps. The task force commander has the authority to impose a more strict weapons control status than that dictated by higher headquarters; however, he may not go to a less restrictive status.

6-20. EARLY WARNING

- a. The early warning system for the division is standardized throughout the division and should be published in the TF SOP. Standard air defense warnings (alert postures) are
 - **RED** — Attack by aircraft or missiles is imminent or in progress.
 - **YELLOW** — Attack by aircraft or missiles is probable.
 - **WHITE** — Attack by aircraft or missiles is improbable.

- b. When ADA elements are in direct support or attached to the TF, they assist in early warning since they monitor the division early warning net. The senior air defense officer or NCO enters the TF command net to pass early warning information.
- c. Early warning for the task force may also be obtained over the brigade command and O&I nets. The air defense liaison officer at the brigade TOC monitors the division early warning net and relays information and early warning of enemy air activity in the brigade area.
- d. Early warning is immediately broadcast to task force subordinate elements by the main CP on the task force command net. It should include warning and direction of attack. The warning may be a simple statement or codeword to indicate an air attack. The direction of attack may be given as a cardinal direction, as a quadrant, or by using a clock system. Example: "Dynamite (the unit's codeword for air attack), ten o'clock."
- e. Early warning is also initiated by persons within the task force. The first person who observes a hostile aircraft must initiate the early warning by passing it over the TF command net. The warning must be passed in turn to higher and lower nets.
- f. Once the alert is terminated, that information is passed.
- g. If friendly aircraft are in the area, that information should also be passed.

6-21. EMPLOYMENT CONSIDERATIONS

- a. Determination of air avenues of approach is accomplished by the joint efforts of the S2, AD officer, and ALO and disseminated to subordinates. Primary characteristics of air avenues are:
 - Rotary and fixed-wing aircraft use terrain mask to avoid ADA fires and radar detection.
 - Overflight of friendly positions is avoided.
 - Major terrain features are used to assist in navigation.
- b. Threat attack helicopters with stand-off ATGM capabilities are employed in pairs. Synchronized with ground elements, they can be expected to attempt flanking attacks using concealed routes to concealed firing positions. The mobility of the attack helicopter threat increases the need for all-round security, passive air defense measures, and forward positioning of air defense weapons.
- c. Threat CAS capability includes smart munitions and other advanced ordnance loads. The threat's primary use of CAS is

against positions in depth, such as when the task force is in reserve. In such roles, the use of passive measures is of critical importance.

- d. The task force's employment of ADA support is based on the commander's air defense priorities. These are developed with the assistance of the ADA officer. These priorities change during the course of an operation. At task force level, priorities are based upon an analysis of criticality to mission accomplishment, vulnerability, and threat.
- e. ADA elements supporting the task force can be kept under the centralized control of the platoon leader or attached to company teams.
 - (1) Whenever possible, centralized control is favored because it allows a better coordination of ADA support.
 - (2) Attaching Stingers is appropriate in mobile operations to get Stinger coverage well forward and allow the Stinger gunners to move under armor protection. In a situation where there is a considerable threat from artillery, decentralized Stinger employment should be considered. A technique is to have the stinger gunner ride on the tank company's fire support vehicle (FSV) or on the mechanized infantry company's FSV or XO's vehicle.
- f. When employed under centralized control, the normal mission given to ADA elements is general support to the task force with priorities to a unit or tasks. ADA elements may protect critical areas as well as units. Examples are withdrawal and counter-attack routes in the defense or choke points in the attack. When the area of operation is small or the task force rate of movement is sufficiently slow, the ADA element may provide area coverage for the entire task force. When given the mission of providing such support, the ADA leader and the S3 coordinate the positioning of ADA elements with forward company teams or flank guards.
- g. Based on the commander's priorities, the AD leader attempts to satisfy as many of the following employment guidelines as possible —
 - Balanced fires.
 - Weighted coverage against the most likely approach.
 - Early engagement.
 - Defense in depth.

- Mutual support.
 - Overlapping fires.
- h. Infiltrating dismounted infantry is especially vulnerable to attack helicopters if discovered in open terrain. Dismounted Stinger gunners should accompany dismounted infantry elements when vulnerability and criticality point to such employment.
 - i. ADA Class V immediate resupply should be carried in the task force combat trains. This can be on trucks provided from the ADA parent unit or on task force trucks.
 - j. Vulcans can provide excellent suppressive and anti-infantry fires. The ground range of the Vulcan is 2,200 meters (direct fire) to 4,500 meters (indirect fire). However, their use in such roles must be weighed against the degradation of their primary mission. Limited basic loads normally restrict such use to critical situations. (Additional information on Vulcan/Stinger tactical employment is in FM 44-3 and FM 44-16.)

Section VI. ENGINEER SUPPORT

The brigade commander normally allocates at least an engineer platoon to the task force and augments it with additional assets depending on the task force mission.

6-22. CAPABILITIES

- a. Engineers are a combat multiplier. They provide skills and equipment necessary to assist the task force in accomplishing mobility, countermobility, and survivability tasks.
 - (1) **Mobility** support seeks to improve movement of maneuver forces and critical supplies by reducing or eliminating obstacles, breaching minefield, and improving routes for maneuver and supply.
 - (2) **Countermobility** support involves obstacle construction to delay, canalize, disrupt, or kill the enemy. It also increases target acquisition time and, therefore, the effectiveness of direct and indirect fire weapons systems.
 - (3) **Survivability** support refers to the construction of vehicle fighting positions and dismounted fighting positions with overhead protection to reduce the effectiveness of enemy weapons.

- b. Combat engineers are primarily used for hand-emplacing and breaching obstacles, and augmenting the TF reconnaissance effort.
- c. Certain key equipment is employed by the combat engineers.
 - (1) The engineer platoon has organic mine detectors, demolition kits, carpenter and pioneer tool kits, and one 5-ton dump truck. The platoon will also have two M9 armored combat earthmovers (ACEs) with bulldozing capability and the mine clearing line charge (MICLIC). MICLIC is a trailer-mounted, rocket-projected explosive line charge which is towed within 50 feet of a minefield to clear a lane 5 to 8 meters wide and 100 meters long.
 - (2) Additional engineer equipment that can be requested from the engineer company includes:
 - (a) **Small emplacement excavator (SEE).** The SEE has a backhoe, bucket loader, and other attachments such as a handheld hydraulic rock drill, chain saw, and pavement breaker.
 - (b) **Armored vehicle launched bridge (AVLB).** The AVLB is a tank chassis modified to transport, launch, and retrieve a 60-foot span, Class 60 bridge. The bridge is capable of carrying military load classification (MLC) 60 track loads across a 17-meter gap and MLC 70 track loads across a 15-meter gap.
 - (c) **Combat engineer vehicle (CEV).** The CEV is a basic M60A1 tank with a hydraulically operated dozer blade, a 165-mm turret-mounted demolition gun, a retractable boom, and a winch. The gun provides direct fire support that can be used in obstacle reduction or against bunkers or buildings.
 - (d) **Ground-emplaced mine scattering system (GEMSS).** The GEMSS is trailer-mounted. Its 800 on-board mines have a built-in self-destruct capability. The antitank mine has a magnetic influence fuze. The antitank mine is activated by tripwires. For most antitank minefield, three 60-meter-wide belts separated by 50 to 100 meters of unmined area will be emplaced. A well-trained crew can emplace a 1,000-meter minefield in one hour.

6-23. EMPLOYMENT CONSIDERATIONS

Engineer assets may be controlled by the task force under the senior supporting engineer or may be attached to subordinate companies.

- a. Even when under task force control, the senior supporting engineer must coordinate the execution of engineer tasks, as well as movement and positioning of engineer elements with the company team in whose area they are employed.
- b. During mobile operations, the platoon is employed under task force control and positioned to be able to move quickly to likely obstacles. When accomplishing breaching operations in enemy contact, engineers are attached to the company team designated breaching force for the duration of that mission. Engineers may be assigned to scouts or reconnaissance patrols to assist in terrain and obstacle reconnaissance.
- c. While the engineers provide support to the task force, it provides support to the engineers. This support is in the form of security for engineer work parties, additional manpower, and CSS. The task force engineer with the S4 must develop and coordinate a plan with the supporting engineer's parent organization that ensures the supply of Class III, IV, V, and IX to support both engineer support elements and the supplies needed to accomplish engineer tasks. Some engineer equipment, such as bulldozers, will receive high maintenance priority in the defense.
- d. Engineer elements will frequently shift from supporting one company to another. Companies are given priority of equipment use for a specified period or for the construction of a specified number of fighting positions. The gaining company is responsible for locating the operator and guiding him to the new location.
- e. In the offense, engineers assist the task force's maneuver over existing terrain and obstacles. The engineers assist in —
 - Crossing gaps.
 - Bridging rivers.
 - Breaching or constructing bypasses around minefield, fortified positions, and other obstacles.
 - Emplacing minefield on exposed flanks.
 - Preparing positions for overwatch.
 - Constructing and maintaining combat roads and trailers.
- f. The engineer role in the defense is to use the terrain to enhance the mobility and survivability of the task force while simultaneously impairing the mobility of the enemy. These actions allow the task force to shape the battlefield to better target the enemy and to employ its forces to fight and defeat a numerically larger force. In the defense, engineers are a critical asset. The commander must decide whether engineers are to build obstacles,

prepare protective positions, or cut routes between battle positions. It is essential that tasks for special equipment such as bulldozers and bucketloaders be prioritized. Engineers must begin their work for the task force as soon as the defensive mission is received.

6-24. ENGINEERS FIGHTING AS INFANTRY

Engineers have a secondary mission of fighting as infantry. However, the decision to employ an engineer unit as infantry is made only in critical circumstances. This does not mean that engineers will never fight as infantry. In fact, engineers may have to fight as infantry in the normal execution of their mission. Engineers fighting as infantry do not have organic combat support, and they will require additional support in the form of mortars, antitank assets, and artillery.

Section VII. NUCLEAR, BIOLOGICAL, AND CHEMICAL SUPPORT

While the support discussed may not always be task organized down to task force level, the task force commander must know what is available so that he can request it should the need arise.

6-25. CHEMICAL COMPANY

- a. The chemical company provides the division with four decontamination platoons, a reconnaissance platoon, and one smoke platoon. Each decontamination platoon is equipped with three M12A1 power-driven decontaminating apparatus (PDDA) mounted on 5-ton trucks. The smoke platoon is equipped with 12 mechanical smoke generators mounted on six M113's. Additionally, there are two organic lightweight decontamination systems per battalion task force, with the support platoon's chemical specialist as the operator.
- b. Every combat battalion has a chemical officer and NCO assigned to the battalion S3 section, and each company has a chemical NCO. Their duties are described in FM 3-100.
- c. During offensive operations, a decontamination platoon may be attached to or placed in direct support of a brigade. Sometimes more than one platoon supports a brigade, particularly when the brigade is making a main attack.
- d. During withdrawal operations, NBC decontamination platoons operate either under division control or in DS to brigades.

Decontamination squads are used in area support roles. They operate in an assigned sector and support all units in that sector. They locate potential decontamination sites and direct contaminated units to those sites.

6-26. NBC RECONNAISSANCE PLATOON

One NBC reconnaissance platoon is organic to the division chemical company. When persistent contaminants are expected, division may attach an NBC reconnaissance element to a maneuver brigade.

- a. In the offense, a reconnaissance squad may move with the leading battalion task force along a route where the threat of contamination is greatest.
- b. In the defense, reconnaissance squads operating in the main battle area are used to determine the extent of contamination and to locate sites for deliberate decontamination.

6-27. SMOKE EMPLOYMENT

Smoke can degrade effectiveness of both personnel and weapons systems. Smoke can have both psychological and physiological effects on personnel, and it may defeat or degrade optical or electro-optical sights and target acquisition devices. When improperly used, smoke can also attract the attention of the enemy. The task force commander must consider using smoke to aid his scheme of maneuver, avoid developing a pattern of using smoke, and plan to counter enemy use of smoke.

- a. **Purpose.** During offensive operations, smoke is used to conceal units and individual weapon systems. The commander can maneuver behind a smoke screen and deceive the enemy about his strength and position. Smoke can also blind enemy observers and hinder enemy target acquisition. This not only lessens the effectiveness of sighting devices but also hinders the use of antitank optically guided missiles.
 - (1) During defensive operations, smoke can be used to separate and isolate attacking echelons. This can create gaps in enemy formations and disrupt planned movements. Smoke is also used to slow and blind individual units and weapon systems. This may force enemy infantry to dismount from mechanized vehicles. Smoke may also be used to conceal occupation of defensive positions.
 - (2) Smoke helps to disorient and confuse the enemy. To be effective, it must be employed correctly.

- (a) Smoke is useless unless employed in quantity. A smoke cloud must be large and dense enough to meet the needs of the mission.
 - (b) Smoke effectiveness depends on weather conditions and wind direction and speed. If the wind is strong or in the wrong direction, it may preclude an effective smoke screen. A good time to employ smoke is during an early morning calm, before the sun heats the earth and hot air begins to rise. These early-morning conditions will cause smoke to linger near the ground.
 - (c) Smoke is valuable during limited visibility; smoke adversely affects passive and infrared night vision devices (NVDs). Combat operations become even more difficult when smoke is added to darkness and fog.
- (3) The S3 has staff responsibility for integrating smoke and other obscurants into the task force's operation plan. In doing so, he coordinates with higher headquarters, the fire support coordinator, the chemical officer, and the battalion S2. When planning the use of smoke, the degradation of enemy combat effectiveness must be weighed against possible negative effects on friendly command and control, target acquisition, and the potential for signaling the intent or location of the operation to the enemy.
- b. **Types.** The battalion employs four general applications for smoke on the battlefield: obscuration, screening, marking and signaling, and deception.
- (1) **Obscuration.** Smoke is placed on or near the enemy's positions to interfere with his observation and fire and navigation.
 - (2) **Screening.** Smoke is employed within areas of friendly operation, or in areas between friendly and enemy forces, to degrade enemy ground and aerial observation and fire. Screening is primarily intended to conceal friendly forces.
 - (3) **Marking and signaling.** Smoke is employed to begin or end actions on the battlefield and to mark reference points, targets, and unit locations. Smoke used for marking and signaling usually consists of colored or WP smoke.
 - (4) **Deception.** Smoke is used in coordination with other actions to create the illusion that some tactically significant event is occurring, in order to confuse or mislead the enemy. Some techniques are to use deceptive smoke in dummy river crossings, withdrawals, or air assault operations. Generally,

deceptive smoke is used in conjunction with other deceptive measures such as sound or electronic deception.

- c. **Sources.** The task force normally has ready access to six systems that can produce smoke for tactical operations. Because these systems are designed for different purposes, their use on the battlefield varies with the operation or situation. Smoke generator units may be attached to provide support to task force operations.
- (1) Mortars can create a high volume of smoke at midranges in a specific area. They are, in fact, the most rapid and effective means of indirect smoke delivery available to the maneuver commander. They are also used for spotting, marking, and signaling. The mortar platoon's basic load of smoke is established to support the operation.
 - (2) Field artillery cannons are used primarily to place two types of smoke-producing munitions rapidly on distant targets: white phosphorus (WP) and hexachlorethane (HC). Because of the limited number of smoke rounds in the FA basic load, use of artillery smoke must be carefully planned.
 - (3) Smoke pots produce large volumes of white or grayish-white smoke for extended periods. They are the unit commander's primary means of producing small area smoke screens that last 10 to 15 minutes. Pots may also be used to place smoke on water, since they are the only smoke-producing systems that float. Employment techniques include the following.
 - (a) Smoke pots can be ignited singly by using the means of ignition supplied with each pot. The M1 smoke pot is designed for manual ignition, but it may be modified for electric ignition. The ABC-M5 smoke pot has an integral electric ignition device and a friction igniter, and can be ignited manually or electrically. Floating smoke pots are ignited by fuzes. Two of the floating smoke pots, the AN-M7 and the AN-M7A1, can be fitted with M209 electric smoke pot fuzes for ignition. Circuits and connections for electric ignition are the same as for demolitions (see FM 5-25).
 - (b) When a number of M1 or ABS-M5 smoke pots at different locations must be ignited simultaneously, they can be prepared for electric ignition and connected into a firing circuit as described in FM 5-25. The AN-M7 and AN-M7A1 floating smoke pots can also be ignited electrically in multiples when the M209 fuze is used.
 - (c) A number of M1 or ABC-M5 smoke pots can be arranged to ignite in succession. This provides smoke for a longer

period than a single pot. For chain ignition, the pots can be placed in stacks and the top pot in the stack ignited; or they can be laid on their sides end to end and the pot with the exposed igniting device ignited (see Figures 6-4 and 6-5). Before stacking, the outer covers must be removed from all pots to expose igniting devices. Vertically stacked M1 smoke pots must be supported. The ABC-M5 smoke pot is especially designed for vertical stacking.

- (d) When the situation requires concealing the glare from a burning smoke pot, improvise a shield. The shield must permit the smoke to escape and conceal the glare of the pot. The smoke pot can be placed under a 55-gallon drum, laid in a covered trench, or shielded by other field expedients. Neither the drum nor the trench will completely screen the light from the burning pots. Further, a smoke pot enclosed in a shield produces slightly less smoke than an unshielded pot. Compensate by using more smoke pots.

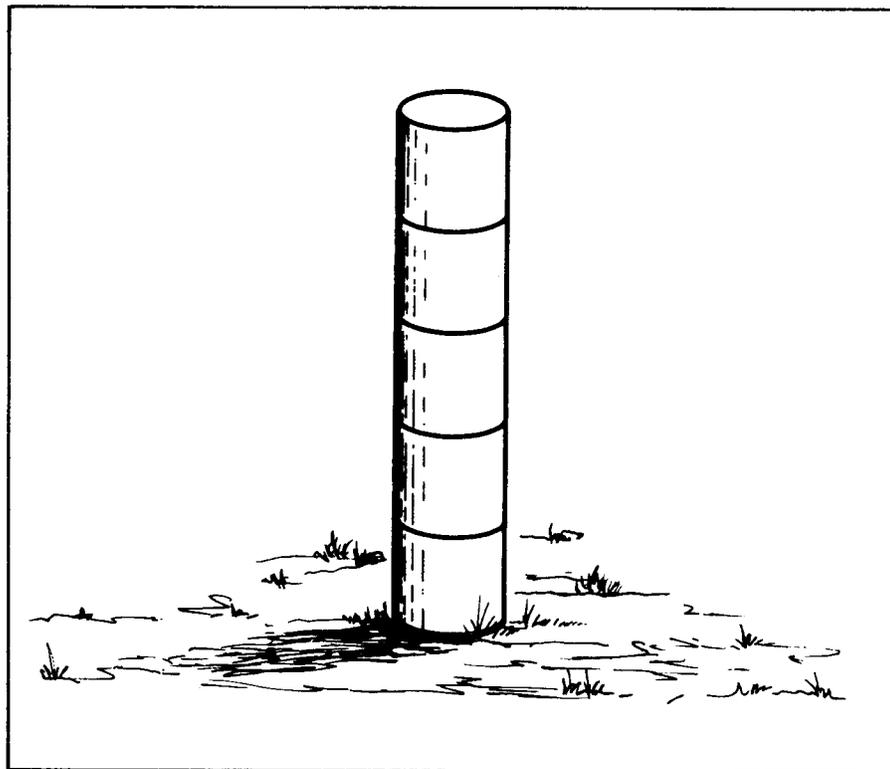


Figure 6-4. Smoke pots stacked vertically.

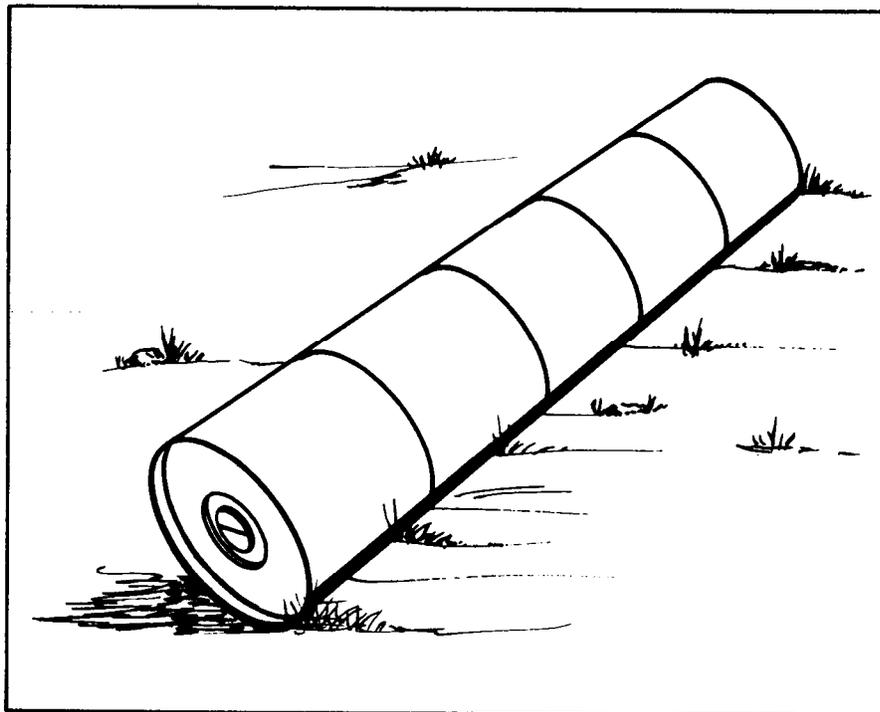


Figure 6-5. Smoke pots laid end to end.

- (4) Smoke grenades are manufactured in two varieties, white smoke and colored smoke. White smoke grenades are most often used to cover or screen individual vehicles while colored smoke grenades are used to mark or spot specific positions. Smoke grenades should not be used to screen units larger than one or two squads.
- (5) Vehicle smoke grenade launchers generate a limited amount of smoke rapidly to conceal or screen individual vehicles from enemy gunners. The vehicle commander usually launches grenades, as soon as he is fired upon.
- (6) The vehicle engine exhaust smoke system (VEESS) is currently fielded on M1 and M60A3 tanks, the M2 and M3 fighting vehicles, and the M88A1 recovery vehicle. The system injects diesel fuel into the engine exhaust system to produce smoke. The system consumes fuel at a rate of one gallon per minute of operation.

d. Planning Considerations.

- (1) The use of smoke should be planned for every operation and for all conditions including day and night. What is important

is to plan for all eventualities and have smoke available, rather than attempt to react to situations without being prepared. A major consideration when planning and employing smoke is that smoke is not an unlimited resource. It should be used when needed and not employed indiscriminately.

- (2) To put smoke where it is wanted and to keep it there, smoke operations must be planned, controlled, and adjusted much like artillery fire. In addition, the commander must ensure that his use of smoke does not adversely affect an adjacent unit. Smoke affects vehicles equipped with thermal sights; they can still engage through smoke, but with limited capability. Smoke also degrades the capabilities of laser rangefinders.
- (3) Smoke limits maneuver capability. Because smoke restricts observation of surroundings, it reduces a driver's ability to sense direction, location, and his relationship to other vehicles. Dismounted guides may be needed to guide combat vehicles through dense smoke, especially when obstacles are encountered or suspected.
- (4) Smoke should not be routinely placed on suspected enemy positions. A more efficient use of smoke would be to place it close to the enemy but between friendly and suspected enemy positions; doing so increases the chances of obscuration.

e. Offensive Use of Smoke.

- (1) During offensive operations, smoke is normally used to screen the attacker. Five basic techniques for unit smoke operations during an offense are discussed below. There will probably be a chance to employ a number of these techniques during each operation. It may be necessary to develop variations to these techniques to satisfy different mission requirements. Deception is the key. The longer the deception, the greater the chances for success in an operation.
 - (a) **Blind enemy observers.** This technique is effective when conducting a movement to contact or when enemy contact is likely. There are two ways to employ this technique using mortar and field artillery as a means of smoke delivery. One way is to place smoke directly on all known or suspected enemy observer positions. The other way is to produce a smoke screen between known or suspected enemy observer positions and the unit. Either way, the smoke cloud must be maintained until the unit reaches its objective or passes the danger area.

- (b) **Obscure vehicles from enemy direct fire gunners.** This technique is used by combat vehicle commanders to degrade the ability of enemy antitank guided missile gunners.
- (c) **Conceal a bypass.** There are two ways to employ this technique. One way is to screen the bypassing unit while it is moving around the enemy. The second way is to make the enemy believe he is the object of an attack by placing smoke directly on him.
- (d) **Screen an assault.** This technique is used to cover a unit while it is attacking. It is employed by having elements on one flank produce a lateral smoke screen.
- (e) **Cover a breaching operation.** This technique is employed by developing two simultaneous smoke clouds, which are placed directly on the enemy and between the enemy position and the breaching force. It is essential to maintain continuous smoke in both areas, since minefield are normally covered by direct and indirect fire.

(2) Smoke may also be used during offensive operations to —

- Disorient the enemy in his defensive positions.
- Defeat infrared tracking systems.
- Screen the attacker's flank.
- Screen the location of passage points of lines.
- Create a deception.
- Aid in securing water crossings, beachheads, or other amphibious assaults.
- Mark or silhouette enemy positions (on the position).
- Mark friendly positions (away from the position, if possible).

f. Defensive Use of Smoke.

- (1) There are three basic techniques for battalion smoke operations during defensive operations. It may be necessary to develop variations to these techniques or to use a number of them in a single operation.
 - (a) **Slow the advance of attacking forces.** This technique causes the attacker to slow the momentum of his attack.

- (b) **Separate and isolate attacking echelons.** This technique develops a lateral smoke screen between two echelons. The smoke prevents the second echelon from seeing the first echelon fight and from providing it effective overwatch. The smoke also slows the second echelon.
- (c) **Cover movement.** Smoke is produced in front of the battle position so combat vehicles can move without being observed. As smoke dissipates, a new smoke screen is established between the enemy and any displacing vehicles.

(2) Smoke may also be used during defensive operations to —

- Cause confusion in enemy formations.
- Assist in disengagement.
- Obscure enemy observation posts.
- Degrade the enemy's ability to adjust fires.
- Isolate elements of enemy forces for concentration of fires.
- Conceal a concentration of forces.
- Obscure enemy direct fire systems.
- Degrade the performance of precision-guided munitions.
- Mark enemy positions.
- Mark friendly positions.
- Screen a counterattack.
- Assist in deception.

g. **Threat Countermeasures to Smoke Operations.** Threat forces train extensively to overcome the operational difficulties encountered with fighting in a smoke environment. They categorize their countermeasures into three areas: tactics against enemy defensive use of smoke, tactics against enemy offensive use of smoke, and electro-optical devices that can acquire targets in a smoke environment.

- (1) **Threat tactics against defensive use of smoke.** When US forces employ smoke to conceal friendly positions or to confuse the attackers, the Threat relies on maintaining momentum as a means of survival. The Threat believes that battlefield smoke favors the attacking elements; hence,

Threat forces train extensively in a smoke environment so that a rapid rate of advance can be maintained.

- (2) **Threat tactics against offensive use of smoke.** Training for defense in a smoke environment calls for withdrawing from the area of heaviest smoke concentration and attempting to flank the enemy and engage him in a crossfire. Where retention of terrain is required, the Threat may reinforce units within the smoke area with second-echelon or reserve elements.
- (3) **Threat electro-optical devices.** Realizing the importance of smoke as an optical or electro-optical countermeasure, the Threat has developed a variety of sophisticated battlefield surveillance systems. Threat forces are known to have active night vision devices (with near-infrared light sources) and passive image intensifiers.

Section VIII. INTELLIGENCE AND ELECTRONIC WARFARE SUPPORT

In order for the task force commander to make the most efficient use of his combat power, he must have information concerning enemy dispositions and probable course(s) of action. The primary means to obtain information in the task force area are subordinate maneuver companies, patrols, scouts, OPs, and FISTs. The task force S2 is responsible for coordination, information collection and dissemination by planning use of task force reconnaissance and surveillance (R&S) resources. He also requests support from higher headquarters (human intelligence [HUMINT], signal intelligence [SIGINT] including electronic intelligence [ELINT], and overhead photography) to fill the commander's intelligence requirements. Additionally, immediate requests for air coverage (Army and/or Air Force) may be requested via S3 Air's or TACP's communications channels. Other timely sources of intelligence information include forward and adjacent ground maneuver and aviation units, and the artillery nets monitored by the FSE.

6-28. INTERROGATION TEAM

Interrogation teams are normally GS to the division, or DS to the brigade. If an interrogation team is placed in direct support of a task force for a specific mission and time, the commander positions it near the prisoner of war (PW) collection point in the combat trains.

6-29. GROUND SURVEILLANCE RADAR

GSR provides a highly mobile, near all-weather, 24-hour capability (night and poor daylight visibility) for battlefield surveillance. One or two GSR teams may be attached to a task force.

- a. As a rule, only GSR teams are provided to the task force. Teams are attached to the task force and employed by the battalion S2. Combat information collected by each team is passed to the battalion S2, who analyzes and disseminates it to the commander, S3, FSE, and subordinate units within the task force.
- b. GSR equipment can be either vehicle-mounted or ground-mounted, and it complements other combat surveillance and target acquisition means in the battalion. Its employment is coordinated with the employment of patrols and observation posts, and with infrared and other sensory devices.
- c. The primary advantage of radar is its ability to detect objects and provide accurate target locations when other surveillance means cannot. Radar is used primarily for operations during limited visibility (darkness, haze, fog, or smoke).
- d. Radar can penetrate light camouflage, smoke, haze, light rain, light snow, darkness, and light foliage. Heavy rain or snow restricts radar detection capabilities; however, a well-trained operator can minimize these effects. Radar is limited to line-of-sight.
- e. Ground surveillance radar is ineffective against air targets unless the air target is flying close to the ground, because it is designed to detect only moving targets in the presence of a background.
- f. The radar is vulnerable to direction finding and jamming by enemy electronic combat and other deception means.
- g. Ground surveillance radar may be employed in all types of tactical operations. The two types of surveillance missions employed by radar personnel are search and monitor. The radar section is capable of performing a variety of tasks, including —
 - (1) Searching avenues of approach, possible enemy attack positions, assembly areas, or other sectors or areas on a time schedule, at random, or continuously to report location, size composition, and nature of enemy activity.
 - (2) Monitoring point targets, such as bridges, defiles, or road junctions; and reporting quantity, type, and direction of movement of targets through the point.

- (3) Monitoring and searching final protective fire areas or barrage locations to permit timely firing.
 - (4) Extending the observation capabilities of patrols by enabling them to survey distant points or areas of special interest.
 - (5) Assisting the visual observation of units during daylight by making initial detection of partially obscured (hazy) targets at long ranges.
 - (6) Assisting in the movement control of units during limited visibility operations.
 - (7) Increasing the effectiveness of fire support. When targets have been detected with reasonable certainty by radar, the fire support means may immediately take the target under fire. Well-trained radar operators can estimate the density of enemy activity in a given area and the rate of enemy movement, thereby assisting in weapons selection.
 - (8) Determining rate of movement of a target by plotting the location of the target at two known points and the time it took the target to move from one point to the other.
- h. In order for radar teams to provide good coverage, they must understand the mission, scheme of maneuver of the supported unit, and the most likely targets expected in the area of operations. Teams must be assigned a specific sector of surveillance, the desired degree of overlapping coverage, and frequency of coverage. To prevent detection by enemy direction finding equipment and enemy electronic countermeasures, operators turn on equipment only when needed.
 - i. The battalion S2 advises the commander on where and how ground surveillance radar can best be employed to support the scheme of maneuver. Once this has been determined, the S2 assigns areas and methods of search and locations when GSR is retained in support of the battalion. Each team reports information to the supported unit or S2. Additionally, the S2 ensures that GSR positioning and coverages are integrated with other reconnaissance and surveillance means (patrols, scouts, OPs, TOW sights, NVDs) to ensure full coverage of the task force area of operations and interest.
 - j. The S2 directs the general positioning of the radars; the exact location is selected by the section leader or senior operator and is reported after the radars are in place. Forward slopes of radar sites must be covered by other observation means, because the slopes will be dead space to the radar. GSR teams displace only on order of the GSR section leader or supported unit commander.

- k. When time permits, alternative and supplementary positions are selected and prepared. Radar surveillance cards are prepared by the senior radar operator, who gives a copy to the battalion S2.
- l. Radar should be kept as far forward as the tactical situation and terrain will permit. Displacement should not be delayed arbitrarily until the radar teams can no longer provide effective support. Timely displacement will enable forward units to maintain fire on withdrawing enemy units or to detect enemy activity indicating a counterattack. When feasible, teams displace by bounds.
- m. Highly mobile, fast-moving offensive operations may preclude the continuous and effective use of radar. However, many of the possible uses are discussed below.
 - (1) **Movement to contact.** During the movement to contact, radar may be employed with reconnaissance and security elements on an exposed flank or to provide additional observation and security. To provide continuous flank surveillance, it may be necessary to employ radars in pairs and move them by bounds.
 - (2) **Penetration.** Radar may be employed profitably in a penetration by locating enemy defenses before the attack. This information is used by the commander to avoid enemy strengths and capitalize on enemy weaknesses. Radar teams may locate enemy activity to facilitate use of preparatory fire, and may survey enemy positions to establish whether there is any reinforcement, shifting, or withdrawal of enemy units just before the attack.
 - Once enemy contact has been established, radar may be used to provide surveillance forward of the line of contact or on an exposed flank. It may be positioned to provide surveillance over critical areas on avenues of approach during the attack.
 - During limited visibility, radar may be employed to vector or guide friendly attacking elements. It may be used in tracing the movement of forward friendly units to establish and confirm their specific location at any given time and to coordinate supporting fire with the advance of friendly elements.
 - (3) **Envelopment.** In the envelopment, radar may be able to detect large gaps or assailable flanks. It may be possible to employ the radar with security elements of the enveloping force to provide early warning of enemy activity.

- (4) **Consolidation and reorganization.** On order, radar teams displace to positions previously selected by a visual or map reconnaissance. During the consolidation and reorganization, primary emphasis is on immediately placing the equipment in operation. Thereafter, positions are improved and equipment is dug in and camouflaged as the situation permits. Since the radar teams on the objective will be surveying the area beyond the objective, they must be informed of friendly patrols and other elements sent forward to maintain contact with the enemy.
 - (5) **Exploitation or pursuit.** In the exploitation or pursuit, radar teams are employed essentially as they are in the movement to contact. Additionally, radar teams attached to an enveloping force may be sited to locate withdrawing enemy elements or to assist in identifying friendly units during linkups.
 - (6) **River crossing operations.** Radars are used in a river crossing as in normal offensive operations. When smoke is used by friendly forces engaged in a river crossing, radar may be used to detect enemy troop activity on the far bank including withdrawal, reinforcement, or shifting of units.
 - (7) **Infiltration.** When gaps in enemy defenses have been located, attacking elements may infiltrate through the enemy position. Radar teams may be employed effectively in conjunction with infiltration by surveying infiltrating lanes for enemy activity and determining the progress of infiltrating units. Short-range radar teams may be employed with infiltrating units in the enemy rear area. Infiltrating elements may use a radar team to enable them to locate enemy activity and avoid discovery. However, radar emissions may compromise the location of friendly units. The determination of whether radar teams should be employed by an infiltrating element depends on the urgency of obtaining information of the enemy in the area, as opposed to the need for avoiding discovery. If radar is employed with infiltrating elements, it may also be used to assist linkup with attacking forces.
- n. GSR is used in both the covering force area and the main battle area. GSR assets are placed in general support of the task force to screen avenues of approach and gaps between company teams.