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SYNCHRONIZING THE SUSTAINMENT OF THE
HEAVY DIVISION AND ITS SUPPORTING
CORPS CS AND CSS ELEMENTS

A Monograph

by

Major Stephen P. Peterson
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requirements stated in doctrinal publications concerning division operations; its adequacy of integrating and synchronizing both sustainment efforts; and its consistency with the AirLand Battle sustainment imperatives.

The analysis leads to three conclusions. First, the prescribed interface requirements conflict with requirements stated in FM 71-100 Division Operations and FM 90-14 Rear Battle. Second, the degree of control granted the division over CSB operations is inadequate to ensure synchronization of sustainment for the division battle. Third, the interface is inconsistent with the sustainment imperatives, especially anticipation, integration, and responsiveness.

Finally, three recommendations derive from these identified interface shortcomings. Logically, the conflicts between the three field manuals must be corrected. Additionally, the U.S. Army Logistics Center should continue work to determine a complete list of minimal critical information needed for the interface and to develop guidelines and favorable circumstances for specifying a command or support relationship for the interface. Finally, the results should be included in future editions of appropriate Combat Service Support doctrinal publications.

**Synchronizing the Sustainment of the Heavy Division
and its Supporting Corps CS and CSS Elements**

by

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Fort Leavenworth, Kansas**

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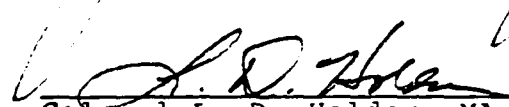
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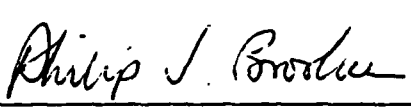
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ABSTRACT

SYNCHRONIZING THE SUSTAINMENT OF THE HEAVY DIVISION AND ITS SUPPORTING CORPS CS AND CSS ELEMENTS by Major Stephen P. Peterson, USA, 58 pages.

This monograph examines the proposed doctrinal command and control interface between the heavy division and the forward Corps Support Battalion, a newly proposed multi-functional battalion. The purpose is to determine if the prescribed interface effectively allows the division commander to synchronize the sustainment of all his combat power including his corps augmentation.

The Corps Support Battalion is part of a test proposal by the U.S. Army Logistics Center to streamline logistics command and control within the Corps Support Command. The proposal is currently being evaluated in the field using provisionally formed Corps Support Battalions and reorganized Corps Support Groups. The battalion would provide logistics direct support to all corps units operating in or in front of a committed division's sector.

The proposed doctrinal interface is evaluated in terms of its agreement with the interface requirements stated in doctrinal publications concerning division operations; its adequacy of integrating and synchronizing both sustainment efforts; and its consistency with the AirLand Battle sustainment imperatives.

The analysis leads to three conclusions. First, the prescribed interface requirements conflict with requirements stated in FM 71-100 Division Operations and FM 90-14 Rear Battle. Second, the degree of control granted the division over CSB operations is inadequate to ensure synchronization of sustainment for the division battle. Third, the interface is inconsistent with the sustainment imperatives, especially anticipation, integration, and responsiveness.

Finally, three recommendations derive from these identified interface shortcomings. Logically, the conflicts between the three field manuals must be corrected. Additionally, the U.S. Army Logistics Center should continue work to determine a complete list of minimal critical information needed for the interface and to develop guidelines and favorable circumstances for specifying a command or support relationship for the interface. Finally, the results should be included in future editions of appropriate Combat Service Support doctrinal publications.

TABLE OF CONTENTS

PAGE

Introduction	1
Command and Control.	4
Theory.	5
Doctrine.	7
Analysis of the Division and CSB Interface	13
Interface Requirements	23
Information Requirements.	23
Command and Support Relationships Analysis.	27
Conclusions.	32
Appendices:	
A. Glossary.	36
B. Representative Corps Units in Division Area	40
C. Specific Applications of Command and Support Relationships	43
Figures:	
1. Critical Information for Division-CSB Interface.	26
2. Evaluation of Relationships for Division-CSB Interface.	30
Endnotes	49
Bibliography	53

I. INTRODUCTION

Our Army's ability to man, arm, fuel, fix, transport, and protect will largely determine our warfighting effectiveness; however, it is not instructive to discuss sustainment as a separate element of operations.¹

General Carl E. Vuono, CSA, U.S. Army

Tactical success on the modern battlefield demands that combat service support (CSS) be an integral part of the combined arms team. Sustainment is a critical element of combat power on the AirLand Battlefield and is predicated on thorough, integrated planning. Tactics and sustainment are inseparable.² This inseparability requires the logistician to understand thoroughly the tactician's job--"the logistician must be a tactician with a keen ability to sense the flow of battle."³

Combat service support's mission is to enable the commander to generate combat power in support of his intent and concept of operation in order to achieve the tenets of AirLand Battle Doctrine.⁴ CSS planning must focus upon simultaneous support for deep, close, and rear operations at the decisive places and times. An effective command and control (C2) system is fundamental to such planning and execution of operations. The difficulty of this task is increased by the fluid, high-tempo, and lethal nature of the modern battlefield.

At the tactical level of war, the division is the basic maneuver unit in the United States Army.⁵ It has its own

organic CSS system. The corps normally augments the division with additional combat support units to enable it to conduct sustained battles and engagements. However, corps retains responsibility for sustainment of these units. Command and control, especially synchronization, of this sustainment is overly complex due to multiple support channels and split responsibilities in the Corps Support Command (COSCOM).

The U.S. Army Logistics Center is evaluating a test operational concept to simplify this logistics command and control. In concept, the corps' logistics command and control will be streamlined to allow integrated planning and execution at the lowest possible level. Existing forward Corps Support Groups (CSG) are to be task organized with multi-functional corps support battalions (CSB) to serve as the single supporter for a committed division, and provide direct support (DS) to corps combat support (CS) and CSS units in the division area and the forward corps rear area.⁶ A forward CSB is to be employed in the division area to provide DS to corps units in the division sector. This CSB headquarters would exercise control over the day to day operations of its companies to ensure functional mission accomplishment.⁷

Approval of this proposed concept and reorganization is very likely. The reorganization can be done within current force structure authorizations for manpower and equipment. Additionally, several provisional battalions are currently

undergoing evaluation and the early responses are very favorable.⁸ But, how does this proposed reorganization impact upon the division's ability to synchronize its total sustainment effort?

This paper investigates the proposed doctrinal command and control interface between a heavy division and the forward CSB in its sector. It will answer the question: Does this interface effectively allow the division commander to synchronize the sustainment of all his combat power including his corps augmentation? That is, is it sufficient to sustain the division battle effectively?

The analysis begins with an examination of the theory of command and control and current command and control doctrine to provide a basis for further analysis. The roles of both the Division Support Command (DISCOM) and the forward CSB are compared to show the need for an interface. The proposed doctrinal interface is then evaluated in terms of its agreement with the interface requirements stated in doctrinal publications concerning division operations; its adequacy of integrating and synchronizing both sustainment efforts; and its consistency with the AirLand Battle sustainment imperatives. Critical information exchange requirements between the division and the CSB are then examined and a list of minimum critical information suggested. Finally, command and support relationships for this interface are analyzed to determine the advantages and

disadvantages of each and specific instances for their use.

Some assumptions are made which limit the scope of the analysis. The organization and facilities of the CSB are assumed to be fixed, since a key goal stated in the proposed concept is that no increase to the current force structure is necessary. Further, the paper assumes that the communications equipment in the CSB can interface with that of the division. Finally, in this analysis only U.S. Department of Defense command and control terms and definitions are examined and used. (See Appendix A for details.)

II. COMMAND AND CONTROL

An examination of command and control is necessary to gain a perspective from which to judge interface requirements. What is command and control and why is it important? What are its characteristics and salient features? What makes an ideal system of command and control? Both theory and doctrine provide insight and answers to these questions.

This examination of theory and doctrine focuses primarily on the mechanistic perspective of command and control, since the research question at hand concerns the interface between two units rather than human leadership.

Theory

There are several different theoretical perspectives on the components of the command and control process, but most agree in general that it is an iterative process of collecting information, assessing the situation, determining action, directing action, and monitoring execution.

John Boyd, a maneuver warfare theorist, views command and control as a process with a series of cycles composed of four basic events: observation, orientation, decision, and action.⁹ Observation is a process of gathering information. Orientation and decision are processes which consider the information, assess its importance, and choose an appropriate action. Action is the process of carrying out the decision.

Martin Van Creveld sees command and control as a cyclical process that makes use of information to coordinate people and things toward the accomplishment of their missions.¹⁰ His cycle consists of seven steps:

1. Collecting information on the status of your own forces, the status of enemy forces, and external factors such as weather and terrain.
2. Storing, retrieving, filtering, classifying, distributing, and displaying the information gathered.
3. Making an estimate of the situation.
4. Determining objectives and alternative methods to achieve them.
5. Making a decision and starting detailed planning for the action.
6. Preparing orders, transmitting them, and ensuring that they are understood.
7. Executing the action, monitoring it, and obtaining feedback.¹¹

His theory goes beyond Boyd's since he states that an ideal command and control system has nine essential qualities:

1. It is able to gather information accurately, continuously, comprehensively, selectively, and quickly.
2. It has reliable means to distinguish true from false, relevant from irrelevant, and material from immaterial.
3. Displays are clear, detailed, and comprehensive.
4. The mental matrix against which information is analyzed and transformed into an estimate of the situation must correspond to the actual world rather than to one that existed several years in the past.
5. The objectives selected must be both desirable and feasible.
6. Alternative ways of action must be real and not just form.
7. Once the decision is made, it must be adhered to in principle.
8. Orders must be clear and unambiguous.
9. Monitoring should be close enough to secure reliable execution, but not undermine authority and choke initiative.¹²

These theoretical views of command and control are very similar in nature. The difference is that one theory offers explicit and positive criteria for evaluating actual command and control systems.

Yet a key link is missing in these theories. History shows there must be unity of command to direct and coordinate the action of all forces toward a common goal or objective. Coordination can be achieved by cooperation, but it is best to give a single commander the authority to direct and coordinate all forces employed in pursuit of a common goal.¹³

Doctrine

What does doctrine tell us about command and control (C2) ? Joint Chiefs of Staff Publication 2 defines command and control as the exercise of authority and direction by a properly designated commander over assigned forces to accomplish the mission.¹⁴ (See Appendix A for a complete definition.)

Functionally, command is the process for making decisions about the employment and sustainment of combat power.¹⁵ Command seeks to develop and apply combat power decisively. Information is its medium and its products are decisions and directives.¹⁶

Conversely, control, inherent in command, is the functional process that a commander and his staff uses to direct the activities of his subordinate and supporting units to ensure consistency with his will and intent.¹⁷ (see Appendix A for definition.)

The sole purpose of C2 is to implement the commander's will in pursuit of the unit's objective. Its ultimate measure of effectiveness is whether the force functions more effectively and more quickly than the enemy.¹⁸

A commander exercises his C2 functions through a C2 system in planning, directing, coordinating, and controlling forces to accomplish his mission.¹⁹ This C2 system consists of three components: organization, facilities, and processes.²⁰ Organization includes the commander, his staff,

and all subordinate and supporting units. Facilities include command posts, communications systems, supporting systems, and other equipment. The processes include decision making, standard operating procedures (SOPs), tactics, techniques, and procedures. This system must facilitate freedom to operate, delegation of authority, and leadership from any place on the battlefield. It must also optimize the use of time by routinely using warning orders, situation updates, and anticipatory planning and positioning of forces.²¹

The following essential C2 requirements are the heart of the C2 system:²² tactical synchronization, concepts of the operation, task organizations, and specification of command and support relationships. The basic activities of planning, directing, coordinating, and controlling enable a commander to develop these requirements.

Tactical synchronization is the development of superior relative combat power at the critical place by using command and control to arrange activities in time, space, and purpose.²³ The keys to this synchronization are the commander's intent and concept of operations, which enable the integration and arrangement of the battlefield functional areas to generate maximum combat power appropriately within that framework. A high degree of command and staff training and well established operating procedures are necessary for effective synchronization, thereby enabling the ability to react to sudden changes.²⁴

The concept of the operation must be propagated throughout the whole hierarchy of subordinate leaders to animate the entire command and to concentrate its actions before the enemy can execute a counter action. It is the principal tool for the commander to integrate and synchronize his force in a unified effort against the enemy.²⁵ The concept of the operation is the basis for subordinate and supporting unit concepts of operation, task organization, synchronization, and application of the tactical skills of AirLand Battle Doctrine as well as the principles of war.²⁶

Task organization is the distribution of available assets to subordinate commanders through command and support relationships. It adds flexibility to the concept of operation and tailors the force to support the concept, to weigh the main effort, to give combined arms capabilities at each tactical echelon as needed, to adapt to mission, enemy, terrain, troops, and time available (METT-T), and to preserve organizational integrity and continuous control of the battlefield functional areas.²⁷

Specifying command and support relationships is the process of organization for combat. The first step is to establish a command relationship. Command relationships support the principle of unity of command and include the following relationships: organic, assigned, attached,

operational control (OPCON). (see Appendix A for definitions of each.) The second step is assigning a tactical mission to units that support the maneuver force. This establishes a support relationship between the two units. These relationships include direct support (DS), reinforcing (R), general support (GS), and general support reinforcing (GSR).²⁸ (see Appendix A for definitions of each.) Since these relationships increase the centralization of control in varying degrees, one must examine their establishment on a risk versus benefit basis.²⁹

Support relationships are important because they define the specific responsibilities between supporting and supported units and allow for decentralized planning and execution. The degree of control that the supported unit has over the supporting unit is clearly identified in terms of these authorities and responsibilities. A specific application of specifying a support relationship may include authority for locating, positioning, task organizing, prioritizing support, and tasking authority and responsibility for logistical support and protection. From the specification of the support relationship, one can determine minimum coordination needs, communication requirements, and information interfaces.

In practice, this relationship may become an habitual one when a unit supports the same maneuver unit on a repetitive or semi-permanent basis. In this case

cooperation and coordination become more effective and routine by training together periodically and developing standard operating procedures (SOPs).

The importance of support relationships is apparent, but is there any guidance on how to go about organizing subordinate forces for combat? FM 71-100 Division Operations (Revised Preliminary Draft) offers some fundamentals for such organization for combat:

" . . . organize one level down by allocating assets two levels down; facilitate the commander's intent and concept of operation and support the scheme of maneuver; offset limitations and maximize potential of all forces available; provide weight to the main effort; ensure unity of command and synchronization of effort through proper use of command and support relationships; allocate resources with minimum restrictions on their employment; and provide mutual support and flexibility to meet unforeseen events and support future operations."³⁰

Control and coordination are key activities essential to effective synchronization of two or more interacting units. They are the means which operate through the interfaces established by the specific application of a command or support relationship.

Control establishes limits and gives structure to the C2 process. Its purpose is to deal with the uncertainties inherent in all organizational activities and to serve as a compensating device for command. It is characterized by a high volume of routine communications, coordination between elements internal and external to a unit having related

responsibilities, structure which limits uncertainty, and emphasis on efficiency.³¹

Instituting control measures, monitoring the situation, and taking action to correct errors establish control.³² Some available control measures are graphical measures, required reports, coordinating instructions, functional area restrictions, SOPs, standing orders, rules of engagement.³³ The ability to isolate and acquire key information in a timely manner depends on pre-established control measures.³⁴ However, control measures must be kept to the minimum needed for synchronization, so that control does not become the overriding aim and destabilize the overall C2 process.

Coordination highlights activities between levels of organization that ensure related players are operating together. Coordination occurs at interfaces, a common point to different C2 systems at which necessary information flow takes place. (see Appendix A for its definition.) These interfaces may be made along command, support, or technical channels depending upon the nature of the information exchange. Constant interface and coordination help a commander ensure unity of effort of his entire force.

The most visible means of external coordination are liaison officers and the establishment of temporary C2 elements. Less apparent means involve C2 organization and facilities.³⁵ Internally, procedures are the means of coordination.

III. ANALYSIS OF THE DIVISION AND CSB INTERFACE

Nothing is so important in war as an undivided
command.³⁶ Napoleon

It is important to examine the C2 interface between the heavy division and the forward CSB in its sector, because the corps units the CSB supports are primary sources of potential combat power for the division commander to weigh his main effort and achieve overall economy of force.

Doctrinally, the overall division CSS system

"must be flexible and capable of anticipating and quickly surging to resupply, reorganize, and reconstitute maneuver units. Sustainment operations enable the division commander to mass combat power at the critical point and to seize the initiative CSS elements ... must be integrated into the C2 system of the division so that it shifts its support effort to the critical place and time to influence the battle. CSS elements must anticipate sustainment requirements for future operations."³⁷

Does this interface effectively allow the division commander to synchronize the sustainment of all his combat power including his corps augmentation?

First, it is necessary to understand who the players are and what their missions are. Then the proposed doctrinal interface can be examined and evaluated with respect to its agreement with the interface requirements stated in doctrinal publications concerning division operations; its adequacy of integrating and synchronizing both sustainment efforts; and its consistency with the AirLand Battle sustainment imperatives. The scope of the

analysis is limited to the logistic functions common to the CSB and division and the functions of rear battle and movement control.

The division commander is ultimately responsible for the integration and synchronization of all battlefield functions within the division. However, the coordinating staff and the commander's principal advisor for a functional area conduct the routine planning, directing, coordinating, and controlling.

Logistics. The G4 is the coordinating staff officer/section responsible for logistics planning and develops the division level plans, policies, and priorities.³⁸ The DISCOM commander is the principal CSS operator of the division and exercises full command authority over all organic units of the DISCOM.³⁹ His responsibilities include ensuring an appropriate interface between DISCOM and backup support units from Corps; coordinating movements with G1, G3, G4, and brigade commanders; supervising and controlling logistics support of the division; advising the commander and staff concerning logistics support⁴⁰; planning, directing, and supervising of CSS for the division.⁴¹

Rear operations and movement. The assistant division commander for support commands and controls the planning and execution of division rear operations with the assistance of

the division rear command post (CP).⁴² The rear CP is concerned with terrain management, movement, security and synchronization of sustainment functions in the division rear area. Although the G3 is the overall division terrain manager, the rear CP handles any requirement for current or future operations not delineated by the G3 in orders or plans. For movements, the G3 is responsible for any unit tactical movements, however the G4 establishes priorities for movements along division main supply routes (MSRs) and DISCOM controls these MSRs.⁴³

A forward CSB's primary mission is to support corps units in the division sector. This includes DS level supplies (less medical), field services, intermediate direct support (IDS) maintenance, and transportation support in direct support (DS) of the non-divisional forces. This could total as many as 9000 soldiers.⁴⁴ (See Appendix B for representative type units.) These corps units for the most part will have a command or support relationship with the division.

Doctrinally, the forward CSB headquarters and headquarters detachment (HHD) should set up in proximity to the DISCOM CP when the battalion is employed in the division area.⁴⁵ The HHD coordinates employment and movement of subordinate units with DISCOM and FSB commanders and the respective terrain managers.⁴⁶

The CSB's parent unit is the CSG. The CSG's mission as it concerns the division is to coordinate and monitor logistics support to the non-divisional units in the division area and to coordinate and monitor backup support to the division.⁴⁷ It task organizes the CSB and provides the CSB technical expertise, staff supervision, and priorities.⁴⁸

From these missions and responsibilities, it is readily apparent that there is a need for a command and control interface between the division and its supporting forward CSB. The parallel logistics activities require coordination as do CSB movements and rear operations within the division area. The CSB and division must exchange critical information to ensure synchronization of effort.

Given this background of the players and their missions, the proposed doctrinal C2 interface between the division and the CSB can be examined and evaluated. Do FM 54-30 Corps Support Groups (Test), FM 71-100 Division Operations (Revised Preliminary Draft), and FM 90-14 Rear Battle (hereafter referred to as FM 54-30, FM 71-100, and FM 90-14) agree in terms of responsibilities and coordination requirements? Does it provide adequate control and integration of sustainment to ensure synchronization of the division battle? And is it consistent with the AirLand Battle sustainment imperatives?

FM 54-30 defines no formal command or support relationship between the CSB and the division, nor does it specify much in the way of C2 interfaces. It states that the CSB will normally provide a liaison officer to the Main Support Battalion (MSB) and Forward Support Battalions (FSBs) of the DISCOM, and that it will coordinate rear area security with the division rear CP.⁴⁹

However, the interface of the CSG is a little better defined. The CSG must coordinate backup support and movements with the division G-4 and DISCOM.⁵⁰ Yet FM 54-30 specifies only that the CSG may place a liaison officer or team with DISCOM.⁵¹

On the other hand, FM 71-100 states that non-divisional units in the division area supporting higher headquarters with no formal command or support relationship must coordinate terrain management, movement, sustainment and synchronization of mission requirements with the tactical scheme of maneuver. For CSS units, initial coordination will be with the rear CP and DISCOM, then it will continue routinely with the DISCOM and G4.⁵²

Finally, regarding rear area security, FM 90-14 establishes a tactical chain of command for all units in the division rear area from the division rear CP through base cluster commanders and base commanders to units or elements.⁵³

Obviously, FM 54-30 does not agree with the doctrine contained in FM 71-100 and FM 90-14. Each discrepancy is easy to fix by coordinating correction to the appropriate manual.

First FM 54-30 doesn't specify the requirement for the CSB to coordinate continually with the division G-4 as stated in FM 71-100. Such coordination is essential to synchronizing the division and CSB operations within the framework of the divisional concept of operations.

Second, FM 54-30's prescribed coordination for employment and movement of CSB subordinate units is not consistent with FM 71-100. Coordinating the employment of the CSB with both the DISCOM and the G-4 as prescribed by FM 71-100 is more appropriate than coordination with only DISCOM, since both the division CSS planner and operator become actively involved. Additionally, FM 71-100's prescribed movement coordination with the division rear CP or brigade rear CP is a better general prescription than FM 54-30's coordination with DISCOM and its FSBs, as the CSB and its subordinate units may not always locate within the Division Support Area or Brigade Support Area.

Third, FM 54-30 doesn't reflect the establishment of a tactical chain of command for rear battle as stated in FM 90-14. This is a significant omission considering the degree of control that is specified by tactical chain of

command. Although this dual chain of command is questionable, it must suffice until a new edition of FM 90-14 incorporates new doctrinal thought on C2 of the rear battle. FM 54-30 should reflect this tactical chain of command for rear battle.

Yet the question of the adequacy of the interface for tactical synchronization of the total division slice remains. The primary issues are the degree of integration of the CSB into the division C2 system and the ability of the division to monitor and control its activities to ensure synchronization.

The interface prescribed by FM 54-30 is the least restrictive interface possible, that is, it establishes no command or support relationship. The division is dependent upon the CSB's cooperation and willingness to align the CSG's concept of operation with the division's concept of operations, since the division has no formal direct control of CSB logistics activities. This case requires a very close working relationship between the division and the CSB and well established operating procedures to integrate the two command and control systems.⁵⁴ Logically, regular review and monitoring are needed to ensure that the C2 process produces calculated risks instead of gambles. The chances of such an interface being effective in practice are very slim, given no pre-established information requirements

or procedures to provide a basis for the deliberate, detailed planning needed for effective coordination.

To compensate for the lack of control of CSB sustainment operations, the division would need to establish a control structure of pre-established control measures such as required reports, coordinating instructions, and SOPs. These would ensure that division received appropriate critical information necessary for planning and situation monitoring. The exchange of such information is essential to achieving the sustainment imperatives of anticipation and responsiveness. Nonetheless, neither FM 54-30, FM 71-100, nor FM 63-2-2 mentions the need for such control measures.

Additionally, the division has no control over the support priorities and functional area restrictions such as controlled supply rates (CSRs), fuel allocations, repair time guidelines, and equipment evacuation policy that the CSG establishes for the CSB. Of course, conflicts with these control measures can be resolved by coordination with the CSG, which would then in turn coordinate with the CSB.

This circuitous coordination impairs the achievement of the sustainment imperatives of responsiveness and integration. This unnecessary coordination cycle may be eliminated by authorizing the division to directly coordinate these control measures with the CSB and adjust them routinely. Coordination with the CSG would then be on an exception basis such as when an adjustment disrupts the

overall COSCOM support plans and priorities.

Also, liaison officers (LNOs) are essential to facilitate this exchange of information and expedite planning and overall command and control. They ensure that plans, orders, situation updates, and other critical pieces of information are exchanged. They set the conditions for planning mutual support and flexibility to meet unforeseen events and support future operations. LNOs in combination with control structure enable both the division and CSB to isolate and acquire critical information quickly for synchronizing their efforts.

These information exchanges improve the achievement of all five sustainment imperatives, especially integration, anticipation, and improvisation. Yet, neither FM 54-30, FM 71-100, nor FM 63-2-2 require the exchange of LNOs by the two loci of sustainment operations, the DISCOM and the CSB.

Another problem with the interface is that it requires an almost habitual support relationship to build a close association and fine tune operating procedures and interfaces between the division and the CSB through repetitive training. In peacetime, this condition may be possible for some CSBs, but most CSBs are more than likely to be reserve component units with few opportunities to develop such a close working relationship. However, during war the chances of a CSB supporting a division with which it has had no habitual relationship is extremely high. Thus,

the doctrinal prescription is most fragile in war, the very situation for which it is designed.

A final issue that arises in the integration of the two C2 systems is adherence to the basic principle of command. The discussion above indicates the complexity of the interface and the difficulty of ensuring unity of sustainment effort between the division and CSB. As prescribed, the interface is not consistent with the principle of unity of command. However, the CSB is a COSCOM asset and may have other support requirements besides the corps units in the division sector due to conditions within the COSCOM. As a result, a command relationship between the CSB and the division should only be established under unique circumstances when the COSCOM can spare it for the duration of an operation.

In summary, one might conclude that the interface is neither consistent with the AirLand Battle sustainment imperatives nor the principle of unity of command, and is not sufficient to enable the division commander to synchronize effectively the sustainment of his forces. The next section examines some of the information requirements necessary for an effective C2 interface between the division and the CSB and discuss the advantages and disadvantages of command and support relationships for this interface.

IV. INTERFACE REQUIREMENTS

Information Requirements.

A commander must accustom his staff to a high tempo from the outset, and continuously keep them up to it. If he once allows himself to be satisfied with norms, or anything less than an all-out effort, he gives up the race from the starting post, and will sooner or later be taught a bitter lesson.⁵⁵

Erwin Rommel

FM 54-30, FM 71-100, and FM 90-14 identify the points of interface needed between the division and CSB. The CSB commander and staff must interact with the division rear CP, division G-4, DISCOM commander and staff as a minimum. Other interactions are situationally dependent and may include the MSB, FSB, the division's brigades, and a base cluster operations center.

Nevertheless, these three doctrinal publications furnish few clues as to the make up of the critical information which must be exchanged through these interfaces. Identifying the interface points is insufficient if CSS planners have no inkling of the types and kinds of critical information needed for effective coordination. Exchange of appropriate information is essential to ensuring that both the division and CSB meet the sustainment imperatives and synchronize sustainment.

FM 63-2-2 supplies some insight into the nature of this information. Commanders and CSS planners need the following broad areas of information: tactical missions and plans; who

will receive support; what each supported element will be doing; when, how, and where they will be doing it; and what priority of support they will be receiving.⁵⁸ To determine support requirements and assess support capabilities, CSS units must know the type, quantity, and priority of support requirements and the availability of CSS resources.⁵⁷ Finally, CSS units should logically have an interactive exchange of intelligence summaries and reports, fire support information, and signal information with their supported units for effective local defense planning and execution.

The variety, scope, and temporal nature of such information presents a great challenge to the division and CSB staffs in exchanging and updating it in a timely manner. The interfaces must support a dynamic, two-way exchange of essential information at rates dependent upon such factors as the tempo of combat, logistics workload, and environmental conditions. The information must be critical to mission execution, otherwise the sheer volume of information could disrupt effective staff operations.

The minimum information required is that which assists the synchronization of activities and operations in support of the division concept of operations; the integration of sustainment and establishment of mutual support; and the integration of the CSB into the division's rear operations. Since the division has the larger overall mission and is responsible for battle success, it will normally require

more information, more frequently from the CSB than the CSB needs from the division. The division must be able to monitor and control actions to ensure battle success. On the other hand, the CSB's primary concerns are support of the division concept of operations and what assistance the division can provide it--economy of force and improvisation.

Considering these broad categories of information and requirements as a basis, a detailed list of critical information requirements can be developed. The list, as a minimum, should cover current status to include capabilities, limitations, and organization for combat; future planning data; control measures for sustainment, movement, and rear operations; and intelligence information. Such a list is basic to creating methods, techniques, and procedures (MTP) for establishing CSS C2 interfaces. A list of suggested minimum critical information necessary for exchange between the division and the CSB is in Figure 1.

All of the information identified in Figure 1 is readily available. The impediment to exchanging the data is the failure of each party to state their information requirements. The division and CSB should identify each other's requirements upon the CSB's arrival. Procedures can then be established for status reports, LNOs, and messenger services to ensure the information is exchanged. As new CSS automation systems are fielded much of this exchange

Info	From CSB to Division	From Division to CSB
G E N E R A L	CSB missions, orders, plans, concept of support, spt overlays, task org., unit locations. CSB spt capabilities, SOPs spt limitations, status of spt opns, priorities by supported unit. CSB contingency planning data.	Division missions, orders, plans, concept of opns, concept of support, task org., unit locations. Division spt capabilities, spt limitations, spt SOPs. Division contingency data, anticipatory planning data
R E A R O P S	CSB base defense plans, CP locations, SITREPS, spot reports, NBC reports EPW reports, planned CSB planned movements, movements schedules	Division rear area IPB, INTSUMS, weather data, obstacle overlay, NBC data and reports, EPW coll. pt, fire spt and CAS info Div mvt controls, MSRs, mvt priorities, road condition & highway traffic plans.
L O G I S T I C S	Supply: SUPPT locations stockage levels, critical shortages, captured supplies, excess avail. Supported unit: basic loads, forecasts, fuel allocations, eqmt losses, RSRs, CSRs, and DS supply delivery locations. Maint: workload summary, repair time guidelines, MCPs, salvage coll. pts. repair parts stockage, ASLs, shop stock, PLLs, cannibalization sources, priorities by eqmt, supported unit eqmt densities. Trans: movements sched. trans rqmts, incoming air assets. Services: location of CEB, GRREG, workload summary, extra labor and HNS.	Supply: SUPPT locations, stockage levels, critical shortages, excess avail., captured supplies, control measures - RSRs, CSRs, forecasts. Maint: repair parts avail. repair time guidelines, priorities by eqmt, location of MCPs. Trans: convoy clearances, movements schedules, movement priorities. Services: location of GRREG, labor and HNS requests.

See Appendix A for acronyms and abbreviations.

FIGURE 1: Critical Information for Division-CSB Interface

will be simplified by automation interfaces and swapping of data files.

Command and Support Relationship Analysis.

Little is done where many command.⁵⁸

Dutch Proverb

The evaluation of the C2 interface between the division and CSB shows that lack of a specified command or support relationship is a major deficiency and degrades the ability of the division to integrate and synchronize the sustainment of the entire force. This shortcoming leads to confusion and mutual interference between the two units. This section discusses the advantages and disadvantages of the U.S. Army doctrinal relationships of attached, OPCON, Direct Support, and Reinforcing for use in improving the interface. The support relationships of general support (GS) and general support reinforcing (GSR) are not considered in this case as the CSB has no GS logistics capabilities and thus, GS and GSR are inappropriate missions for the CSB.

FM 101-5 (Coordinating Draft) addresses some fundamentals for organizing for combat and when each of the relationships is beneficial. Attachment is suitable for detached forces operating in terrain outside supporting range and for all maneuver forces. Direct support or general support is more suitable, however, for closely integrated forces; when concentrating support is more important than independent operations; and when one wants to

preserve the vertical integrity of a functional area.⁵⁹ Considering that support relationships originated with combat support units, one would expect to find additional guidance about choosing a specific command or support relationship in their capstone operations field manuals.

Expectedly, FM 5-100 Engineer Combat Operations provides such additional guidance.⁶⁰ It specifies the use of attachment when time or space prevent the parent unit from logistically supporting the unit or making timely command decisions. OPCON ensures maximum control when situations are uncertain, communications are unreliable, or there is a need to task organize subordinate units, yet leaves logistical support to the parent unit. However, when the requirement for support is short term, on an area basis, or must be flexible to accommodate changing priorities or shifting assets, DS or GS is more suitable.⁶¹

Furthermore, several other combat and combat support arms' capstone operations manuals contain explicit, detailed guidance for specifying a command or support relationship. They each uniquely apply the basic relationships by further delineating responsibilities and authorities of each of the two units involved and the coordination required. (see Appendix C for examples of how each branch applies the basic command and support relationships.) However, the CSS counterpart manual, FM 100-10 Combat Service Support, has no specific guidelines for specifying a command or support

relationship with a CSS units's supported units.⁶² Its guidance for CSS organization for sustainment is limited to organizing by task, echelon, or area.⁶³ This is a functional orientation which ignores the relationship to the supported units.

Given this background, the relationships of attached, OPCON, DS, and reinforcing may be evaluated for the division to CSB interface. The evaluation expands upon the guidance contained in FM 101-5 (Coordinating Draft) and FM 5-100 to examine advantages and disadvantages unique to this interface for each relationship and the impact upon the division's sustainment imperatives. The results of this evaluation are in Figure 2.

The evaluation reveals that each of these four command and support relationships could be suitable between the division and the CSB. But which circumstances favor each one? Considering the risk versus benefit trade-off, specific instances where each may be most appropriate are proposed.

In the case of attachment, there are potentially two instances in which the benefit outweighs the risk. One is the commitment of a division and its corps augmentation units in an allied area with no supporting U.S. logistics structure. The second situation occurs when a division conducts a deep maneuver.⁶⁴ In both situations, the benefit of better self-sufficiency and ability for independent

Relation-ship	Advantages	Disadvantages	Impact Upon Sustainment Imperatives
ATTACHED	1.Max control & integration of sustainment & ancillary activities by division 2.Reduced org. uncertainty	1.Division has logistic resp. for CSB. 2.CSG loses control of CSB 3.Add'l task org. of CSB may delay the time to release CSB back to CSG	Optimizes -anticipation -integration -responsiveness Improved div. ability to improvise due to more CSS assets
OPCON	1.Same as for attached status 2.CSG retains logistic spt of CSB	1.Same as 2,3 for attached status 2.Time-distance impact upon CSG spt of CSB	Same as for attached status
DIRECT SUPPORT (DS)	1.Adequate control; CSB responds immediately to division priorities & requests 2.CSG retains overall control of CSB	1.CSG doesn't fully control CSB priorities which impacts upon spt to corps units not augmenting division	Better than no relationship Improved -anticipation -integration -responsiveness -improvisation only slightly
REINFORCING (R)	1.Same as DS 2.Allows for div.& CSG to balance CSB priorities with division having precedence 3.Similar to backup spt concept	1.Same as DS 2.CSS units unfamiliar with reinforcing relationship	Same as for DS

See Appendix A for acronyms and abbreviations.

FIGURE 2: Evaluation of Relationships for Div-CSB Interface

operations outweighs the degradation to the COSCOM.

The situations in which OPCON may be the choice occur when battle is very fluid with significant rear area combat and when communications is severely degraded or unreliable. If the division's DISCOM has suffered significant combat losses without requiring regeneration, this relationship may be the best choice as it enables the division to further task organize the CSB to compensate for the limitations created by the combat losses. However, the benefits must outweigh risk to the degradation to the COSCOM.

The best situation for the use of a DS relationship is on a short term or area support basis. If the CSB's mission does not include support to corps units not augmenting the division, then this is a viable option as the CSG's priority guidance should be consistent with the division's priorities. The key risk to evaluate is the COSCOM's need for control of the CSB's support priorities.

Finally, the minimal solution to specifying a command or support relationship for the CSB with the division should be reinforcing. The benefit of sufficient control by the division to synchronize sustainment with operations outweighs the risk of conflicting priorities between the division and the CSG in all but a few extraordinary instances. Despite its being primarily a fire support convention, its definition and resemblance to backup DS fills a void between DS and GS not previously covered in CSS

doctrine.⁶⁵ If the term reinforcing is unacceptable to the CSS community, then backup DS should be formally defined like reinforcing and specified as a formal support relationship.

V. CONCLUSIONS

Only combat can be the true test of the U.S. Army's command and control doctrine. Now, during peacetime, is the time to carefully examine that doctrine, using theory and history as a base, to mold it to fit the vision of future battle. Failure to do so, risks having a "wrong" doctrine when war begins, and ultimately results in the loss of many soldiers' lives.

This paper has carefully examined the command and control interface between a heavy division and the new proposed corps support battalion being created by the Logistics Command and Control Operational Concept. It has poked, prodded, and twisted the proposed doctrine in FM 54-30 (Test). That doctrine has been evaluated in terms of command and control theory and doctrine, its ability to allow the division commander to synchronize sustainment of his total force consistent with his concept of operations, and its consistency with the AirLand Battle sustainment imperatives. The analysis leads to several broad conclusions.

-That the proposed doctrinal interface contained in FM 54-30 (Test) conflicts with both FM 71-100 and FM 90-14. It disagrees with the responsibilities for coordination of sustainment, movements, and rear battle in FM 71-100 and the establishment of a tactical chain of command in FM 90-14.

-That the degree of control given the division over CSB sustainment operations is inadequate to ensure synchronization of sustainment for the division battle. The control mechanism of the proposed doctrinal interface is one of cooperation, which doesn't provide adequate unity of effort consistent with the principle of unity of command. Furthermore, the lack of a specified command or support relationship hampers the determination of the proper degree of control necessary, and makes integration of sustainment operations more difficult.

-That the interface is inconsistent with the AirLand Battle sustainment imperatives, especially anticipation, integration, and responsiveness. The interface doesn't provide a common doctrinal basis to establish coordination, since it fails to specify the most likely information exchange requirements. Delineation of these facilitates training and provides a minimal solution for coordination when habitual relationships do not exist.

In light of these conclusions and the favorable outlook for approval of the proposed Logistics Command and Control Operational Concept, several changes and improvements in the

details of the concept are needed before final implementation.

First, the disagreements between FM 54-30 (Test) and FM 71-100 and FM 90-14 must be resolved. The guidance in FM 71-100 and FM 90-14 are better prescriptions and FM 54-30 (Test) should be changed to be consistent with them.

Second, the U.S. Logistics Center should continue work to determine a complete minimal list of critical information essential to an effective C2 interface between the CSB and the heavy division. The list in Figure 1 and discussion in section 4 can serve as a foundation to develop a more complete list. Once this list is developed, it should be added to FM 54-30 (Test) or an appropriate combat service support MTP manual. Identification of this information allows for detailed planning of coordination prior to deployment by both staffs.

Third, guidelines for specifying a command or support relationship need to be developed for use by CSS units. These guidelines should identify the circumstances favoring each specific relationship. The information in Figure 2 can serve as a point of departure to fully develop these guidelines and circumstances. Additionally, the responsibilities and authorities granted each unit involved in the relationship must be specified. This guidance must be targeted at the unique requirements of CSS operations and as a minimum include the general responsibilities and

authorities identified by the combat support arms in Appendix C. Once developed, these guidelines must be included in FM 100-10 Combat Service Support and other appropriate CSS operations manuals. It should also, be included in the final version of FM 54-30.

Many of these details can be examined and further evaluated during the U.S. Army Logistics Center's continuing evaluation of the Logistics Command and Control Operational Concept. The provisional corps support battalions already formed provide an excellent opportunity for testing the concepts. These battalions should be challenged to stress the proposed interface solutions to the utmost to discover the strengths and weaknesses of each.

As a final note, this paper's intent was to promote a discussion of the necessary requirements for an effective command and control interface between the heavy division and the proposed CSB. The evolving nature of the emerging doctrine on this interface was recognized. Although the Logistics Command and Control Operational Concept has not been approved, this paper may be helpful in identifying some of the shortcomings of the concept and has proposed possible paths for solution.

APPENDIX A: GLOSSARY

DEFINITIONS

Assign - To place units or personnel in an organization where such placement is relatively permanent, and/or where such organization controls and administers the units or personnel for the primary function, or greater portion of the functions, of the unit or personnel. (JCS Pub 1 p. 38)

Assigned - An assigned element or unit is placed in an organization in a relatively permanent manner and/or where an element or unit controls, administers, and provides logistic support for the primary function (or the greater portion of the functions) of the organization. (FM 101-5 Coordinating Draft, May 1988 p. A-1)

Attach - To place units or personnel in an organization where such placement is relatively temporary. Subject to limitations imposed in the attachment order, the commander of the formation, unit, or organization receiving the attachment will exercise the same degree of command and control thereover as he does over the units and persons organic to his command. However, the responsibility for transfer and promotion of personnel will normally be retained by the parent formation, unit, or organization. (JCS Pub 1 p. 40)

Attached - An attached unit is placed in an organization on a temporary basis. Although subject to limitations specified in the attachment order, the commander to which the unit is attached has the same degree of command and control over, as well as responsibility for, the attached unit as he does his command's organic or assigned units. However, the command to which the unit is assigned normally retains responsibility for transfer, UCMJ concerns, and promotion of personnel. (FM 101-5 Coordinating Draft, May 1988 p. A-1)

Command - The authority that a commander in the military Service lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordination, and controlling military forces for accomplishment of assigned missions. It also includes responsibility for health, welfare, morale, and discipline of assigned personnel. (JCS Pub 1 p. 76)

APPENDIX A: GLOSSARY

- Command and Control** - The exercise of authority and direction by a properly designated commander over assigned forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. (JCS Pub 1 p. 77)
- Command and control system** - The facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned forces pursuant to the missions assigned. (JCS Pub 1 p. 77)
- Concept of operations** - A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept of operations frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Frequently, it is referred to a commander's concept. (JCS Pub 1 pp. 83-84.)
- Control** - Authority which may be less than full command exercised by a commander over part of the activities of subordinate or other organizations. (JCS Pub 1 p. 87.)
- Coordination** - the state or relation of being coordinate; harmonious adjustment or action. (Webster's Dictionary p. 313)
- Direct support (DS)** - A unit in direct support of a specific unit or force must give priority of support to that unit or force. The supporting unit takes support requests directly from the supported unit or force and will normally establish liaison and communications. It will also provide advice to the supported unit. A unit in direct support has no command relationship with the supported unit or force. (FM 101-5 Coordinating Draft, May 1988, p. A-3). The support provided by a unit or formation not attached or under command of the supported unit or formation, but required to give priority to the support required by that unit or formation. (JCS Pub 1 p. 115)

APPENDIX A: GLOSSARY

General support (GS) - A unit in general support provides support to the total force and not to any particular subdivision of the supported force. Subdivisions cannot directly request support from a GS unit. Only supported force headquarters can determine priorities and assign missions or tasks to the GS unit. A GS unit has no command relationship with the supported unit or force. (FM 101-5 Coordinating Draft, May 1988, p. A-3). That support which is given to the supported force as a whole and not to any particular subdivision thereof (JCS Pub 1 p. 158)

General support-reinforcing (GSR) - A general support-reinforcing unit's primary mission is to provide support to the total force. Its secondary mission is to provide reinforcing support to a like unit. A GSR unit has no command relationships with the supported unit or force. (FM 101-5 Coordinating Draft, May 1988, p. A-3).

Interface - A boundary or point common to two or more similar or dissimilar command and control systems, subsystems, or other entities against which or at which necessary information flow takes place. (JCS Pub 1 p. 191)

Operational control (OPCON) - The authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks which are usually limited by function, time, or location; to deploy units concerned, and to retain or assign tactical control of those units. It does not include authority to assign separate employment of components of the units concerned. Neither does it, of itself, include administrative or logistic control. (JCS Pub 1 p. 262). A commander can place a subordinate unit under another commander to accomplish a specific mission or task (usually limited by function, time, or location). If he does, he can either retain or assign tactical or operational control of that unit. Operational control does not include administrative and logistic control. (FM 101-5 Coordinating Draft, May 1988, p. A-2)

Organic - An organic element or unit forms an essential part of a larger organization and is listed in the larger unit's TOE. (FM 101-5 Coordinating Draft, May 1988, p. A-1). Assigned to and forming an essential part of a military organization. (JCS Pub 1 p. 266)

APPENDIX A: GLOSSARY

Reinforcing (R) - One unit can provide reinforcing support to a like unit. A reinforcing support unit has no command relationship with the supported unit. (FM 101-5 Coordinating Draft, May 1988, p. A-3).

ACRONYMS & ABBREVIATIONS

add'l	-- additional.
ASL	-- authorized stockage list.
avail.	-- available.
CAS	-- close air support.
CEB	-- clothing exchange and bath.
coll.	-- collection.
CSR	-- controlled supply rate.
div.	-- division.
KPW	-- enemy prisoner of war.
eqmt.	-- equipment.
GRREG	-- graves registration.
HNS	-- host nation support.
info	-- information.
INTSUM	-- intelligence summary.
IPB	-- intelligence preparation of the battlefield.
maint.	-- maintenance.
max	-- maximum.
MCP	-- maintenance collection point.
MSR	-- main supply route.
mt	-- movement.
NBC	-- nuclear, biological, and chemical.
opns	-- operations.
ops	-- operations.
org.	-- organization.
PLL	-- prescribed load list.
pts.	-- points.
resp.	-- responsibility.
RSR	-- required supply rate.
SITREPS	-- situation reports.
spt	-- support.
SUPPT	-- supply point.
trans.	-- transportation.

APPENDIX B: REPRESENTATIVE CORPS UNITS IN DIVISION AREA

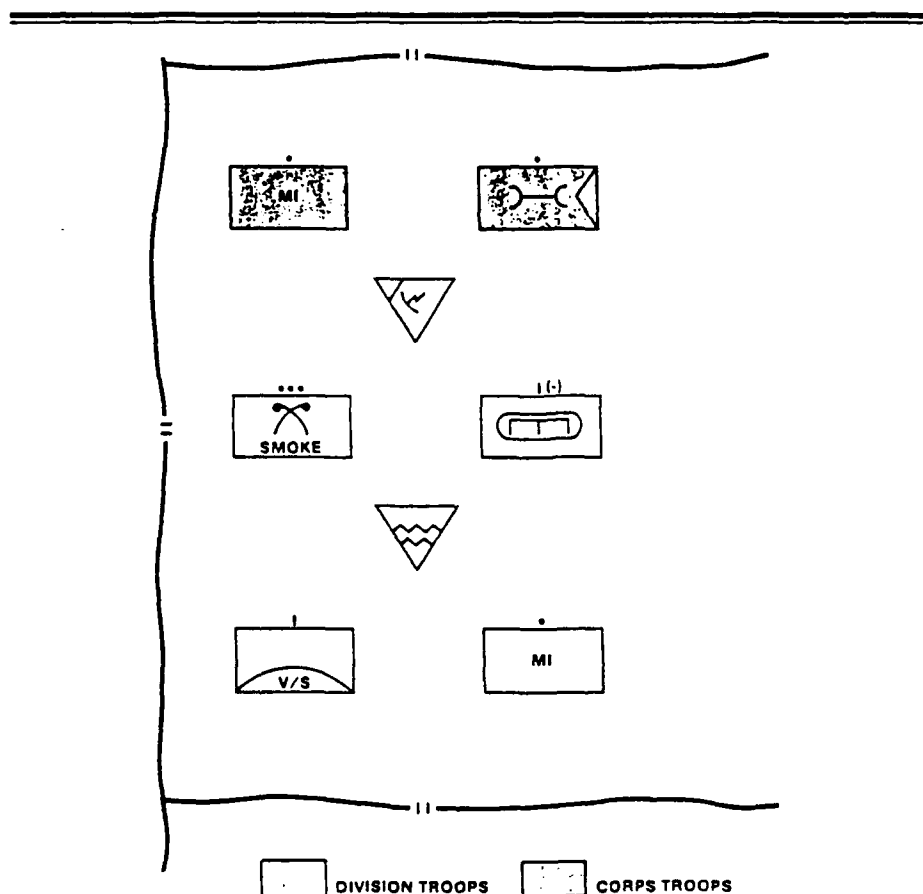


Figure 1-1. Nonbattalion Units Requiring Combat Service Support

Source: FM 100-10 Combat Service Support, February 1988, p. 1-3.

APPENDIX B: REPRESENTATIVE CORPS UNITS IN DIVISION AREA

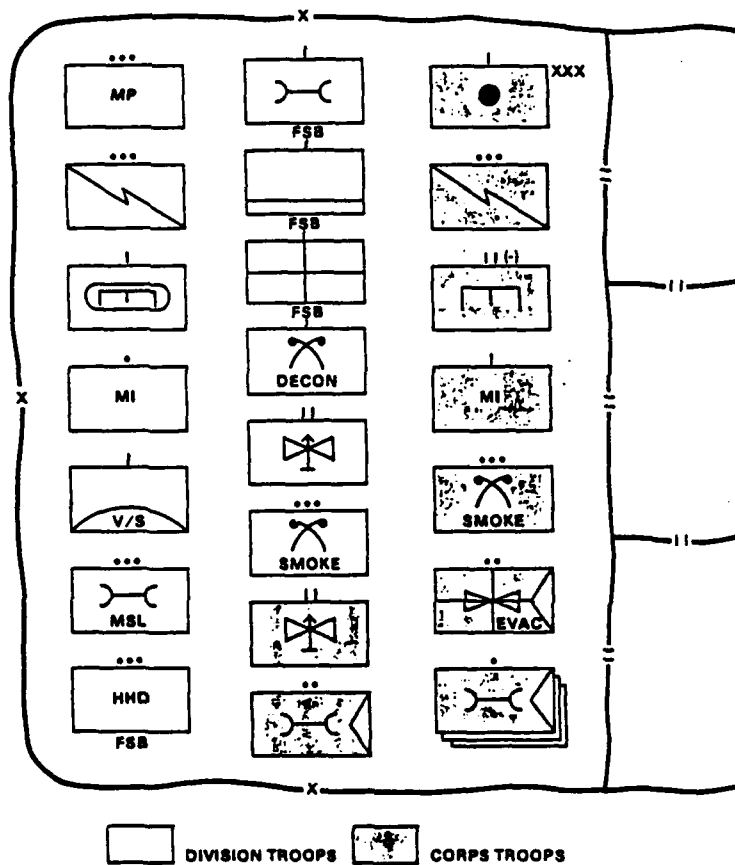
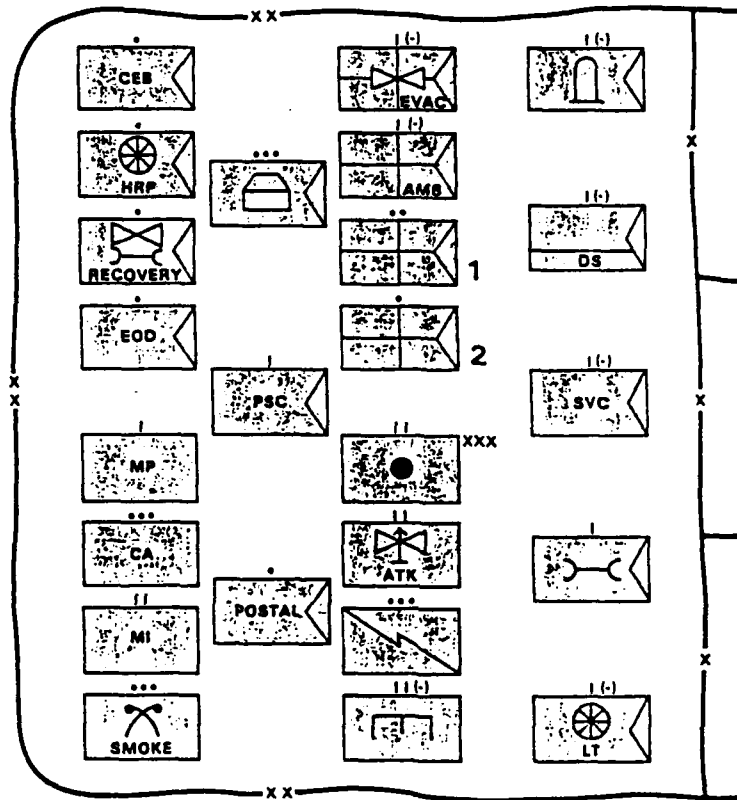


Figure 1-2. Nonbrigade Units Requiring Combat Service Support

Source: FM 100-10 Combat Service Support, February 1988, p. 1-4.

APPENDIX B: REPRESENTATIVE CORPS UNITS IN DIVISION AREA



1 Includes combat stress control sections.

2 Includes treatment, surgical, and combat stress control squads.

CORPS TROOPS

Figure 1-3. Nondivision Units Requiring Combat Service Support

Source: FM 100-10 Combat Service Support, February 1988, p. 1-5.

APPENDIX C: SPECIFIC APPLICATIONS OF COMMAND AND SUPPORT RELATIONSHIPS

FIELD ARTILLERY

INHERENT RESPONSIBILITIES OF FIELD ARTILLERY MISSIONS				
AN FA UNIT WITH A MISSION OF—	DIRECT SUPPORT	REINFORCING	GENERAL SUPPORT REINFORCING	GENERAL SUPPORT
1. Answers Calls for Fire in Priority From—	1. Supported unit 2. Own observers ¹ 3. Force FA HQ	1. Reinforced FA 2. Own observers ¹ 3. Force FA HQ	1. Force FA HQ 2. Reinforced unit 3. Own observers ¹	1. Force FA HQ 2. Own observers ¹
2. Has as its Zone of Fire—	Zone of action of supported unit	Zone of fire of reinforced FA	Zone of action of supported unit to include zone of fire of reinforced FA unit	Zone of action of supported unit
3. Furnishes Fire Support Team (FIST/FSS) ²	Provides temporary replacements for casualty losses as required	No requirement	No requirement	No requirement
4. Furnishes Liaison Officer—	No requirement	To reinforced FA unit HQ	To reinforced FA unit HQ	No requirement
5. Establishes Communications With—	FIST chiefs, FSOs, and supported maneuver unit HQ	Reinforced FA unit HQ	Reinforced FA unit HQ	No requirement
6. Is Positioned by—	DS FA unit commander or as ordered by force FA HQ	Reinforced FA unit or as ordered by force FA HQ	Force FA HQ or reinforced FA unit if approved by force FA HQ	Force FA HQ
7. Has Its Fires Planned by—	Develops own fire plans	Reinforced FA unit HQ	Force FA HQ	Force FA HQ

¹Includes all target acquisition means not deployed with supported unit (radar, aerial observers, survey parties, etc.)

²A fire support section (FSS) for each maneuver brigade/battalion, cavalry squadron and one FIST with each maneuver company/ground cavalry troop are trained and deployed by the FA unit authorized these assets by TOE. After deployment, FISTs and FSSs remain with the supported maneuver unit throughout the conflict.

Source: FM 6-20 Fire Support in Combined Arms Operations, 31 December 1984, p.1-12.

APPENDIX C: SPECIFIC APPLICATIONS OF COMMAND AND SUPPORT RELATIONSHIPS

AIR DEFENSE ARTILLERY

COMMAND RELATIONSHIPS AND RESPONSIBILITIES (ADA STANDARD TACTICAL MISSIONS)				
	GENERAL SUPPORT (GS)	GENERAL SUPPORT- REINFORCING (GS-R)	REINFORCING (R)	DIRECT SUPPORT (DS)
Who establishes AD priorities?	The supported commander.	(1) The supported commander. (2) The supported commander through the reinforced ADA commander.	The supported commander through the reinforced ADA commander.	The supported commander.
Who locates the ADA unit?	The commander assigning the mission in coordination with the supported force ground commander.	The commander assigning the mission in coordination with the supported force ground commander.	The reinforced ADA commander in coordination with the supported force ground commander.	The DS ADA commander with approval of the local ground commander.
Who positions ADA fire units?	ADA fire unit commanders in coordination with the local ground commander.	ADA fire unit commanders in coordination with the reinforced ADA unit commander and the local ground commander.	ADA fire unit commanders with approval of the reinforced ADA unit commander and the local ground commander.	ADA fire unit commanders with approval of the local ground commander.
With whom to establish liaison?	As required by commander assigning GS mission.	As required, but including the reinforced ADA commander.	As required, but including the reinforced ADA commander.	Supported unit commander.
With whom to establish communications?	As required by commander assigning GS mission.	As required, but including the reinforced ADA unit.	As required, but including the reinforced ADA unit.	Supported unit.

NOTES:

1. The terms "locates/locating" specify the establishment of a broad operating area (commonly, a "goose egg").
2. The terms "positions/positioning" specify the selection of an exact point within the operating area. (Although not addressed here, the terms "sites/siting" specify the placement of individual items of equipment on selected spots within the platoon.)

Source: FM 44-1 U.S. Army Air Defense Artillery Employment, 28 August 1984, p. 4-3.

**APPENDIX C: SPECIFIC APPLICATIONS OF COMMAND AND SUPPORT
RELATIONSHIPS**

AVIATION SUPPORT RELATIONSHIPS

<u>MISSION</u>	<u>DIRECT SPT</u>	<u>GENERAL SPT</u>
<u>Purpose:</u>	Support to a specific unit	Support to the force as a whole
<u>Answers Mission Request and Requirements</u>	Direct from Supported unit	Within established priorities
<u>Furnishes Aviation Liaison</u>	To Supported unit HQ	To Force HQ
<u>Establishes Communications</u>	Direct to Supported unit HQ	With Force HQ only
<u>PLANS AND MOVEMENT</u>	Plans own operations and aerial maneuver routes in coordination with Support-ed unit HQ	Develops and coordinates own plans and aerial movements with Force HQ
<u>Positioned</u>	Within reasonable time of Supported unit	Within reasonable response time to spt entire force

NOTE: ATK/RECON ASSETS DO NOT USE DS/GS

Figure 2-1. Aviation CS and CSS relationships.

Source: FM 1-100 Combat Aviation Operations (Revised Final Draft), August 1988, p. 2-4.

APPENDIX C: SPECIFIC APPLICATIONS OF COMMAND AND SUPPORT RELATIONSHIPS

CHEMICAL

Table 2-1. Comparison of command and support relationships.

SITUATION	SUPPORT RELATIONSHIPS		COMMAND RELATIONSHIPS	
	Direct Support	General Support	OPCON	Attached/ Assigned
A chemical element with a relationship of—				
Is commanded by—	Parent unit ¹ .	Parent unit ¹ .	Supported unit.	Supported unit.
Maintains liaison and communication with—	Supported and parent units.	Supported and parent units.	Supported unit and parent units.	Supported unit.
May be task organized by—	Parent unit.	Parent unit.	Supported unit.	Supported unit.
Can be—	Dedicated support to a particular unit. May be given task or area assignments.	Used only to support the parent force as a whole. May be given area/task assignments.	Placed OPCON to other chemical/maneuver units or made DS to brigades or task forces.	Further attached. OPCON, or DS to brigades or task forces or retained in general support.
Responds to support requests from—	Supported unit.	Parent unit.	Supported unit.	Supported unit.
Has work priority established by—	Supported unit.	Parent unit.	Supported unit.	Supported unit.
Has spare work effort available to—	Parent unit.	Parent unit.	Supported unit.	Supported unit.
Forwards requests for additional support through—	Parent unit.	Parent unit.	Supported unit.	Supported unit.
Receives logistical support from—	Parent unit.	Parent unit.	Parent unit ² .	Supported unit ² .
¹ It is possible that units will receive additional chemical support without a command relationship—the direct support relationship to the division. ² When attached, the chemical element is provided administrative and/or logistic support. When placed in OPCON, the supporting unit provides support in the common classes of supply (I, III, V) to the maximum extent possible.				

Source: FM 3-101 Chemical Staffs and Units, 22 April 1987, p. 2-3.

APPENDIX C: SPECIFIC APPLICATIONS OF COMMAND AND SUPPORT RELATIONSHIPS

ENGINEERS

TABLE 5-1. COMMAND AND SUPPORT RELATIONSHIPS

	Supported Relationships		Command Relationships	
	Direct Support (DS)	General Support (GS)	OPCON	Attached/Assigned
<i>An engineer element with a relationship of:</i>				
<i>Is commanded by:</i>	Parent unit (Note 2)	Parent unit (Note 2)	Supported unit	Supported unit Cdr
<i>Maintains liaison and communication with:</i>	Supported and parent units	Supported and parent units	Supported unit and parent units	Supported unit
<i>May be task organized by:</i>	Parent unit	Parent unit	Supported unit	Supported unit Cdr
<i>Can be:</i>	Dedicated support to a particular unit. May be given task or area assignments	Used only to support the parent force as a whole. May be given an area/task assignments	Placed OPCON to other engr/maneuver units, or made DS to bdes or task forces	Further attached, OPCON, or DS to bdes or task forces, or retained GS
<i>Respond to support requests from:</i>	Supported unit	Parent unit	Supported unit	Supported unit
<i>Work priority established by:</i>	Supported unit	Supported unit	Supported unit	Supported unit
<i>Spare work effort available to</i>	Parent unit	Parent unit	Supported unit	Supported unit
<i>Request for additional support forwarded through:</i>	Parent unit	Parent unit	Supported unit	Supported unit
<i>Receives logistical support from:</i>	Parent unit	Parent unit	Parent unit (Note 1)	Supported unit (Note 1)
NOTES:				
1. When attached, the engineer element is provided administrative/logistic support. When placed OPCON, the supporting unit provides support in the common classes of supply to the maximum extent possible.				
2. It is possible that units will receive additional engineer support without a command relationship, —the support relationship of DS to the division.				
3. Regardless of type of relationship, activities of engineer units working in an area are under the staff supervision of the engineer.				
4. The supported unit, regardless of command/support relationship, is to furnish engineer materials to support engineer operations				

Source: FM 5-100 Engineer Combat Operations, May 1984, p. 5-7.

APPENDIX C: SPECIFIC APPLICATIONS OF COMMAND AND SUPPORT RELATIONSHIPS

MILITARY INTELLIGENCE

STANDARD TACTICAL MISSION RESPONSIBILITIES MATRIX				
AN MI UNIT WITH MISSION OF... RESPONSIBILITY	DIRECT SUPPORT	REINFORCING	GENERAL SUPPORT REINFORCING	GENERAL SUPPORT
Responds to requirements of	1. Supported unit 2. Force as a whole	Reinforced MI unit	1. Force as a whole 2. Reinforced MI unit	Force as a whole
Technical control	MI Bn TOC	1. Reinforced MI unit 2. MI Bn TOC	1. MI Bn TOC 2. Reinforced MI unit	MI Bn TOC
Zone of ac- tion	1. Supported unit area of opns 2. Div area of opns	Same as re- inforced MI unit	1. Div area of opns 2. Same as Sup units	Div area of opns
Furnishes IEWSE	MI battalion (division) provides an IEWSE to each maneu- ver brigade regardless of what MI assets are in the brigade AO.			
Establishes comm with	1. Supported unit 2. MI Bn TOC	1. MI Bn TOC 2. Reinforced MI unit	1. Reinforced MI unit 2. MI Bn TOC	MI Bn TOC
Is posi- tioned by	MI Unit Commander in coord w/ supported unit	Reinforced MI unit or as ordered by MI Bn TOC	MI Bn TOC or reinforced MI unit if approved by MI Bn TOC	MI Bn TOC
Tasked by	1. Supported unit 2. MI Bn TOC	Reinforced MI unit	1. MI Bn TOC 2. Reinforced MI unit	MI Bn TOC

Source: FM 34-1 Intelligence and Electronic Warfare Operations, July 1987, p. 6-2.

ENDNOTES

1. General Carl E. Vuono, "Sustaining Combat Power," Army Logistician, July-August 1988, p. 3.
2. Department of the Army, Field Manual 100-10 Combat Service Support (Washington, D.C.: U.S. Government Printing Office, 18 February 1988), p. 1-1.
3. Lieutenant General John R. Galvin, "The VII Corps Commander Views Grass Root Logistics," Army Logistician 16 (July-August 1984): 2.
4. Ibid., p. 1-2.
5. Department of the Army, Field Manual 100-5 Operations (Washington, D.C.: U.S. Government Printing Office, May 1986), p. 185.
6. U.S. Army Logistics Center, Logistics Command and Control Interim Operational Concept including change 1 (Fort Lee, VA: U.S. Army Logistics Center, 26 June 1988), pp. 6-8.
7. Ibid., p. C-1.
8. Ibid., Appendix F.
9. John Boyd, "Patterns of Conflict" (unpublished paper, no date), p. 5.
10. Martin Van Creveld, Command in War (Cambridge, MA: Harvard University Press, 1985), p. 263.
11. Ibid., p. 7.
12. Ibid., pp. 7-8.
13. FM 100-5 , p. 176.
14. Department of Defense, Joint Chiefs of Staff Publication 1 (Washington, D.C.: U.S. Government Printing Office, 1 June 1987), p. 77.
15. Department of the Army, Field Manual 101-5 Command and Control for Commanders and Staff (Coordinating Draft) (Fort Leavenworth, KS: U.S. Army Command and General Staff College, May 1988), p. 1-1.
16. U.S. Army Combined Arms Developments Activity, Army Command and Control Master Plan (U) Volume 1 (Fort Leavenworth, KS: U.S. Army Combined Arms Center, October 1987), p. 2-4.

17. FM 101-5 (Coordinating Draft), p. 1-1.
18. FM 100-5 , p. 22.
19. FM 101-5 (Coordinating Draft), p. 1-1.
20. Ibid., p. 1-2.
21. FM 100-5 , p. 21.
22. FM 101-5 (Coordinating Draft), pp. 1-13 to 1-15.
23. FM 100-5 , p. 17.
24. FM 101-5 (Coordinating Draft, pp. 1-15 to 1-16.
25. General William E. DePuy, "Concept of Operation: The Heart of Command, the Tool of Doctrine." Army 38 (August 1988):26-27.
26. FM 101-5 (Coordinating Draft), p. 1-16.
27. Ibid., pp. 1-16 to 1-17.
28. Ibid., p. 1-17 and Appendix A.
29. Major General Albin G. Wheeler, "Operational Logistics in Support of the Deep Attack," Military Review 66 (February 1986): p. 19.
30. Department of the Army, Field Manual 71-100 Division Operations (Revised Preliminary Draft) (Fort Leavenworth, KS: U.S. Army Command and General Staff College, December 1987), p. 3-21.
31. Department of the Army, Field Manual 22-103 Leadership and Command at Senior Levels (Washington, D.C.: U.S. Government Printing Office, June 1987), pp. 41-42.
32. FM 101-5 (Coordinating Draft), p. 4-12.
33. Ibid., p. 4-12.
34. Ibid., p. 4-13.
35. Ibid., p. 4-17.
36. Robert Debs Heinl, Dictionary of Military and Naval Quotations (Annapolis, MD: U.S. Naval Institute, 1966, seventh printing 1988), p. 334.
37. FM 71-100 (Revised Preliminary Draft), p. 1-11.

38. Ibid., p. 2-24.
39. Ibid., p. 2-24.
40. Department of the Army, Field Manual 63-2-2 Combat Service Support Operations: Armored, Mechanized, & Motorized Divisions (Washington, D.C.: U.S. Government Printing Office, 29 October 1985), p. 3-17.
41. Ibid., p. 4-2.
42. FM 71-100 (Revised Preliminary Draft), pp. 3-11 to 3-12.
43. Ibid., p. 3-19.
44. Department of the Army, Field Manual 54-30 Corp Support Groups (Test) (Fort Lee, VA: U.S. Army Logistics Center, October 1988), p. 4-2.
45. Ibid., p. 4-15.
46. Ibid., p. 4-19.
47. Ibid., p. 2-3.
48. Ibid., p. 4-16.
49. Ibid., p. 4-3 and p. 4-20.
50. Ibid., p. 3-3.
51. Ibid., p. 2-26.
52. FM 71-100 (Revised Preliminary Draft), p. 2-33 to 2-34.
53. Department of the Army, Field Manual 90-14 Rear Battle (Washington, D.C.: U.S. Government Printing Office, June 1985), pp. 3-1 to 3-4.
54. FM 101-5 (Coordinating Draft), p. 1-5.
55. Heintz, Naval Quotations, p. 60.
56. FM 63-2-2, p. 2-2.
57. Ibid., p. 2-3.
58. Heintz, Naval Quotations, p. 334.
59. FM 101-5 (Coordinating Draft), pp. 4-10 to 4-11.

60. I chose to use the guidance in FM 5-100 as an example because of all the combat support operations manuals, it had the most specific guidance and covered both command and support relationships. The field artillery manual, FM 6-20, also had detailed guidance but did not cover command relationships.

61. Department of the Army, Field Manual 5-100 Engineer Combat Operations (Washington, D.C.: U.S. Government Printing Office, May 1984), p. 4-3.

62. In fact, a review of several CSS doctrinal manuals failed to find any such guidelines. There appear to be no examples of a CSS specific application of the basic command or support relationships delineating responsibilities and authorities granted to each of units involved in the relationship. The following CSS doctrinal manuals were reviewed: FM 100-10 Combat Service Support, FM 63-2 Combat Service Support Operations-Division, FM 63-2-2 Combat Service Support Operations: Armored, Mechanized, & Motorized Divisions, FM 63-3J Combat Service Support Operations-Corps, and FM 29-12 Division Maintenance Operations.

63. FM 100-10, pp. 1-11 to 1-14.

64. Major General Albin G. Wheeler, "Operational Logistics in Support of the Deep Attack," p. 18.

65. I was unable to find a definition of backup support in the CSS operations manuals (see footnote 62). I did find a discussion of the meaning of backup support maintenance in FM 29-12 Division Maintenance Operations. However, the definition is left as self-explanatory. Specification of responsibilities and authorities was omitted.

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