

CHAPTER 2

Command and Control

Command and control of engineer units and functions is essential to providing the division with responsive engineer support. It enables the DIVEN commander to effectively integrate engineer battlefield functions into division plans as well as synchronize the effort involved in the current fight. This chapter focuses on establishing effective engineer C2 in the division. It draws on the C2 principles and structure outlined in FMs 101-5 and 71-100.

Engineer C2 involves the functional arrangement of personnel, equipment, communications facilities, and procedures to enable the DIVEN organization to keep pace with the division's decision cycle and accomplish assigned missions. Effective C2 and execution ensures that engineer capabilities are properly applied to gain the maximum combat multiplying effect.

ROLES OF THE DIVEN COMMANDER

Leadership is a vital component of any C2 system. The DIVEN commander provides the purpose, direction, and motivation necessary for his soldiers to accomplish the difficult and dangerous tasks that support the combined arms team. His dual roles as both a commander and division staff officer provide some unique leadership challenges.

The relationship between the DIVEN commander and his division commander is important to effective C2 of engineers. The division commander formulates a concept of the operation, intent, and vision of the battlefield that cuts across all functional areas at his echelon. To help maintain his command focus, the division commander must rely on his functional area commanders to provide the necessary combat-, CS-, or CSS-specific control that permeates all subordinate echelons.

The division commander relies on the DIVEN commander as his expert on engineer opera-

tions. The DIVEN commander supports the division commander by commanding organic engineers that remain under division control and corps engineer units attached to his organization to support the division. As the division engineer, he assists the division commander in control of all engineer operations within the division as necessary to ensure responsive, effective, and cohesive support.

The DIVEN commander's primary role is command. He is assisted by a coordinating staff. The broad duties and responsibilities of commanders and coordinating staffs are outlined in FM 101-5. The principal functions of the DIVEN commander and his staff include—

- Commanding subordinate organic and supporting engineer units.
- Using engineer C2 organizations to hear, see, and understand all engineer battlefield missions within the division.

- Assigning specific missions to engineer units through DIVEN unit orders.
- Using engineer C2 organizations to hear, see, and understand all engineer battlefield missions within the division.
- Issuing timely instructions and orders to subordinate engineer units to facilitate subordinate planning, preparation, and integration.
- Assessing unit performance, anticipating changes, and issuing the necessary FRAGOs directly to the engineer unit.
- Using the EBA and mission analysis to compute resource and force requirements for making recommendations for engineer task organization and command and support relationships.
- Developing a scheme of engineer operations concurrently with maneuver courses of action.
- Making recommendations to the division commander concerning priorities and risk.
- Developing specific engineer missions and conveying them to subordinate maneuver units and their staff engineer through the division OPORD and engineer annex.

The DIVEN commander is also the division engineer, a division special staff officer. He is assisted in this role by a special staff section under the leadership of the Assistant Division Engineer (ADE). The duties and responsibilities of the special staff and the division engineer are outlined in FM 101-5. The division engineer is responsible for functional control of both organic and supporting corps engineers. The division engineer supports the division commander in exercising functional control by—

- Visualizing the future state of engineer operations in the division.
- Formulating concepts for engineer support to meet the division commander's intent.
- Identifying the engineer tasks necessary to support the division plan.
- Developing and integrating future engineer plans to support the division fight.
- Coordinating with the corps engineer on corps engineer plans, status of division engineer missions, and identification of division requirements for corps engineer assets.
- Monitoring the execution of engineer orders and instructions.
- Adjusting the engineer plan, as required, based on feedback from both maneuver and engineer units.
- Identifying engineer requirements beyond the capability of available units and requesting additional assets from corps, as needed.

In his dual roles, the DIVEN commander assists the division commander by monitoring the total engineer fight, anticipating problems, providing timely recommendations, and participating in future planning while continuing to command all engineers under division control. To accomplish all of these tasks, the DIVEN commander positions himself, his staff, and his representatives where they can best provide C2 of engineers and engineer functions for the division commander. In his role as commander, the DIVEN commander may be at the scene of the engineer main effort while his staff continues the effort in the DIVEN command posts (CPs). As the division engineer, he must be accessible to the division's decision makers. He does this by

ensuring that his coordinating staff and representatives at the division CPs fully understand both his and the division commander's intent and are aligned for mutual support and synchronization.

The DIVEN commander must achieve an efficient and flexible C2 system in the division. While FM 71-100 provides a base C2 structure, each division commander modifies that structure based on his personality and leadership style. The DIVEN commander must identify the division's decision makers and the key decision-making nodes. For example, some division commanders may make heavier use of the command group or increase the role of the tactical (TAC) CP in decision making for future fights. Each DIVEN commander must make an assessment of his division's C2 "personality" and modify his engineer C2 system accordingly. C2 of engineers must be responsive to the needs of the division commander as well as those of subordinate engineer units.

The DIVEN commander must establish a clear delineation of functions and responsibilities in order to influence and keep pace with the division's decision cycle. The cycle of acquiring information, making recommendations and decisions, issuing instructions, and ensuring engineer actions are set in motion is a continuous process requiring organization and efficiency.

The DIVEN commander issues guidance to his staff and division representatives and makes tactical decisions based on guidance and coordination with the division commander. He must maintain flexibility to move to the point of the engineer main effort or to the point of decision making.

To provide responsive engineer support to a division, the DIVEN commander must

properly task organize his force. He fosters the integration of subordinate units through habitual association with the maneuver brigades. He uses this habitual relationship as a basis for task organization wherever possible.

The division will frequently need and receive additional engineer units from corps. These units are integrated into the overall division task organization. Corps units may be task organized into or along with the division's organic engineer units supporting the maneuver brigades or may be given independent missions in the division area.

The chief purpose for task organizing is to increase the responsiveness of support to the maneuver brigade commanders. Commanders of task-organized engineer units (attached, operational control (OPCON), or direct support (DS)) must answer to the needs of the supported commander first. Even in cases where engineer units are general support (GS) and receive their missions from corps, they still attempt to satisfy the needs of the supported commander.

The DIVEN commander gives his subordinates missions and guidance supporting the missions the division commander gives to his maneuver brigades. The DIVEN commander must afford his subordinates a great deal of freedom of action and initiative. He must remain focused on engineer missions rather than the method of execution. He uses intent to give subordinate engineer commanders the necessary framework within which to take initiative. Freedom of subordinate action, mission focus, and clear intent are all vital components of establishing effective engineer C2 between the DIVEN commander and engineers task organized to maneuver brigades.

ENGINEER FUNCTIONAL AREA C2

The responsibility to provide engineer control is key to establishing an effective engineer C2 organization. To effectively control the engineer effort, the division engineer must understand the division C2 organization and integrate engineer operations into the division's planning and decision cycle.

The division normally commands and controls the fight through a command group and three CPs. The CPs are the TAC CP, main CP, and rear CP. FM 71-100 provides details on the exact composition and layout of the command group and each CP. While these details are important, it is more important to understand the roles and responsibilities of each CP within the division's C2 organization.

Functionally, the division TAC, main, and rear CPs are the same in every division. The engineer functions are also the same, regardless of the type of division. The actual size, composition, and organization of each engineer cell adjusts, based on the type of division, to provide an acceptable level of engineer unit control. Understanding how the division CP system works and what engineer functions occur at each of the division CPs is fundamental to establishing C2 of engineers. Figure 2-1 illustrates the relative battlefield location of each division CP. This only provides a base structure; each division may modify its C2 organization based on the personality of the commander and METT-T.

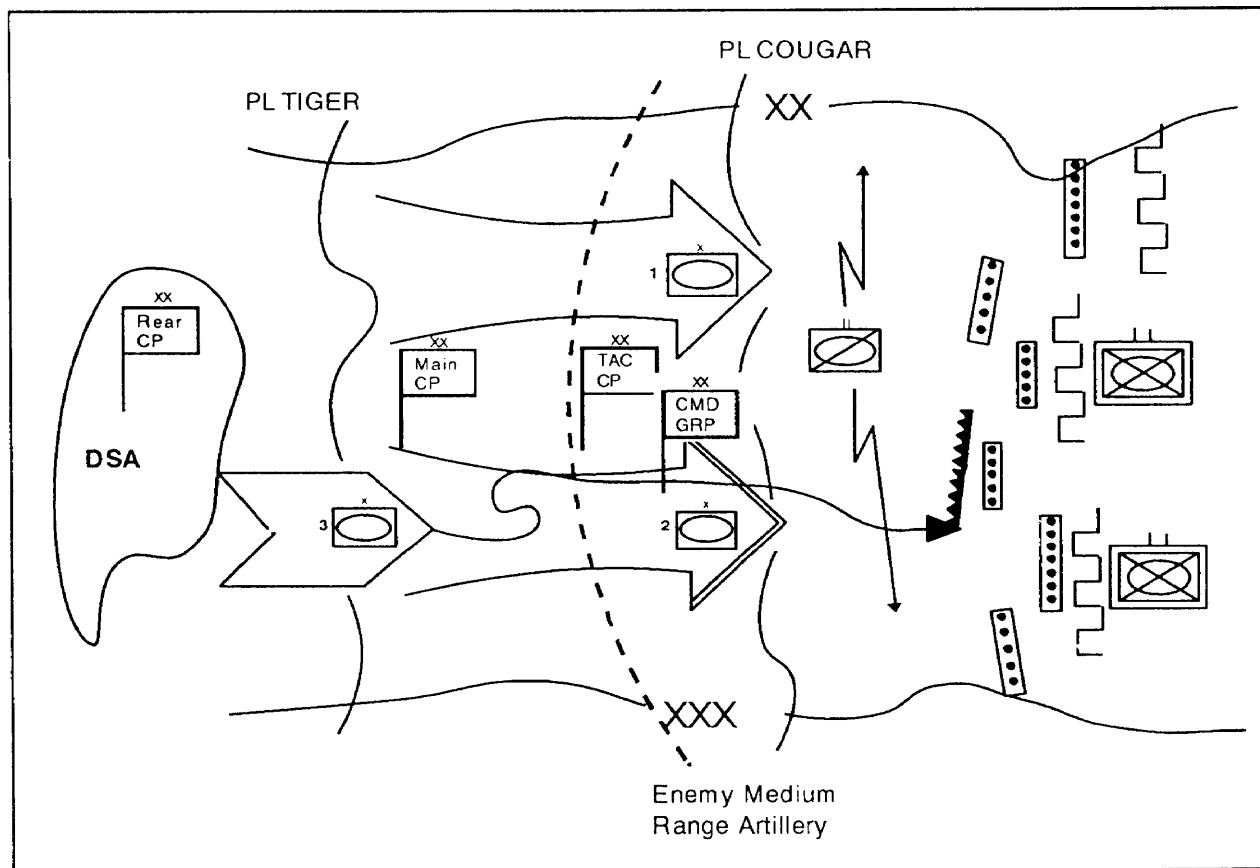


Figure 2-1. Division command and control posts

Division Command Group

The command group consists of the division commander and selected members of his staff. It is not a fixed organization but is tailored to meet the C2 needs of the mission. The division commander identifies the critical events requiring his personal influence. He also anticipates the rapid decisions and orders that will be required and tailors the command group to provide the necessary expertise. The command group moves forward from the TAC CP and initially positions itself with the main effort. This forward position allows the division commander and selected staff to see the battle, directly influence the action, and make face-to-face contact with brigade commanders when necessary. The division commander will often require the division engineer to be part of his command group.

Division TAC CP

Functions of the TAC CP. The TAC CP controls the close fight. It locates in the main battle area (MBA) close to the forward brigades. It is structured to synchronize and coordinate maneuver, fire support, and engineer operations in the division close battle. When fully active, the TAC CP serves as the net control station (NCS) for brigade and separate battalion reports. It receives, posts, and analyzes reports from the maneuver brigades and responds to immediate tactical requirements. The TAC CP is principal to analyzing and disseminating combat intelligence for the close fight. It also provides centralized synchronization of fires to committed forces within the division. The assistant division commander for maneuver (ADC-M) or his designated representative controls the TAC CP.

Engineer Functions in the TAC CP. The division TAC CP concentrates on the C2 of the current close fight. The focus of engineer functions in the TAC CP is to provide the ADC-M and the division engineer with information about the engineer close current fight that is needed for making timely

decisions. Engineer representatives in the TAC CP—

- Track friendly and enemy obstacles.
- Coordinate the execution of the division's scheme of engineer operations in the close fight.
- Synchronize the unity of engineer effort among maneuver brigades.
- Provide engineer expertise to the ADC-M.
- Receive, post, and analyze combat intelligence affecting current engineer operations and provide input to the current IPB.
- Receive, post, analyze, and forward reports on current engineer operations from maneuver brigades in the close fight.
- Provide engineer expertise to the TAC fire-support element.

As part of the parallel planning process, the TAC CP engineer closely monitors FRAGOs from corps and guidance given by the division commander for the future fight. Based on the commander's guidance, the TAC CP forwards engineer guidance to engineer planners in the main CP. The TAC CP engineer also assists the division engineer in identifying critical engineer events, engineer tasks, and resource requirements for the future close fight by maintaining an accurate status of engineer operations in the close fight.

Main CP

Functions of the Main CP. The nucleus of the division C2 organization is the main CP. The main CP is designed to provide the division with the capability of "seeing the total battlefield" in the current fight while simultaneously planning for future fights. For the current fight, the main CP prepares and issues FRAGOs, develops sequels and

branches for current fights, and coordinates the allocation of resources and establishment of priorities. The main CP sees the battle through reports from the TAC CP, rear CP, and subordinate units. The majority of the information arriving at the main CP is normally historical and insufficient to make timely, tactical maneuver decisions. Therefore, the role of the main CP in the current fight is to respond to requests for immediate support by the TAC and rear CPs. The main CP also ensures that decisions made by the TAC and rear CPs are rapidly coordinated and effectively conducted. The main CP must also be prepared to control the close fight if the TAC CP is unable to do so. The main CP controls the conduct of the deep fight in coordination with the TAC CP to ensure synchronization with the close fight. The main CP also monitors the operations of higher and flank units and provides the information to the TAC and rear CPs.

The main CP is the central C2 node for planning future deep, close, and rear fights. It has three functional cells: the command cell, the G3 cell, and the G2 cell. The command cell contains and is responsible for the command center vehicle and the division commander's command group. The G3 cell contains the G3 operations, plans, engineer, fire-support, air defense artillery, aviation brigade, airspace command and control (A2C2), assistant division signal officer (ADSO), and nuclear, biological, chemical NBC elements. The G2 cell contains the G2 operations, all-source production section (ASPS), weather, and topographic elements.

Engineer Functions in the Main CP. In concert with its role as the nucleus of division C2, the main CP is also the center of gravity for all engineer functional planning. The division engineer's principal representative in the main CP is the ADE. The major engineer functions are—

- Tracking all mobility, countermobility, survivability, and sustainment and

topographic engineering aspects of current deep, close, and rear fights.

- Receiving, posting, and analyzing terrain, enemy engineer, and other intelligence and participating in the IPB for future plans.
- Identifying engineer resources required to support deep, close, and rear fights for future plans.
- Developing the division's scheme of engineer operations to support all courses of action for future plans.
- Processing requirements received from the TAC and rear CPs and integrating them into future plans.
- Synchronizing and integrating engineer plans with future division plans.
- Preparing engineer input for division operation plans (OPLANs) and OPORDs.
- Coordinating and transferring information with adjacent division engineers and the corps engineer.

The ADE must conduct close coordination both internal and external to the main CP. The ADE relies heavily on reports from the TAC and rear CP engineers and the DIVEN MAIN CP. He also closely coordinates with the G2 cell and the G3 plans, operations, and fire-support elements to see the total battle and integrate into future plans.

The ADE assists the G3 operations element in synchronizing engineer operations in the current close and rear battles and in responding to immediate engineer tactical requirements. As the current fight develops, the TAC CP receives requests for immediate support from the maneuver brigades. The ADC-M makes decisions, issues FRAGOs to the brigades, and forwards his decisions to the main CP for coordination. When those decisions involve engineer operations or

forces, the TAC CP engineer ensures the decision and requirements are passed to the main CP. The ADE works closely with the operations element to completely resource and synchronize the decision to support the current fight. The main CP also receives requests for immediate tactical support from the division rear CP. The assistant division commander for support (ADC-S) makes decisions for adjustments to the current rear fight. Likewise, when these requests involve adjustments to the scheme of engineer rear operations, the rear CP engineer ensures that the requirements are forwarded to the main CP for coordination by the ADE.

The ADE tracks intelligence reports from corps, the TAC and rear CPs, and the DIVEN MAIN and identifies information essential to engineer operations. The ADE uses this in-

formation to participate in the IPB as well as to refine or develop the engineer estimate for the current and future fights. The ADE must also ensure the information is passed to the TAC and rear CP engineers as well as the DIVEN MAIN.

The ADE monitors current engineer operations and coordinates with adjacent and higher engineer headquarters. He maintains the necessary data base to pass critical engineer information to adjacent or relieving units, as required. He also requests and receives engineer information requirements from adjacent and higher organizations. Figure 2-2 illustrates the functional control concept for the current fight.

The ADE works with the G3 plans element of the main CP in developing future plans,

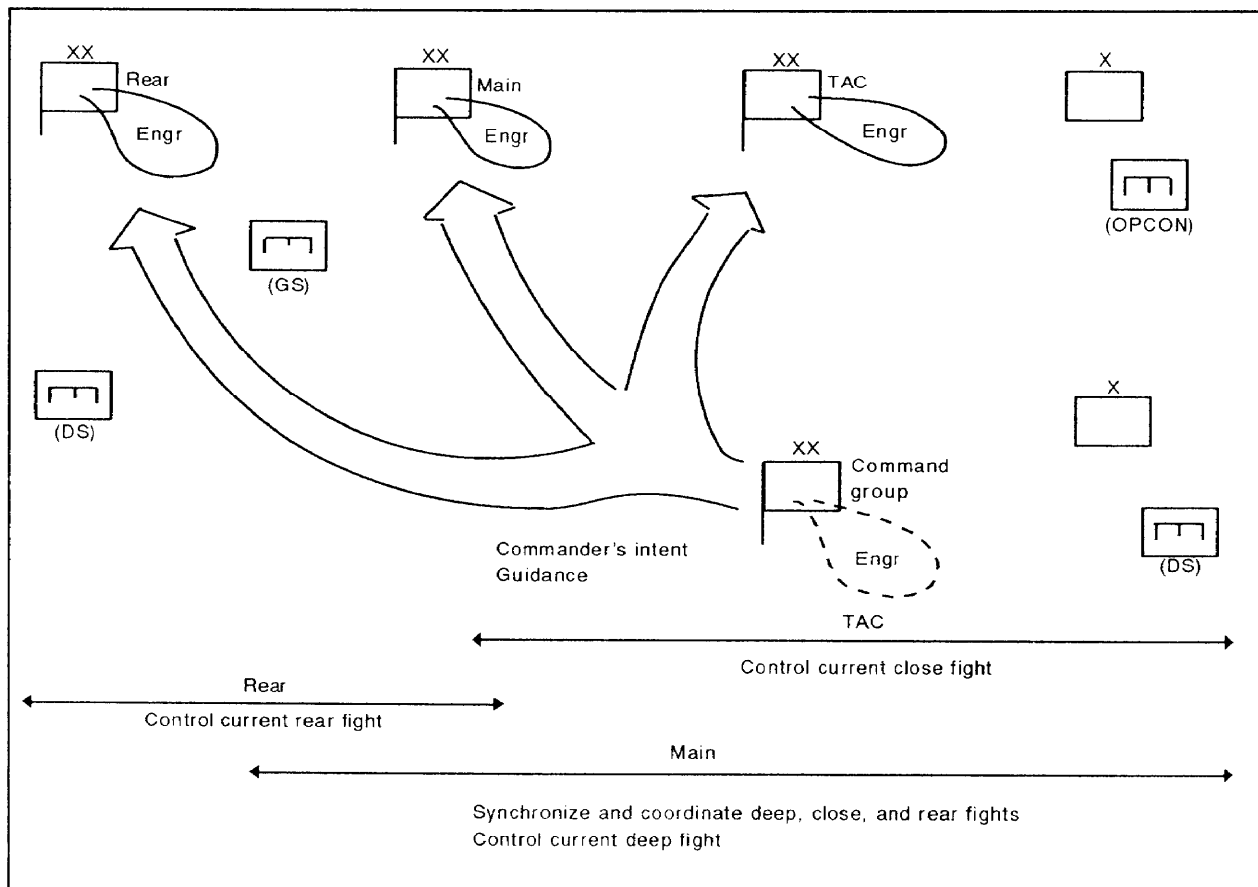


Figure 2-2. Functional control: current

integrating engineer operations to support the future fight, and allocating the necessary engineer forces. When the division receives a FRAGO, the ADE assists the plans element in processing the order and gathering the information necessary for future planning.

Just as the plans element receives guidance on the future fight from the command group, the ADE receives engineer guidance from the division engineer. The ADE develops the scheme of engineer operations for courses of action developed by the plans element. In developing the scheme of engineer operations, the ADE considers the engineer requirements to support all aspects of the future fights (deep, close, and rear). The ADE works closely with the plans element in identifying critical engineer missions, allocating

the necessary engineer forces, and recommending an engineer task organization. The ADE prepares engineer input to the division base OPORD, OPLAN, or FRAGO and prepares the engineer annex, where required. To facilitate parallel planning, the ADE coordinates with the TAC and rear CP engineers and the DIVEN MAIN as the plan develops. Figure 2-3 illustrates the functional control concept for the future fight.

Rear CP

Functions of the Rear CP. The rear CP focuses on the C2 of all elements located within the division's rear and synchronizes the rear fight for the division. Because the rear CP is not manned or equipped to conduct the current fight and to plan for future

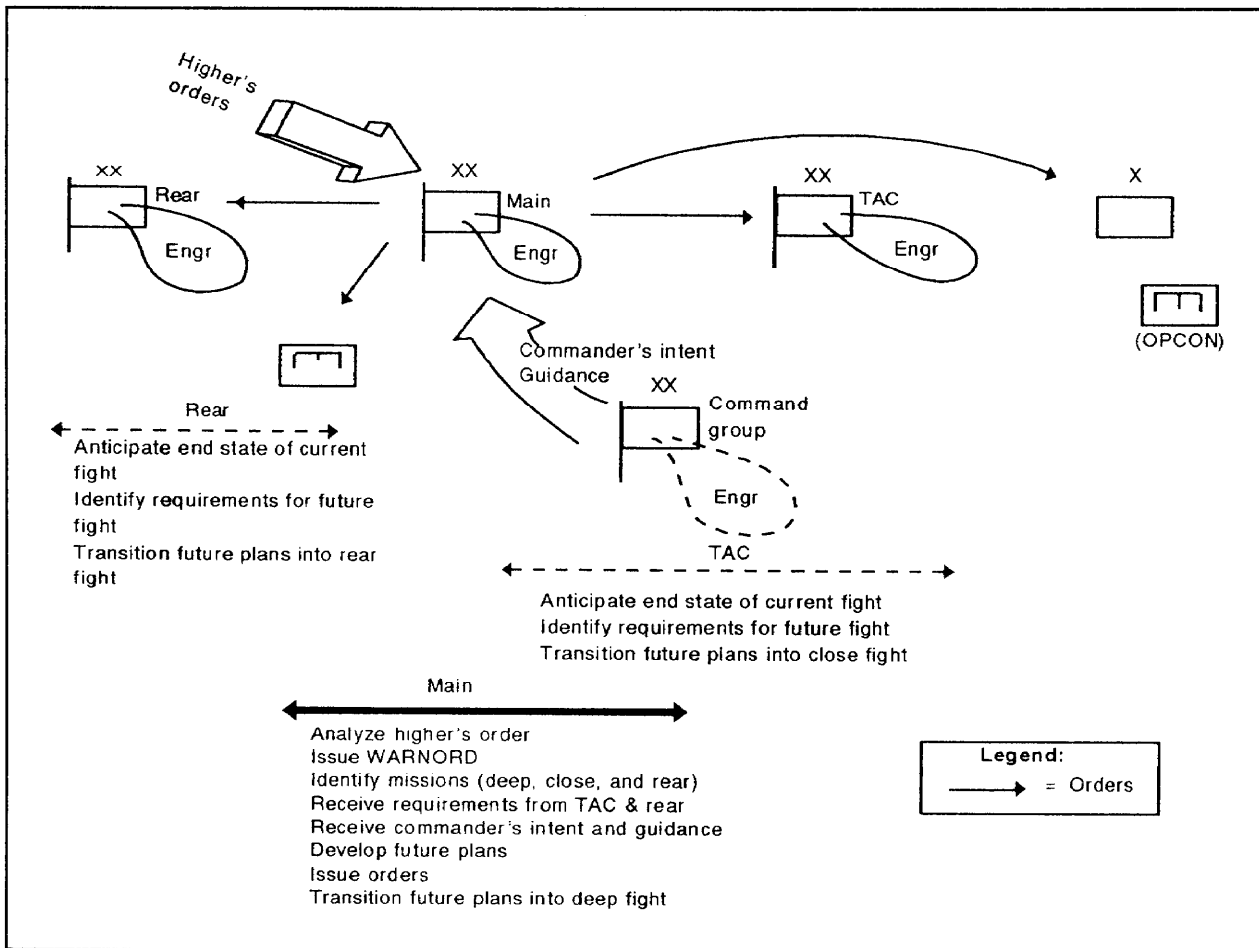


Figure 2-3. Functional control: future

rear fights simultaneously, it is only an extension of the main CP. The rear CP normally collocates with the division support command (DISCOM) CP within the division support area (DSA). The ADC-S is normally in charge of the rear CP.

The rear CP's primary role in the division C2 organization is to ensure that the rear fight is synchronized and integrated with the close and deep fights. The rear CP monitors the status of rear area combat and sustainment operations. Units operating in the rear CP area provide operational and unit status reports to the rear CP. The rear CP deconflicts unit movements within the division rear area where needed and controls them when required. The status of the rear fight and units is reported to the main CP. This information is vital to the main CP's development of future plans.

The rear and DISCOM CPs jointly analyze future division plans for their impact on current and future rear fight. This enables them to ensure that the necessary sustainment support is available. The rear CP is also responsible for planning, coordinating, and synchronizing rear security. It assigns units to bases or base clusters and appoints commanders for each. The rear CP also controls the tactical combat force and integrates it into the rear defensive plan. The rear CP monitors activities in the brigade rear areas, the adjacent division rear areas, and the corps rear area to prevent potential conflicts. Lastly, the rear CP may assume control of the current close fight, if augmented, when the main and TAC CPs can no longer function.

Engineer Functions in the Rear CP. The rear CP normally requires engineer staff support due to the diversified engineer battlefield functions that occur in the division's rear area. Those functions include—

- Providing engineer advice to the ADC-S.

- Making recommendations on engineer requirements to support base and base cluster defenses.
- Identifying engineer requirements for sustainment engineering, terrain management, movement control, and force protection.
- Preparing to assume the duties of the ADE if the rear CP assumes the main CP's mission.
- Controlling rear engineer operations for the ADC-S.
- Receiving, analyzing, and posting information on current engineer operations in the rear area and ensuring engineer reports are forwarded to the main CP.
- Coordinating logistics operations for engineers operating in the division rear.

The rear CP engineer provides the ADC-S with the engineer expertise he needs to plan, execute, and synchronize the division rear fight. He also provides the ADC-S with the information and expertise he needs to make immediate tactical decisions on the current rear fight. When his decisions involve engineer operations in the rear area, the rear CP engineer recommends the necessary adjustments in engineer support.

The rear CP engineer also assists the rear CP in analyzing future plans to ensure that the necessary sustainment support is available for the future fight. Specifically, the rear CP engineer looks at the engineer missions required in the rear area to sustain the division. The rear CP engineer also provides the rear CP with countermobility, survivability, and force protection expertise in planning base and base cluster defenses. The rear CP engineer identifies the resource requirements for future sustainment engineering, base cluster defenses, and force protection to the ADE. Furthermore, the rear CP engineer identifies engineer logistics

issues for the DISCOM and rear CPs that affect the ability of engineer units to perform missions in the future fight.

Finally, the rear CP engineer assists the rear CP in tracking all aspects of the current fight in the event it has to assume control

of the battle. Therefore, the rear CP engineer must maintain situation maps and track critical engineer information parallel with that of the ADE and the DIVEN MAIN so that he can assume the duties of the ADE, if required.

ENGINEER C2 ORGANIZATION

The DIVEN commander provides C2 for his subordinate units. This requirement is the same in all types of divisions. The DIVEN organization C2 structure and its location on the battlefield are determined by the—

- Diversity of the engineer battlefield functions required.
- Current mission.
- Division's C2 structure.
- Location of subordinate units on the battlefield.
- Task organization and command-and-support relationships of subordinate units.
- Logistics requirements of subordinate units.

To accomplish his unit C2 responsibilities, the DIVEN commander establishes a basic C2 structure consisting of a command group and three CPs: the DIVEN MAIN, the DIVEN TAC, and the DIVEN REAR. The DIVEN commander adjusts the organization, personnel, procedures, and equipment of his C2 structure based on his own METT-T analysis of each mission. The foundation of the functions and operations of the command group and CPs is contained in FM 101-5.

DIVEN Command Group. The command group consists of the DIVEN and designated members of his staff. The

command group's location, exact composition, and span of control are mission dependent. Their focus remains on the C2 of the current fight. The DIVEN commander uses his command group to influence the fight through the personal leadership of each member. They provide command presence at critical locations on the battlefield and should have the authority to make timely decisions on behalf of the DIVEN commander.

DIVEN TAC. The DIVEN TAC, when deployed, is the forward-most engineer CP. Its functions include—

- Assisting the DIVEN commander in commanding and controlling his subordinate units supporting the close fight.
- Providing information about the close fight to the DIVEN MAIN.
- Assisting the division TAC CP engineer, when required.

The DIVEN TAC will normally be deployed when the DIVEN commander needs to exert greater forward C2 on subordinate units to support missions such as river-crossing operations, large-scale breach operations, relief-in-place missions, and the execution of preplanned obstacles prior to the deployment of maneuver forces. The DIVEN TAC may also deploy when the required engineer functions at the division TAC CP exceed the capability of the TAC CP engineer to perform them. The DIVEN TAC must maintain

communications with the DIVEN MAIN and the division TAC CP engineer. It must be capable of conducting continuous operations.

DIVEN MAIN. The DIVEN MAIN is the center of engineer unit synchronization of the current deep, close, and rear fights and planning for future fights. It provides the DIVEN commander with the ability to see the entire battlefield. The functions of the DIVEN MAIN include—

- Commanding and controlling all subordinate units.
- Developing intelligence.
- Tracking the current battle.
- Collating information for the commander.
- Coordinating support for subordinate units.
- Providing reports to the division.
- Planning the future fight.
- Developing and issuing engineer unit orders.
- Assisting the ADE when required.

The DIVEN MAIN is normally located close to the division main CP to facilitate coordination and communication with the division and to support the ADE when the required engineer functions at the division

main CP exceed the capability of the ADE to perform them. The DIVEN MAIN must also maintain communications with the DIVEN command group, DIVEN TAC, DIVEN REAR, and the ADE. The DIVEN MAIN exercises C2 of the current fight when the DIVEN TAC is not deployed. It must be capable of conducting continuous operations.

DIVEN REAR. The DIVEN REAR is located close to the division rear and DISCOM CPs in the division's rear area. Its functions include—

- Commanding and controlling subordinate units supporting the rear fight, as required by the DIVEN commander.
- Coordinating CSS for the DIVEN organization.
- Acting as the alternate DIVEN MAIN CP.
- Assisting the division REAR CP engineer, when required.

The DIVEN REAR may be formed from DIVEN organization assets, a supporting corps engineer unit headquarters, or a combination of both. The DIVEN REAR must maintain communications with the DIVEN MAIN and the division rear CP engineer. The DIVEN REAR may also assist the division rear CP engineer when the required engineer functions at the division rear CP exceed his capability to perform them. It must also be capable of continuous operations (Figure 2-4, page 2-12).

ENGINEER PLANNING PROCESS

The engineer estimate process is the primary tool for facilitating engineer planning. The engineer estimate enables early integration of engineer battlefield functions into the division's combined arms plan. The process

enables the timely development of necessary engineer instructions to maneuver forces through the division order and to division and supporting corps engineer units through engineer orders.

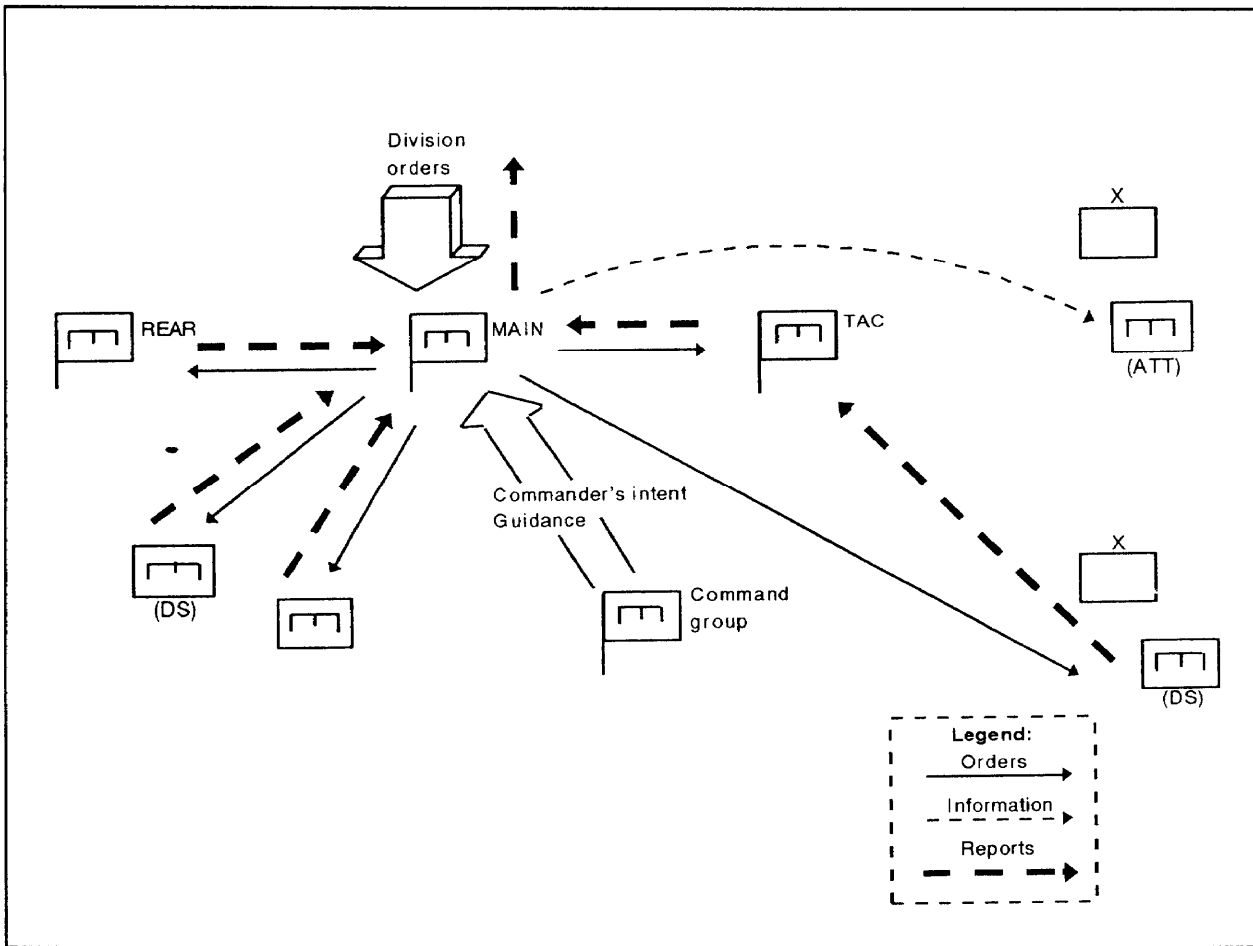


Figure 2-4. Unit C2

The nature of engineer support requires integration with the combined arms team beginning at the outset of division planning. The tactical decision-making process is the framework used to focus the efforts of the division commander and his principal staff as they plan and conduct tactical combat operations. The engineer estimate process is simply an engineer extension of the tactical decision-making process.

The steps of the tactical decision-making process and engineer estimates complement one another. Figure 2-5 illustrates how the steps of the engineer estimate are an extension of the tactical decision-making process. The arrows show steps which have two-way input and steps where the command estimate dominates the development of en-

gineer plans. The division engineer must understand all aspects of the division plan. In particular, he must thoroughly understand the commander's intent and concept for maneuver, engineers, and fire support. While the engineer estimate process outlines specific steps, it is in no way lockstep. More importantly, it is a continuous process with each step or consideration refined based on changes in the current situation and future mission. Appendix A contains a more detailed discussion of the engineer estimate.

As a result of the engineer estimate, the division engineer ensures that the necessary engineer missions and instructions are included in the appropriate part of the division order. Engineer information and instructions are not simply consolidated in the

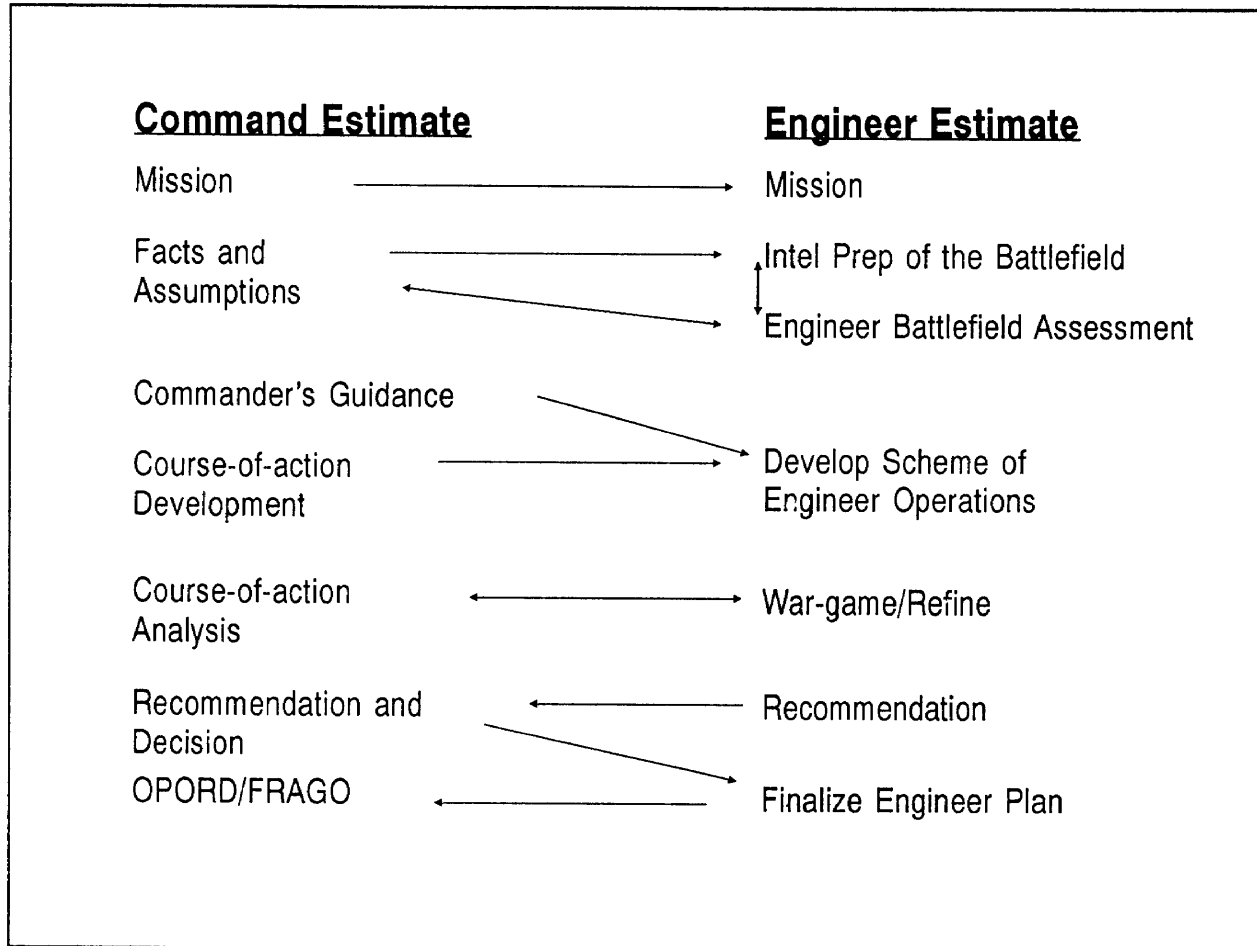


Figure 2-5. Tactical decision-making and engineer estimate

engineer annex; this tends to obscure critical information and instructions from the maneuver brigade commanders. For example, if reducing and marking eight breach lanes through a beachhead is critical to the division plan, it may appear as a specified task to the breaching brigade. Likewise, the enemy's recent integration of scatterable mines in his preattack fires may be included in the enemy situation of a FRAGO. The scheme of engineer operations is another example of engineer information contained in the base division order. It describes the general concept for engineer support to the division fight, usually concentrating on the close battle. The engineer estimate helps the planner identify critical engineer information and mission-essential

tasks for inclusion in the basic order. Table 2-1, page 2-14, illustrates how key components of the engineer estimate process drive engineer input into the division basic order.

Engineer Annex

At division level, most OPLANs, OPORDs, and detailed FRAGOs will include an engineer annex. The engineer annex conveys critical engineer information and engineer-specific instructions that are either too voluminous or not appropriate for inclusion in the basic order. The annex may take the form of written instructions, matrices, overlays, or a combination. Appendix B discusses the format and content of the engineer

Table 2-1. Engineer input into the division OPORD

ENGINEER ESTIMATE	INPUT	OPORD PARAGRAPH
IPB/EBA	Critical aspects of the terrain and enemy engineer activity impacting on the maneuver plan	1. SITUATION a. ENEMY INTEL ANNEX
MISSION ANALYSIS	Mission-essential M/S tasks assigned to maneuver units or separate engineers	3. EXECUTION e. SUBUNIT MISSIONS - MANEUVER - ENGINEER
DEVELOP SCHEME OF ENGINEER OPERATIONS	Concept of engineer operations to support division plan	3. EXECUTION d. SCHEME OF ENGINEER OPERATIONS
	Task organization of engineer forces and command/support relationships	TASK ORGANIZATION
	Allocation of M/S mission resources to maneuver units	4. SERVICE SUPPORT
WAR-GAME AND REFINE	Graphic control measures needed for obstacle control, river-crossing, and large-scale breaching operations	OVERLAYS: OPERATIONS ENGINEER CSS
	Additional coordinating instructions to maneuver units needed to synchronize engineer effort	3. EXECUTION f. COORDINATING INSTRUCTIONS
RECOMMEND COURSE OF ACTION	None	None

FINALIZE ENGINEER PLAN



annex in more detail and provides sample matrices and overlays. Table 2-2 illustrates how the content of the engineer annex is derived from the engineer estimate process.

Orders

All commanders issue timely, clear, and concise orders to give purpose and direction to subordinate planning, preparation, and execution. DIVEN commanders issue orders to all subordinate engineer units, as necessary, to execute the scheme of engineer operations for the division close and rear fights. Orders transform the division scheme of engineer operations into clear, concise engineer missions. They combine the concept of engineer support with the engineer unit-specific plans needed to accomplish engineer missions and sustain the engineer force. In short, they bind the entire engineer plan together and ensure unity of the engineer effort.

The DIVEN commander uses his unit orders to command engineer forces remaining under his control for the fight. These unit orders may prescribe engineer missions in the close and rear battle. However, the bulk of engineer missions in the close battle are conducted by engineers supporting the maneuver brigades and are executed through functional control of the maneuver brigades. These missions may be assigned as tasks in the division order and annexes. Regardless of the command-and-support relationship, the division engineer must still provide the division commander with functional control over the engineer effort within the brigades and battalions to ensure unity of effort.

The DIVEN commander uses the combination of division and engineer unit orders to exercise the appropriate level of command versus engineer functional control. The DIVEN commander exercises a high level of

Table 2-2. Engineer annex content and engineer estimate

ENGINEER ANNEX FORMAT	CONTENT	ENGINEER ESTIMATE
TASK ORGANIZATION	Task organization of engineer units, includes who they support and in what command/support relationship	SCHEME OF ENGINEER OPERATIONS - FORCE ALLOCATION - TASK ORGANIZATION
1. SITUATION a. ENEMY	Aspects of the weather, terrain, and enemy M/S activities that significantly impact on engineer missions	INTEL PREPARATION OF THE BATTLEFIELD
b. FRIENDLY	Identify missions and plans of higher and adjacent engineers that impact on the plan	ENGINEER BATTLEFIELD ASSESSMENT - TERRAIN - ENEMY M/S CAPABILITY
c. ATTACH/DETACH	Clarify changes in task organization that occur during the execution	HIGHER'S OPORD AND ENGINEER ANNEX
2. MISSION	Mission statement of supported unit	RESTATED MISSION FROM SUPPORTED UNIT
3. EXECUTION a. SCHEME OF ENGINEER OPERATIONS	Concept of the engineer operations to support maneuver plan	SCHEME OF ENGINEER OPERATIONS
b. OBSTACLES	Details on use of obstacles and scatterable mines	SCHEME OF ENGINEER OPERATIONS
c. SCATTERABLE MINES	Missions to engineer units - task organized to brigades - under division troops	MISSION ANALYSIS
d. SUBUNIT MISSIONS	Instructions common to two or more engineer units	WAR-GAME AND REFINE
e. COORDINATING INSTRUCTIONS		
4. SERVICE SUPPORT a. COMMAND-REGULATED SUPPLIES	Identify allocation of M/S mission resources	SCHEME OF ENGINEER OPERATIONS - ALLOCATE RESOURCES
b. EFSP LOCATIONS	Method of mission sustainment	
c. TRANSPORTATION		
d. MEDICAL	Method of unit sustainment	FINALIZE THE ENGINEER PLAN
e. HOST NATION		
5. COMMAND AND SIGNAL	Location of engineer CPs	FINALIZE THE ENGINEER PLAN
	Special command and control arrangements	
	Required reports	

both unit and functional control over organic and supporting corps engineers not task organized to the maneuver brigades. He directly issues these forces the full range of unit orders. The DIVEN commander exercises limited unit control over task-organized engineer forces but, as the division engineer, is still responsible for their functional control. He issues task-organized units DIVEN unit warning orders (WARNORDs) to focus subordinate planning and preparation. The bulk of engineer instructions to engineers supporting the brigades is contained in the division engineer annex.

Engineer Unit Orders

Engineer unit orders are essential to ensuring that subordinate units understand how their missions support the maneuver plan and mesh with the total engineer plan for the division. DIVEN commanders use WARNORDs, OPORDs, and FRAGO to convey their orders to subordinate units.

WARNORDs. The DIVEN commander issues a WARNORD to his subordinates when a FRAGO is received from division or when he perceives significant changes to the plan. The WARNORD is essential to initiating

subordinate planning and preparation. It should be as detailed as possible, based on the mission and information available. For engineers in particular, it should include any likely changes in task organization. This facilitates planning any consolidation of forces and required sustainment operations. Appendix B provides the format for a WARNORD and gives examples.

OPLANs and OPORDs. The DIVEN commander issues an OPLAN or OPORD at the outset of an operation or when the division mission changes so much that the initial OPLAN or OPORD is no longer useful as a foundation. The engineer estimate process and tactical decision-making process again drives the development of engineer unit orders.

Initial OPORDs focus the engineer force on the mission, effect the necessary task organization, assign unit missions (including “on order” and “be prepared” missions), and establish the necessary service support structure. They also provide subordinate commanders with the DIVEN commander’s intent and scheme of engineer operations. A clear commander’s intent and concept of the operation gives subordinate engineers the combination of freedom of action and unity of effort. Subordinate engineer commanders must have the freedom to tailor their plans to the needs of their supported commander. At the same time, their efforts must complement the total engineer plan. Appendix B outlines the OPORD format and content and provides some examples. The DIVEN commander uses his initial OPORD as a base plan from which he can adjust as the situation develops. However, when the division mission changes drastically and the initial order is no longer a solid base, the DIVEN staff conducts a more deliberate planning process. A new unit OPORD is

developed and issued to subordinate engineer units.

FRAGOs. The last type of order is the FRAGO. A FRAGO does not have a set format or content; it is modified to meet the needs of the situation. The FRAGO allows the DIVEN commander to quickly modify the current OPORD for his subordinate units based on changes in the situation. The FRAGO outlines changes only; all other instructions in the base OPORD remain in effect. Normally, the DIVEN commander uses the FRAGO when there is an immediate tactical requirement to adjust engineer task organization, scheme of engineer operations, or subunit missions. However, the FRAGO can be used to change any part of the base OPORD. As with any order, the receiving unit uses the FRAGO as a basis for initiating planning. Engineer units in a direct-support relationship do not execute the FRAGO until the supported commander has received a FRAGO from the division changing the division order. Engineer units in a command relationship receive their FRAGOs from their supported unit. Appendix B provides general guidelines on FRAGO format and content and gives an example.

Engineer units that are attached to another headquarters will not normally be addressed in engineer unit orders except in the attached and detached section. Engineer units that are under the OPCON of another headquarters are addressed in attachments and detachments and receive service and support instructions. In both of these cases, the staff engineer should receive an information copy of the DIVEN unit order to assist in developing the engineer plan for his supported unit. Engineer units under DIVEN command, including those task organized to another unit in a support relationship, are issued a full order.