

CHAPTER 1

INTRODUCTION

All United States (US) Army doctrine is based on the tenets detailed in FM 100-5. This chapter relates those tenets to engineer company operations by providing a common, definable framework for doctrinal discussion.

CHALLENGES IN ARMY OPERATIONS

Army forces meet worldwide challenges against a full range of threats, including contingency operations and war. Army forces also conduct joint and multinational operations together with other services and allies. Today's battlefield has become more complex through the use of more advanced vehicles, weapons systems, and communications systems. As a result, we can expect future conflicts to be more chaotic, intense, and destructive than ever before.

ELEMENTS OF COMBAT POWER

Combat power is the ability to fight. Superior combat power is generated by combining the elements of maneuver, firepower, protection, and leadership within a sound plan and then aggressively, violently, and flexibly executing the plan. Engineer leaders understand these elements and also how the engineer force multiplies the combined-arms team's ability to fight.

Maneuver is the movement of forces supported by fire to achieve an advantageous position from which to destroy or threaten the enemy's destruction. Engineer forces maneuver with other members of the combined-arms team. They create mobility opportunities for the force in order to gain advantageous positions. They attack the enemy's maneuver with obstacles that enhance friendly maneuver advantage. With positional advantage, the combined-arms team gains and sustains the initiative, exploits success, preserves freedom of action, and reduces the vulnerability of friendly forces.

Firepower provides the destructive force needed to defeat the enemy's ability and will to fight. Commanders mass fires on the battlefield by rapidly positioning to a place of positional advantage where their effects can be massed on critical enemy targets. Engineer forces enhance the maneuver commander's ability to mass fires by using integrated obstacles within engagement areas (EAs). Engineer terrain analysis assists in the selection of avenues of approach (AAs) and EAs. Rapid obstacle-emplacement capability within the engineer force provides responsiveness to changing situations on the battlefield.

Protection is the conservation of the force's fighting potential so that it can be applied at the decisive place and time. Operations security (OPSEC), deception, reconnaissance, soldier health, safety, and fratricide prevention are all components of force protection. Engineers contribute to force protection by developing fortifications, vehicle fighting positions, and camouflage; by constructing phony and protective obstacles; and by ensuring safe operations. They also prevent fratricide by marking and reporting obstacles.

Leadership is the most essential element of combat power. Competent engineer leaders ensure effective engineer force integration within the combined-arms team. Their leadership provides purpose, direction, and motivation in combat. Engineers give the maneuver commanders options that are not otherwise available to assist them in making

critical decisions within their maneuver plans and operations. Engineer leaders ensure that engineer forces are at their highest combat readiness by continuously preparing and training them under the toughest conditions.

IMPERATIVES OF MODERN COMBAT

The challenge to the combat-engineer company is to multiply the friendly force's effectiveness while degrading the enemy's capability as the battlefield becomes more complex. To do this, the engineer force must—

- Understand how the enemy fights.
- Provide continuous support to the force.
- Ensure unity of effort.
- Anticipate events on the battlefield.
- Understand the effects of battle on soldiers, units, and leaders.
- Use terrain to their advantage and understand and communicate the terrain's effects on friendly and enemy maneuvers.
- Sustain themselves.
- Support the TF commander's intent.

Army operations doctrine, as described in FM 100-5, is the Army's concept for operating and fighting on today's battlefield. The engineer company participates on the modern battlefield as part of a maneuver battalion or TF or as part of the engineer battalion. The tenets of Army operations include agility, initiative, depth, synchronization, and versatility (AIDSV).

Agility

Agility is the friendly force's ability to act faster than the enemy. It permits friendly forces to seize and hold the initiative. Engineer companies ensure that their elements

are task-organized to respond rapidly to battlefield changes. Engineers shift support to the main effort with minimum delay, reconfiguration, and coordination. Engineer units are sustainable and responsive to maneuver commanders.

Initiative

Initiative sets or changes the terms of battle by action. It requires a willingness and ability to act independently based on the higher commander's intent. Engineer units at all levels understand the supported commander's purpose and then act independently within the framework of his intent. Engineer tasks, particularly at the company and platoon levels, are often time-consuming and resource-intensive. Engineer leaders anticipate mission requirements and initiate actions before their need is fully realized at higher levels.

Depth

Depth is the extension of operations in space, time, resources, and purpose. Commanders use depth to obtain effective maneuver space, planning time, and the resources to win. Momentum in the attack and elasticity in the defense derive from depth. Engineer companies add depth to the battlefield by providing mobility, countermobility, and survivability support to maneuver forces. In the offense, engineers add depth to the attack by rapidly reducing obstacles and fortifications to maintain a high rate of advance. In the defense, engineers add depth to the battlefield by placing obstacles and constructing fighting positions. This increases the enemy's time and cost of operation.

Synchronization

Synchronization is the arrangement of battlefield activities in time, space, and purpose to produce the maximum effective combat power at the decisive point. Combat operations involve many elements of the combined-arms force that mesh together. Engineer actions often require considerable

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lead time for successful integration with the rest of the force. Engineers carefully plan their activities to ensure that the effect occurs at the decisive point and time. Engineer units also ensure that their elements are working toward the same purpose as the rest of the force. Engineers must ensure that their actions work in concert with other battlefield operating systems (BOSs) to maximize their synergistic effect.

Versatility

Versatility is the unit's ability to meet diverse mission requirements. Commanders shift focus, tailor forces, and move from one role or mission to another rapidly and efficiently. Versatility implies a capacity to be multifunctional; to operate across regions throughout the full spectrum of military operations; and to perform at the tactical, operational, and strategic levels. Engineer forces possess the ability and are ideally suited to perform in many roles and environments during war and contingency operations. They incorporate into their organizations the ability to conduct smooth transitions from one mission to another. Versatility within the engineer force is the result of well-trained and -equipped units, high standards, and detailed planning.

BATTLEFIELD ORGANIZATION

Modern battles involve close, deep, and rear operations that require continuous effort and attention. Engineer companies fight and operate on a linear or nonlinear (no front lines) battlefield. They are positioned throughout the corps's area of operations (AO) to support the overall battle.

Close operations consist of actions that support the current fight against enemy forces in contact. In close operations, engineer companies fight as an integrated part of a committed maneuver unit or in support of it. They may also fight as part of the engineer battalions/TFs.

Deep operations consist of actions directed against enemy forces not in contact. They are used to simultaneously attack the enemy through the depth of the commander's battle space. Engineer units participate in deep operations in several ways. They may provide terrain analysis to maneuver commanders and may assist in target analysis and nomination. They may also provide advice on using remotely delivered situational obstacles in the enemy's rear area. Engineer units may also open and maintain necessary routes and aviation facilities and participate in raids whenever ground forces conduct deep operations.

Rear operations are actions to the rear of elements in contact. These actions assure freedom of maneuver and continuity of operations. Engineer units provide extensive support to rear operations. Survivability in the form of hardened shelters, protective obstacles, and camouflage measures are typical missions.

Army operations doctrine envisions battles fought over wide areas, up to 400 kilometers (km) (249 miles) deep. The battles will be fought at a faster pace and with increasingly sophisticated weapons. The battlefield may be nonlinear, asymmetrical, or noncontiguous. Under this concept, the brigade may replace the division as the major tactical element on the battlefield. Corps commanders may task-organize brigades into divisions to accomplish each mission.

The effect of future Army operations on engineer units is significant. Engineer support to combat operations will be based on habitual relationships. Engineer battalions will support maneuver brigades while engineer companies will support battalions/TFs. Also, the engineer company could fight directly for the engineer battalion/TF. Tactical operations will rely heavily on the use of counterattacks to defeat the enemy. This will require engineer companies to provide extensive mobility support.

TASK-FORCE ORGANIZATION AND FUNCTIONS

The battalion/TF is the lowest echelon at which firepower, maneuver, intelligence, and other combined-arms support are combined under a single commander. Mechanized-infantry and tank battalions are organized, equipped, and trained to accomplish compatible missions based on the respective battalion's unique capabilities and limitations.

The tank and mechanized-infantry battalions' capabilities are increased through task organization. Based on his estimate of the situation, the maneuver brigade commander task-organizes tank and mechanized-infantry battalions by cross attaching companies between units. The brigade commander determines the mix of companies in the TF. Similarly, the TF commander's estimate may require cross attaching platoons

to form one or more companies/teams for specific missions.

The TF is formed by placing pure (not task-organized) tank and mechanized-infantry companies under the command of a battalion headquarters. Combat support (CS) and combat service support (CSS) elements within the brigade perform mission analysis and are integrated into the TF structure based on the higher commander's estimate of the mission and the assets required to accomplish the specific mission. This provides a versatile force mix, increasing the options available to the force commander (see Figure 1-1).

TASK-FORCE COMMANDER

The TF's fighting characteristics are set by the TF commander's tactical and technical

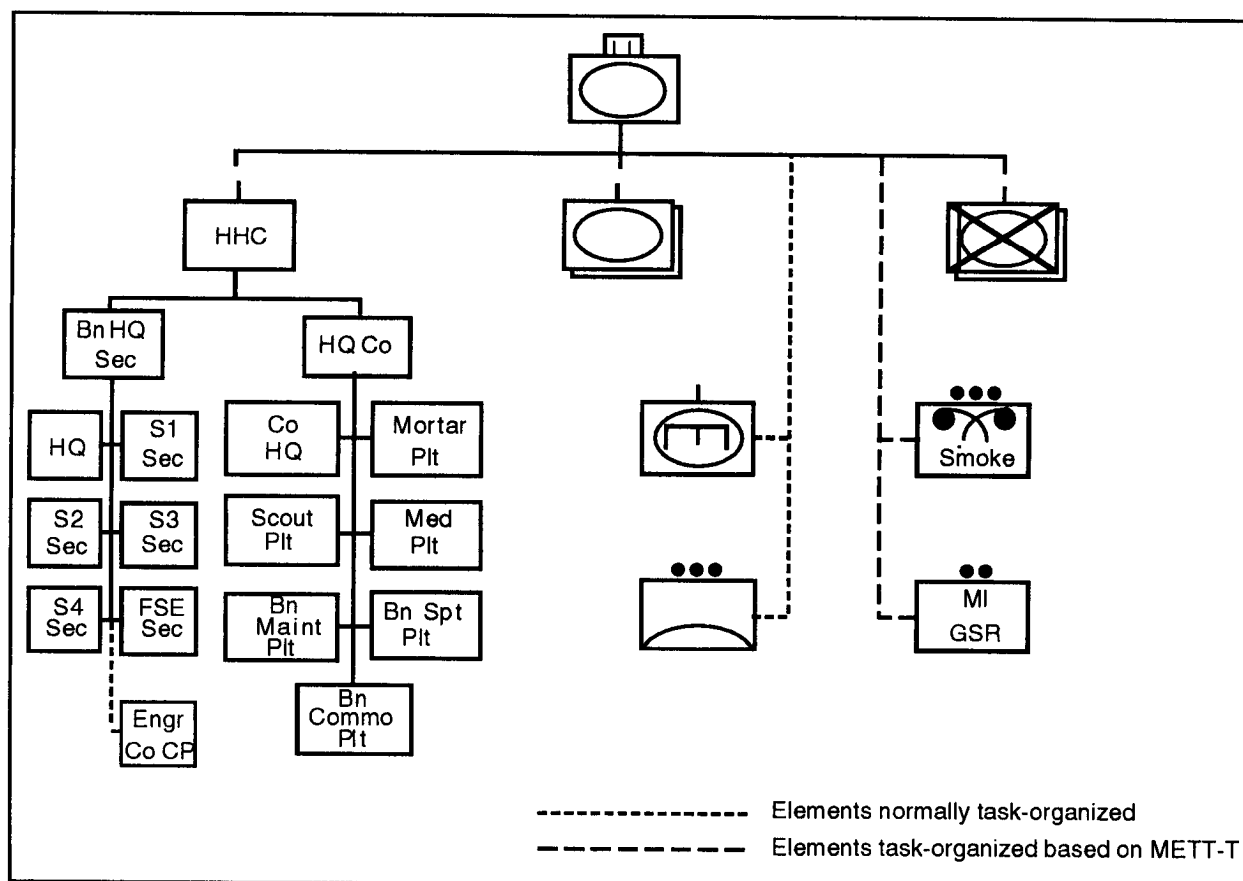


Figure 1-1. Armored TF (balanced)

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leadership skills. He develops the TF combat team by organizing his assets based on mission, enemy, terrain, troops, and time available (METT-T).

TASK-FORCE STAFF

The TF is the lowest tactical echelon with a staff. The TF staff is organized specifically to be a single, cohesive unit to assist the commander in accomplishing the mission. The TF executive officer (XO) is the principal assistant to the TF commander. The TF XO is the TF's "chief of staff" and is second in command (2IC). He is the principal integrator of the coordinating and special staffs, and his main emphasis is on CSS operations in support of the TF maneuver plans. The TF staff consists of the organic coordinating staff officers from the base unit of which the TF was formed. They include the—

- Adjutant (US Army) (S1).
- Intelligence Officer (US Army) (S2).
- Operations and Training Officer (US Army) (S3).
- Supply Officer (US Army) (S4).
- Battalion maintenance officer (BMO).

The TF also has special staff officers (organic, assigned, or attached) who represent special areas of expertise. These officers, who normally advise the TF commander during combat operations, include the—

- S3 air officer.
- Chemical officer.
- Tactical intelligence officer.
- Liaison officer (LO).
- Battalion signal officer (BSO).
- Battalion surgeon.
- Battalion chaplain.

- TF engineer.
- Fire-support officer (FSO),
- Air-defense artillery officer (ADO).
- Air liaison officer/forward air controller (FAC).

The special staff represents the subject-matter expertise of the TF staff in their particular BOS.

Senior leaders of critical elements supporting the TF provide special staff assistance to the commander directly or through the primary staff. These leaders provide the commander with information on integrating their assets into the TF combat team. They are the special staff representatives for specific BOSs. These senior leaders include the following:

TF Engineer

The TF engineer is the senior leader of the supporting engineer unit. He advises the commander on the employment of engineer assets. He is normally the engineer company commander.

FSO

The FSO is a habitually associated special staff officer from the field artillery (FA) battalion in direct support (DS) of the brigade. He coordinates all fire support for TF operations and establishes the fire-support element (FSE) at the TFs main command post (CP). The FSO normally operates forward with the TF commander. The FSO coordinates for indirect-fire coverage of obstacles and breaching. He is also a key planner for artillery-delivered family of scatterable mines (FASCAM).

ADO

The ADO is the senior leader of the supporting air-defense artillery (ADA) unit. He advises the TF commander on the employment of ADA assets.

Air Liaison Officer/FAC

The FAC is a United States Air Force (USAF) officer responsible for coordinating and employing USAF assets in support of the TF. The FAC is responsible for the tacti-

cal air-control party (TACP). He primarily operates forward with the TF commander.

Further detailed descriptions of the special staffs respective functions can be found in FM 71-2 and 101-5.

ENGINEER COMPANY ORGANIZATION

The engineer company is the lowest engineer echelon that can plan and execute continuous 24-hour operations in support of the maneuver force. The engineer company is ideally suited for integration into maneuver TF operations. It is an agile organization that assures the freedom to maneuver on the battlefield within the combined-arms-team framework. Its structure and operational characteristics enhance force momentum and lethality and increase the synchronization of engineer actions within the TF's battle space.

The engineer company frequently fights as part of the engineer battalion/TF. The company retains its normal mission of assuring mobility. However, the commander does not have a special staff responsibility relationship with the engineer battalion commander. When fighting with the engineer battalion, the company commander enjoys a role similar to that of his armor and mechanized-infantry peers in TF organizations.

MISSION

The engineer company's mission is to increase the combat effectiveness of the maneuver TF by accomplishing mobility, countermobility, and survivability tasks. Engineers supporting the TF are critical combat multipliers, preserving the freedom of maneuver, enhancing the TF's firepower, and protecting the force from enemy weapons effects.

ORGANIZATION

The division engineer company consists of a company headquarters, two combat-

engineer platoons, and an assault and obstacle (A&O) platoon (see Figure 1-2). Other mechanized nondivision engineer companies have different variations of this organization (see Figure 1-3). The company can be organized to operate as an engineer pure element, or it can receive cross-attached tank or infantry platoons. The company headquarters includes the commander; the operations officer (also known as the XO); the first sergeant (ISG); the operations noncommissioned officer (NCO); the supply sergeant; the nuclear, biological, and chemical (NBC) sergeant and the communications specialist or NCO. The company headquarters commands and controls the unit's tactical employment and administrative operations.

Engineer Platoon

The engineer platoon is normally the lowest-level engineer unit that can effectively accomplish independent missions and tasks. It is a basic unit capable of maneuvering during combat operations, and it can fight as part of the engineer company or as part of the maneuver company/team. The engineer platoon consists of a platoon headquarters section and three engineer squads. On the battlefield, the engineer platoon can expect rapid and frequent movement. It prepares to fight both mounted and dismounted, during various situations. The engineer platoon frequently receives augmentation in the form of special equipment from the A&O platoon.

Engineer squads can be task-organized for specific missions with limited duration such as engineer reconnaissance missions. Task-organizing below platoon level degrades the engineer platoon leader's ability to mass critical engineer assets during operations.

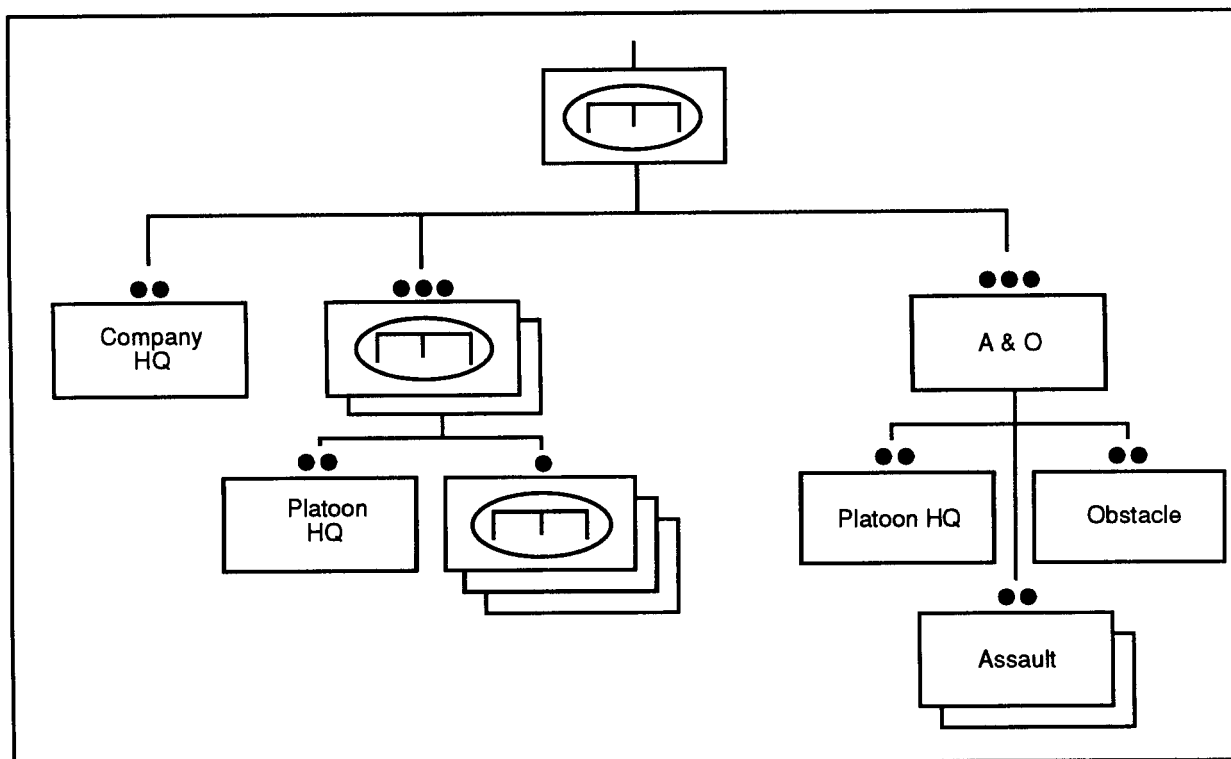


Figure 1-2. Engineer company (mechanized) structure

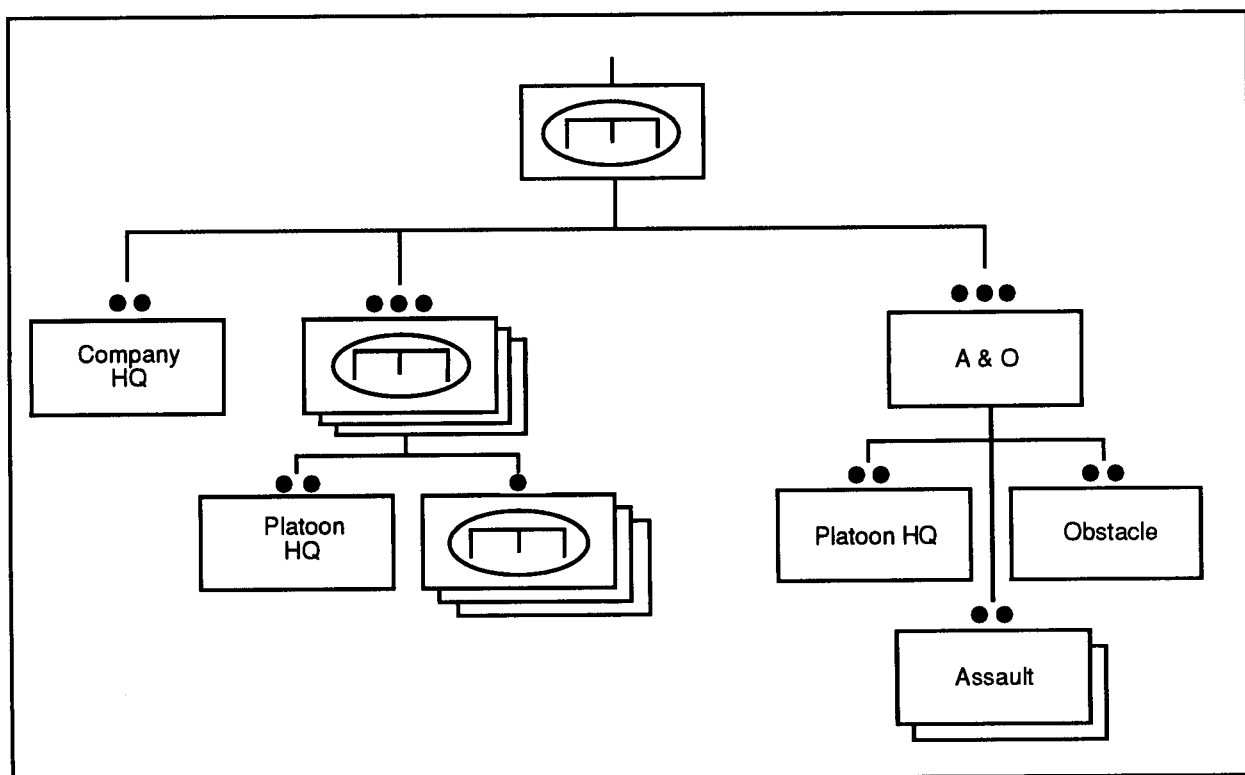


Figure 1-3. Engineer company (armored cavalry regiment/separate brigade) structure

A&O Platoon

The A&O platoon is a unique element that contains specialized engineer heavy equipment to support mobility, countermobility, and survivability tasks undertaken by the company or platoons. The platoon consists of a platoon headquarters section, two assault sections, and an obstacle section. The A&O platoon is not organized to operate independently like the other engineer platoons. It provides the company commander with specialized equipment to weight both offensive and defensive operations. Normally, the A&O platoon is responsible for fortification construction, specialized equipment control, and flank obstacles. The platoon will normally operate—

- Supported by an engineer platoon.
- In task-organized sections in support of the engineer platoon or company.
- Task-organized to a maneuver company/team within the TF.

The assault sections are structured for mobility missions, focusing on reducing enemy complex obstacles and fortifications that inhibit friendly maneuver. Each assault section contains armored combat-engineer vehicles that are capable of reducing a variety of natural and man-made obstacles such as minefield, gaps, and constructed berms. The section's activities are controlled by a section sergeant who maintains communications with the individual vehicles and the element that they are supporting.

The obstacle section is structured to focus on reinforcing terrain with obstacles to attack the enemy's ability to maneuver. The section also has the capability to perform survivability tasks to protect personnel and fighting vehicles and systems within the maneuver force. The section contains armored combat earthmovers (ACEs) and multiple mine-delivery systems. Their activities are controlled by a section sergeant, using the same considerations as within the assault sections.