DEPARTMENT OF THE ARMY **FM 4-93.52**

TACTICS, TECHNIQUES, AND PROCEDURES FOR THE DIVISION SUPPORT COMMAND (DIGITIZED)

MAY 2002

DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

PREFACE

This field manual (FM) provides information on the structure and operations of the division support command (DISCOM) digitized. It is directed toward the commander and battle staff of the DISCOM and his supporting and supported units organized under the division redesign and the Force XXI division concept for combat service support (CSS) operations.

This FM outlines the functions and operations of each section within the DISCOM. It also tells how the DISCOM commander and battle staff integrate their activities through the use of digitization on the battlefield. This includes both the logistics mission and the tactical responsibilities. The FM describes the many coordination links the DISCOM must maintain with supported and supporting units.

This FM is based on doctrine in FM 3-0 (100-5), FM 4-0 (100-10), FM 3-100.71 (71-100), FM 3-91.3 (71-3), FM 4-02 (8-10), FM 4-02.55 (8-55) and tactics, techniques, and procedures developed in ST 63-2. The FM 3-0 (100-5) Staff and Organization and Operations is the Army's capstone doctrinal manual. It outlines how the Army will conduct operations. The FM 4-0 (100-10) is the Army's main CSS doctrinal manual. It provides an overview of the CSS system for supporting the Army in the field.

This publication implements North Atlantic Treaty Organization (NATO) standardization agreement (STANAG) 2931, orders for the camouflage of the Geneva emblem and red crescent on land in tactical operations.

The proponent of this publication is headquarters, U.S. Army combined arms support command (CASCOM). Submit changes for improving this publication on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward it to Commander, U.S. Army CASCOM, ATTN: ATCL-AL, 801 Lee Avenue, Fort Lee, VA 23801-1713.

Unless otherwise stated in this publication, the masculine nouns and pronouns do not refer exclusively to men.

Field Manual
No. 4-93.52

Headquarters
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Washington DC, 2 May 2002

Division Support Command (Digitized)

Contents

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Chapter 1

DISCOM Organization And Functions

The Army's Force XXI Division represents a leap forward into the realm of 21st Century technology. The smaller Force XXI Division possesses greater lethality, quicker mobility as well as the combat service support (CSS) imperative of situational understanding (SA). Real time "situational understanding" means a complete, common relevant picture (CRP) of the battlefield for every commander. This information enables Force XXI commanders to quickly mass forces, allowing this division to defeat a larger, but less technologically advanced enemy.

The CSS structure's capability to project, receive, and support this force will directly impact the effectiveness of future military operations. The Force XXI battlefield imposes new challenges on support functions and leaders, as it calls for independent logistical systems and procedures. Using the Force XXI's enhanced digital logistical awareness and forecasting capabilities, CSS leaders at all levels must provide the foresight and responsiveness necessary to anticipate and maintain the division's operations tempo (OPTEMPO). Force XXI CSS will require new organization, new doctrine, as well as advanced distribution equipment and information technology.

The concept and organizational structures found in this document reflect a paradigm shift from a supply-based CSS system in Army of excellence (AOE) to an advanced distribution-based CSS system for Force XXI. Technology enhances this capability.

A distribution-based CSS system combines situational understanding capabilities with efficient delivery systems to form a seamless distribution pipeline. This pipeline represents "inventory in motion" and the CSS imperative of increased velocity. In contrast, static inventories comprise the AOE supply-based system. Storing this static inventory in large stockpiles at each echelon does not provide the mobility or flexibility required by the Force XXI maneuver commander. The Force XXI distribution-based system eliminates most stockpiles; substituting speed for mass. Logisticians control the destination, speed, and volume of the distribution system. With intransit visibility (ITV), total asset visibility (TAV), advanced materiel management, and advanced decision support system technology, Force XXI logisticians will have access and visibility over all of the items within the distribution pipeline.

This visibility allows logisticians to redirect, cross-level, and mass CSS assets more effectively in support of the maneuver commander's intent. The distribution-based systems gains speed through greater efficiency. Direct throughput from theater and corps to the brigade battle space is the rule rather than the exception with distribution-based CSS. Throughput distribution bypasses one or more echelons in the supply system to minimize handling and to speed delivery to forward units. Supplies are tailored and packaged for specific supported units based on a specific time and location point of need, synchronized through support operation channels based on the combat commander's OPTEMPO. Advanced delivery platforms such as the palletized load system (PLS) and the container roll in/roll out platform (CROP), will use ITV/TAV to deliver directly from echelons above division (EAD) to points as far forward as possible. Extensive use of "hub and spoke" transfer nodes will reduce transportation and materiel handling requirements.

Multi-functional, modular units in direct support of the combat, combat support, and combat service support units form the cornerstone of this concept and represent the CSS imperative of an agile CSS force structure. Force XXI battlefield CSS operations will provide support as close to the point of need as possible. A common relevant picture coupled with information from the global combat support system-Army (GCSS-Army) will allow the Force XXI CSS commander to anticipate requirements and project support further forward than ever before. Division CSS organizations will be modular, mobile, and multi-functional. They will be adaptable to support force projection and velocity of combat operations in both linear and non-linear environments.

The creation of multi-functional CSS companies within the Force XXI FSB consolidates CSS organizational elements currently embedded within the AOE maneuver battalion with the direct support (DS) capability currently in the AOE FSB. Personnel and other soldier-related support functions including manning, sustaining soldiers through religious, legal, command information support, and funding through finance and resource management support are generally unaffected.

The consolidation of all classes of supply and maintenance within the forward support and base support companies serves as an example of enhanced efficiency and effectiveness. Modular, multi-functional CSS companies and CSS command and control (C2) in direct habitual support allow the maneuver commander to focus on his core missions.

Combat service support imperatives, principles, and characteristics will be discussed after the following description of the DISCOM's organization and functions.

Anticipated gains from technologies and current force sizing requirements have combined to bring about a smaller division force structure. Some of the reduction is found in CSS elements and functions formerly organic to the maneuver and engineer units that have now been transferred to the FSBs. To compensate for this transfer, the DISCOM and its subordinate units have increased the scope and magnitude of their CSS mission. The creation of a DASB as part of the division redesign has significantly changed how the aviation brigade and division cavalry squadron receives their CSS. The DSB in its new design provides 1/2 day reinforcing Class III(B) and transportation support to the FSBs and DASB, with its primary mission oriented to non-maneuver divisional units. The DISCOM headquarters has been redesigned, placing the DMMC and its function under division support operations. The distribution management center (DMC) was created to provide "pipeline" visibility. Inherent to all these changes is a decrease in the amount of supplies carried forward in the division area and an increased dependence on EAD assets to throughput supplies to the DISCOM using "velocity management."

DIVISION SUPPORT COMMAND (DISCOM)

1-1. The DISCOM provides division-level CSS to all organic and attached elements of the division. Figure 1-1 depicts the DISCOM organization.

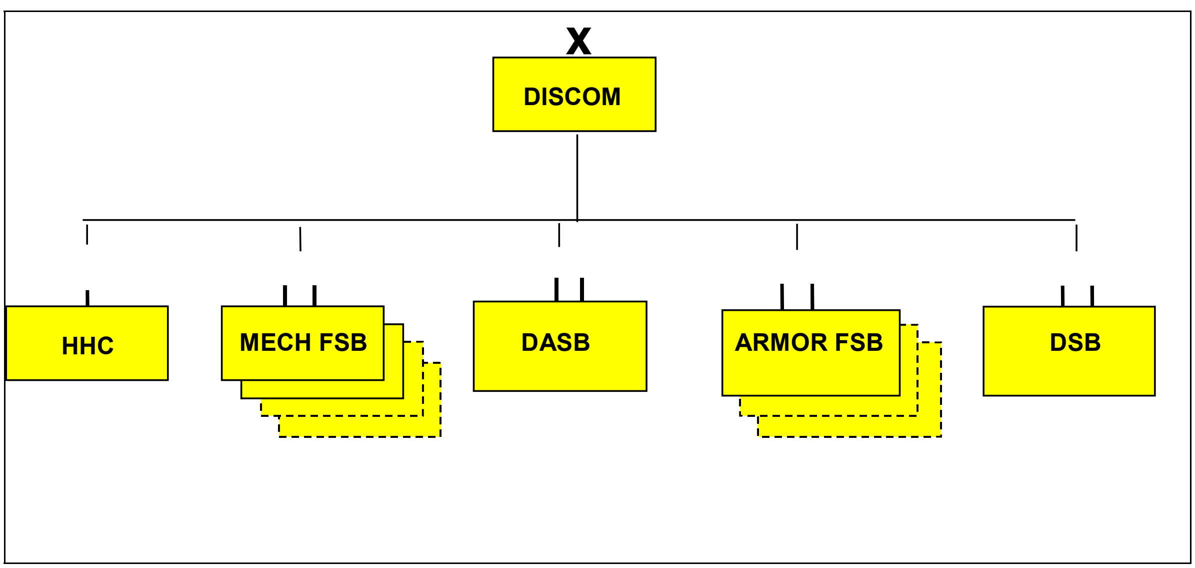


Figure 1-1. DISCOM

DIVISION SUPPORT BATTALION (DSB)

1-2. The division support battalion (DSB) is the main CSS unit in the division rear. The DSB provides combat medical support on an area basis to division rear area troops, transportation support to the entire division, as well as direct support (DS) supply and maintenance support to the division headquarters, DSB, division support command (DISCOM) headquarters, division artillery (DIVARTY) headquarters, multiple launch rocket system (MLRS) battalion, air defense artillery (ADA) battalion, military intelligence (MI) battalion, signal battalion, military police (MP) company and designated units in the division rear area. When augmented, it provides field services. The DSB directs and coordinates security of its organic units or units attached to the DSB. The DSB provides limited reinforcing support (Class III bulk and transportation only) to the forward support battalions (FSBs) and division aviation support battalion (DASB).

1-3. One DSB is organic to the DISCOM. The command element is responsible for the supervision, direction, and coordination of assigned and attached units that run the support operations in and around the DSA. It also directs and coordinates security of the units. Figure 1-2 shows the DSB organization.

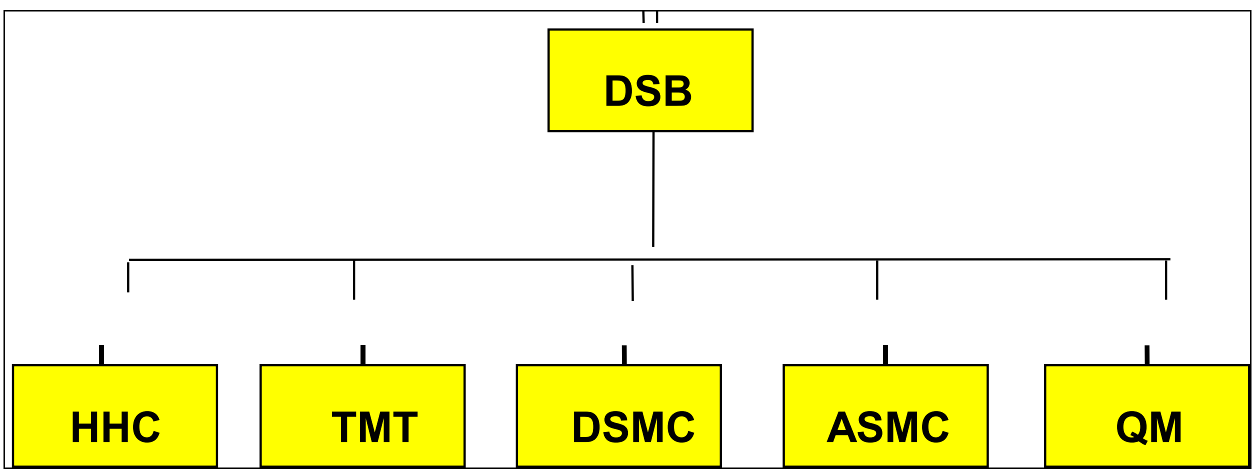


Figure 1-2. Division Support Battalion

DIVISION AVIATION SUPPORT BATTALION (DASB)

1-4. The multi-functional DASB provides DS to the aviation brigade (AB) and the division cavalry squadron. The DASB may function in a highly dispersed manner, with some DASB elements close to the attack units and others near the brigade rear area. The DASB commander is the aviation brigade commander's single CSS operator. His battle staff manages and monitors sustainment through an array of digital information systems and other technological innovations. The DASB provides, or coordinates for all logistical support, and ties together the entire spectrum of supplies and services for the aviation brigade.

1-5. The maneuver commander, however "unencumbered", must be involved in synchronizing the maneuver of the DASB and its subordinate companies and attached elements with inbound shipments from echelons above division and brigade. The use of assured communications, digitization of all CSS echelons, digitization of battlefield distribution (BD) platforms, and lastly modular organization structures, give the DASB commander and brigade S4 the information dominance needed to tailor the CSS support package. Through real-time situational understanding, the brigade battle staff is able to make up-to-the-minute adjustments in its support requirements. The widespread use of enablers on the battlefield allows the DASB battle staff to anticipate changes in requirements and rapidly redirect assets or, if necessary, have a surge capability to provide seamless CSS to all levels of the AB.

1-6. The DASB supports the AB and the division cavalry squadron by providing or coordinating all classes of supply and maintenance. The DASB can function in a dispersed manner to support the division cavalry squadron or AB when they are operating forward. The DASB may attach aviation and ground maintenance teams and fueling assets forward to augment the FSB, who then provides area support to the division cavalry squadron. The DASB does not have any combat health support (CHS) capabilities. Based on mission, enemy, terrain, troops, time available, and civilians (METT-TC), combat health support is provided by either the DSB or FSB medical companies to the DASB, AB and division cavalry squadron. The DASB contains a headquarters and supply company (HSC), a ground maintenance company (GMC), and an aviation maintenance company (AMC) (see Figure 1-3). The DASB maintains one day of operational fuel requirements for the AB, division cavalry squadron, and the DASB.

1-7. The HSC consists of a battalion headquarters and a supply company. The battalion headquarters provides command, control and administration support for all organic and attached DASB units. The battalion headquarters plans, directs and supervises support for the AB and division cavalry squadron. The supply platoon provides receipt, issue, and limited storage of Class II, III(P), IV, and IX (common and air) items in support of the AB and division cavalry squadron. It also receives and issues Class I and VI at the field ration issue point, and receives and issues Class VII as required. The supply platoon maintains the standard army retail supply system (SARSS-1) or global combat support system-Army (GCSS-Army). The Class III/V platoon provides bulk Class III and Class V support to its customers. It also operates a division rear aircraft refuel point for divisional and medical evacuation (MEDEVAC) aircraft. The company also provides food service support for units organic and attached to the DASB.

1-8. The GMC consists of a company headquarters, a battalion maintenance platoon and a direct support maintenance platoon. The GMC provides unit maintenance for all DASB non-air items and direct support maintenance for all AB, DASB and division cavalry squadron non- air items, including track, turret, missile, automotive, communications-electronics, engineer, utility, power generation, and small arms.

1-9. The AMC provides aviation intermediate maintenance to the division's aviation brigade, the division cavalry squadron, and corps medical aircraft operating in the division area. The AMC provides intermediate level avionics maintenance support, aircraft airframe, powerplant, armament, and component repair. The AMC's mobile maintenance support teams perform aviation intermediate maintenance (AVIM) forward, and provide forward repair/recovery teams that perform on-site technical assistance, and can also provide backup aircraft recovery, retrograde of repairable aviation equipment by ground, and coordination for air recovery backup and rigging capability for recovery of supported aircraft. The AMC provides maintenance test flight evaluator support to supported aviation unit maintenance (AVUM) units. The AMC will form a collection and classification point for aircraft peculiar materiel and provide fueling and defueling service for supported aircraft while in the AMC. This unit performs unit maintenance on all organic equipment, except communications-electronics (CE) and communications security equipment (COMSEC).

1-10. The DASB is dependent for medical support on the area support medical company of the division support battalion or the forward support medical company (FSMC) of the forward support battalion.

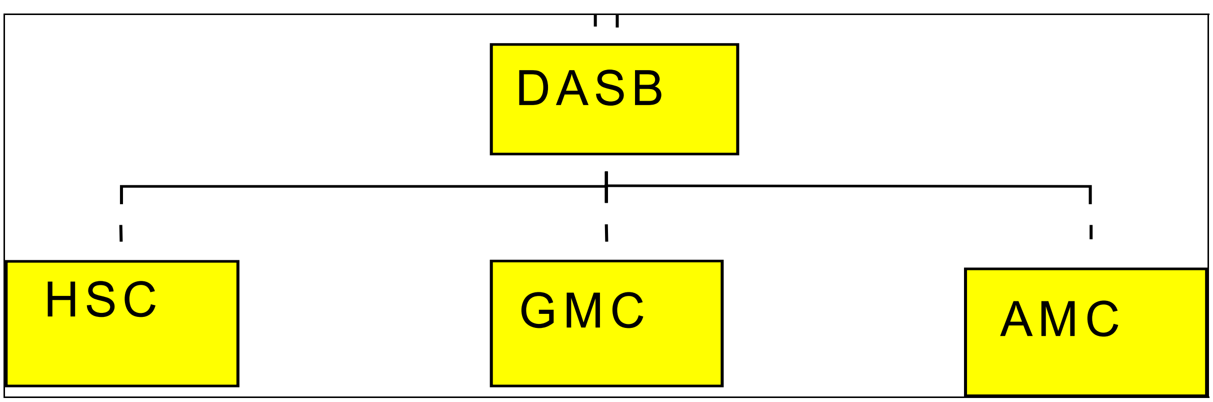


Figure 1-3. Division Aviation Support Battalion

FORWARD SUPPORT BATTALION (FSB)

1-11. The multi-functional FSB provides DS to the maneuver brigade. The FSB may function in a highly dispersed manner, with some FSB elements close to the maneuver units and others near the brigade rear area. The FSB commander is the brigade commander's battle logistician and serves as the single CSS operator for support to the maneuver brigade. His battle staff monitors and manages sustainment operations through an array of digital information systems and other technological innovations. The FSB provides all logistical support, and ties together the entire spectrum of supplies, maintenance, and services for the maneuver brigade. The maneuver commander, however, while "unencumbered", must be involved in synchronizing the maneuver of the FSB and its subordinate companies with the inbound shipments from EAD. For the Force XXI brigade, all CSS, for maneuver and engineer units, has been consolidated into the new FSB design. The FSB places a single smaller footprint on the battlefield through dispersion and centralization of services and support. This FSB, with centralized distribution management of CSS, frees the maneuver brigade commander from complex logistical support and task organization decisions. This provides him greater flexibility and mobility. The FSB contains forward support companies (FSCs), a brigade support company (BSC), a forward support medical company (FSMC), and a headquarters and distribution company (HDC). The FSC provides multi-functional support, both organizational and DS, directly to a maneuver battalion task force (BN/TF). The BSC provides maintenance support, both organizational and DS, directly to the maneuver brigade. This includes the engineer battalion, brigade HHC, and the brigade cavalry troop (BCT) and DS only maintenance support to the artillery battalion. It also provides limited reinforcing/back-up support to the FSCs. The FSMC provides echelons I and II CHS, to include sick call, advanced trauma management, limited laboratory and x-ray, dental treatment, combat stress control, preventive medicine, patient holding, and medical evaluation within the FSB support area. Corps maintenance plugs may augment the FSB in order to provide back-up support capability forward. Figure 1-4 and 1-5 depict FSBs.

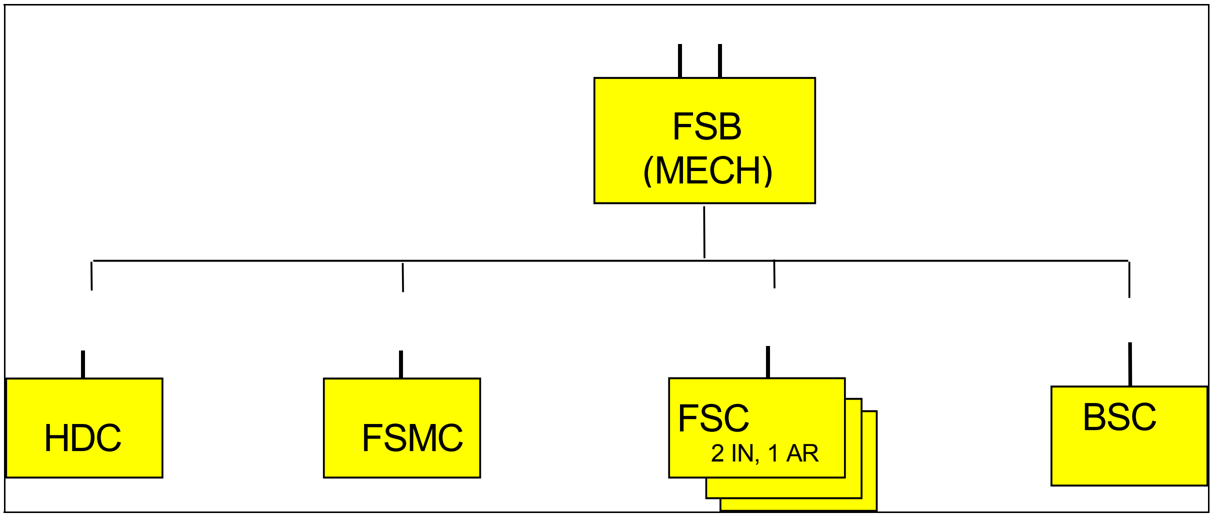


Figure 1-4. Forward Support Battalion (Infantry Brigade Combat Team)

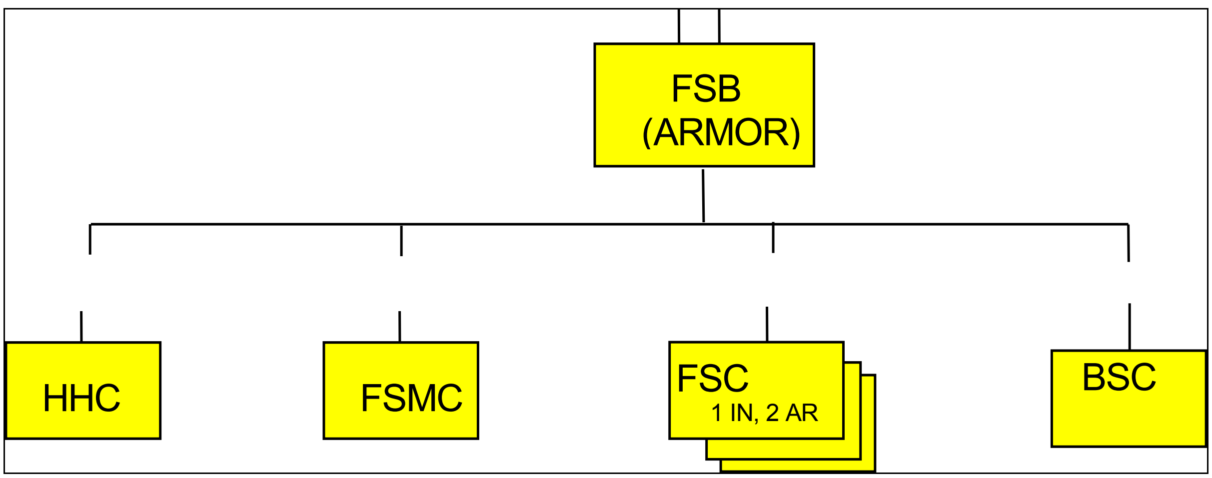


Figure 1-5. Forward Support Battalion (Armor Brigade Combat Team)

FORCE XXI CSS IMPERATIVES AND PRINCIPLES

1-12. Force XXI CSS imperatives and principles meet Force XXI challenges by incorporating advanced information and transportation technology, streamlined CSS organizations, and a shift from the AOE supply-based CSS system to a distribution-based system. Force XXI CSS principles hinge on four integrated imperatives:

- Unity of command.
- Increased velocity.
- An agile CSS force structure.
- Situational understanding.

1-13. The first CSS imperative is **unity of command**. It is one of the nine principles of war described in FM 3-0 (100-5) as "directing and coordinating the action of all forces toward a common goal, or objective". Although "coordination may be achieved by cooperation; it is best achieved by vesting a single commander with the requisite authority to direct and to coordinate all forces employed in the pursuit of a common goal", such as combat service support.

1-14. Force XXI CSS principles incorporate the unity of command imperative by centralizing distribution management and establishing a single CSS operator as the focal point for CSS operations at each echelon. Unity of command for CSS facilitates the cross leveling, re-directing, and massing of CSS assets within and between echelons, and is an essential element of the distribution-based concept. The following key Force XXI principles relate directly to the unity of command imperative. Each Force XXI principle is followed by a definition and then a brief description of the principle:

- Single CSS operator.
  - The single CSS element at each echelon serving as the focal point for CSS; providing unity of command and effort; and providing centralized distribution management for CSS operations.

The single CSS operator provides centralized distribution management and the CSS assets required supporting its designated maneuver unit. This single CSS operator is responsible for establishing unity of effort; providing and/or coordinating CSS surge capability where required to support the maneuver commander's intent. The single CSS operators designated for each echelon are:

Echelon	Single CSS Operator
Maneuver Battalion	Forward Support Company (FSC)
Maneuver Brigade	Forward Support Battalion (FSB)
Division	Division Support Command (DISCOM)
Corps	Corps Support Command (COSCOM)
Theater	Theater Support Command (TSC)*
	*Army Theater CDR's decision

- Surge capability.

- The capability to mass CSS resources at a point and time on the battlefield to weight the battle logistically by maximizing combat power at the decisive point as determined by the supported commander. Surge capability is enabled by flexible, modular organizational capabilities and by fused CSS and operational information. Surge capability may often be employed to mass tailored CSS resources as various supported units pass through the different stages of the halt, move, combat continuum.
- Unity of command for CSS enhances CSS surge capability. Combat service support commanders may, for example, surge maintenance assets to meet priority readiness, surge fuel assets prior to a counter-attack, or surge other commodities to make up for disruption in the lines of communication from corps. In practice, at the tactical level, a forward support battalion commander may, because he has centralized command and control over the brigade's CSS assets, compensate for anticipated or realized shortfalls by cross-leveling or redirecting idle or under-utilized assets from other forward support company's (FSCs). He may direct other units within the FSB to a different FSC if CSS requirements exceed an individual forward support FSC's capabilities. If additional required support is not available at the brigade level, the FSB commander may call upon higher echelons within the CSS command and control structure for support. Higher echelon CSS commanders enjoy the same surge capabilities with centralized command and control over CSS assets.

• Centralized distribution management.

- A single distribution manager at each echelon that leverages information technology to coordinate, prioritize, and synchronize materiel management and movement control operations to maximize the distribution pipeline's capability to throughput units and follow-on sustainment.
- Centralized distribution management is essential to efficient and effective distribution system operations. It involves the integrated end-to-end visibility and control of the distribution system capacity and CSS pipeline flow by distribution managers at each echelon. Under a distribution-based CSS system, designated distribution managers at each CSS echelon manage distribution operations, and coordinate and synchronize CSS flow in accordance with the commander’s priorities to maximize the throughput to units and follow-on sustainment. The distribution manager has functional oversight of the synchronization of materiel management, maintenance, and movements control center operations at each

echelon. Distribution managers at each echelon have the asset and intransit visibility required to optimize the distribution system within their echelon. Advanced information systems such as the movement tracking system (MTS), the global combat support system-Army (GCSS-Army), the combat service support control system (CSSCS), and advanced planning and optimization (APO) decision support tools provide this capability. The visibility over the CSS pipeline, coupled with the APO decision support tools, allows distribution managers to direct or divert assets enroute, and shift assets quickly in order to meet changing distribution requirements. Centralized distribution management gives the commander the ability to quickly and effectively influence the distribution system. Centralized distribution management relies extensively on situational understanding for success.

1-15. **Increased velocity** refers to the time required to move supplies, equipment, and capability from the strategic base through the distribution system to the end user. Time is critical for a force projection Army. Increased velocity has made reductions in the CSS battlefield footprint, in terms of personnel, equipment and supplies possible. The increased velocity concept relies on effective command and control provided by unity of command coupled with situational understanding. The following key Force XXI principles relate directly to increased velocity.

- Distribution-based CSS.
  - A distribution-based CSS system leverages advanced planning and optimization (APO) tools to forecast requirements, plan and control distribution operations, obtain visibility of intransit stocks, combined with limited stocks at storage locations, and velocity and speed of distribution to support and sustain Army operations.
  - Distribution-based CSS leverages information, force structure designs, technological enablers, and command and control relationships to move the Army away from its traditional dependence upon echeloned stockpiles to a system capable of delivering the “right stuff, at the right time, to the right location”. This ability, combined with increased speed of movement and responsiveness throughout the system, will allow the Army to eliminate the large “just-in-case” stockpiles we have relied on in the past. However, distribution-based CSS does not eliminate the need for or the use of stockpiled inventory. Distribution-based CSS uses anticipation and visibility of the inventory moving through the distribution pipeline, in effect making the distribution pipeline into another warehouse, to limit, but not eliminate, stockpiled inventories.
- Throughput to forward areas.

  - Leveraging configured loads, containerization, information, force structure design, technological enablers, and C2 relationships to deliver sustainment from the operational level directly to the customer or its direct support unit; bypassing intermediate, general or direct support units.
  - Whenever possible, national strategic-level CSS elements will use throughput to prepare resources for direct, time definite delivery to a supply support activity (SSA)/tactical assembly area (TAA) in an area of operations (AO). Throughput distribution bypasses one or more echelons in the supply system to minimize handling and speed delivery forward. A distribution-based CSS system emphasizes the use of containerization (within material handling equipment (MHE) constraints), to include palletization and packaging, to accommodate the AO and improve velocity. Velocity is achieved by the throughput of resources from the sustaining base to tactical-level support organizations. Direct throughput relies on unity of command and situational understanding.
- Minimize load handling.
  - Leveraging configured loads, containerization, information, force structure design, technological enablers, and C2 relationships in order to reduce the number of times sustainment is handled by multiple echelons and support units between the strategic provider and the ultimate customer.
  - In Force XXI, our goal is to minimize materiel handling, trans-loading and storage requirements to improve velocity throughout in the distribution pipeline. New transportation technology such as the palletized loading system (PLS), load handling system (LHS), container roll-in, roll-out platforms (CROP), and the "slip sheet" significantly reduce handling requirements over break-bulk methods. For example, with full off road capabilities, and no MHE requirements for loading or off loading flatracks of supplies, both the PLS and LHS are capable of delivering configured loads directly from echelons above division to the end user without any trans-loading or materiel handling requirements.
- Configured loads.
  - A configured load is a single or multi-commodity load of supplies built to the anticipated or actual needs of a consuming unit thereby facilitating throughput to the lowest echelon, METT-TC dependent. Whenever and wherever possible, configured loads will leverage the efficiencies of containerization and capabilities of CROP platforms. Configured loads are not, by definition, combat loads or basic loads though it is likely they may contain

individual items that comprise all or part of either. There are three types of configured loads: strategic configured loads (SCL), mission configured loads (MCL), and unit configured loads (UCL).

- Configured loads of all types are an essential element of distribution-based CSS. Successful implementation of configured loads requires situational understanding and the ability to make appropriate forecasts at various points on the planning time continuum. The intent of configured loads is to a) increase throughput, b) minimize handling, c) reduce footprint and d) physically speed the flow of supplies to the consumer. The types of configured loads, their purpose and uses are described below:
  - ⇒ SCL: A configured load built outside of the theater of operations in CONUS, or sanctuary, to anticipated requirements of a consuming unit. Strategic configured loads leverage the robust capabilities of the sustaining base to conduct resource intensive configuration missions thereby minimizing the CSS footprint in a theater of operations that would otherwise be required to perform those missions.

    It is essential that these loads be configured to suit the needs of the consuming unit and not merely for the convenience of the source of supply or the distribution system. Typically, SCLs will not be built for a specific named unit or destination but rather for a “type unit” conducting a particular “type mission" (e.g. armor company attack or an engineer battalion supporting a brigade movement to contact) in the theater of operations. In addition, replenishments for consolidated SSAs should be SCLs in which case the loads are configured to meet the combined expected demands of that consolidated SSA’s customers. This replenishment philosophy is applicable to any commodity.

    The distribution manager at the operational level uses information in the operational plan (task organizations, phases, postures, etc.) to anticipate the quantity and type of that are likely to be required throughout the planning process. These demands are communicated to the sustaining base with sufficient lead-time to maximize the use of strategic sealift. The requirements are continuously updated as the operations plan changes over time. As SCLs near the theater of operations, predominantly by sea, the distribution manager at the operational level leverages current situational understanding to assign destinations to the SCLs in order to facilitate rapid port clearance.

In most cases, because of their anticipatory nature, SCLs can not exactly meet a consuming unit's requirement but rather satisfy the unit's needs to a reasonable confidence level. Accordingly, SCLs can not be the sole source of replenishment for most customers. Also, there will need to be some consideration for retrograde and reconfiguration of unused SCL components which will be addressed later. Consumption and equipment usage data must be collected over time to continuously obtain information with which to make more accurate forecasts of SCL configurations and requirements.

⇒ MCL: A configured load with all of the characteristics of a SCL except that it is built inside a theater of operations for a specific mission, unit or other purpose (e.g. an artillery raid, emergency resupply, etc.). A MCL will normally be configured using resources (personnel, equipment and supplies) found in a hub in the corps or theater area. Occasionally, a MCL may be configured from retrograded materiel not consumed from a previously distributed SCL (doing so may reduce the demand for SCLs in the strategic pipeline). It will not normally be configured from one or more SCLs.

⇒ UCL: A configured load built to the known requirements of a consuming unit. These loads are normally built in a corps forward hub for a specific FSC to deliver directly to the consuming unit. Unit configured loads are built in response to actual requisitions or as determined by the FSC support operations officer as materiel needed to satisfy immediate requirements (e.g. Class IX for a CRT or Class I for the FSC to prepare meals). Typically, a UCL will form the basis of a scheduled delivery LOGPAC that may consist of some combination of SCLs, UCLs and the UCL including bulk fuel and water.

- Scheduled delivery.
  - A fundamental distribution planning parameter established as a component of each echelon's distribution plan. Scheduled delivery involves the movement of sustainment

from the supporting organization to the supported unit at agreed upon time intervals.

  - Distribution managers at each echelon, in concert with the supported unit, will establish scheduled delivery times for routine replenishment. The quantity delivered must be tailored as much as possible to only that which is needed by the supported unit and should not exceed it in order to ensure support to other units and optimize delivery resources. Typically, the quantities of each delivery will differ based upon the supported units' OPTEMPO and distribution system's ability to respond. Generally, this would include "push" items such as Class III(B) and Class V. Items that the maneuver unit requests may also be sent on scheduled delivery runs, provided time definite delivery standards (see time definite delivery below) are achieved. Scheduled deliveries may be established for individual commodities, such as for bulk POL and operational rations. For example, the scheduled delivery to a DSB from the corps support group (forward) might be 0600 and 1800 hrs daily. Scheduled deliveries facilitate scheduling main supply route (MSR) utilization, receiving operations at the supported unit, and synchronization of effort throughout the distribution system.

- Time definite delivery (TDD).
  - A fundamental distribution planning parameter, established as a component of each echelon's distribution plan, TDD establishes order ship times (OST) within which specified commodities requested by the supported unit must be delivered. Additionally, it deals with the consistency the distribution system delivers given resources within established OST, and serves as the metric to measure the distribution system's performance.
  - The TDD is a commitment between the CSS manager and the supported commander and specifies OST within which specified commodities requested by the supported unit must be delivered. The CSS manager recommends these OSTs, based on METT-TC, for the supported commander's concurrence. The commander responsible for both the supporting and supported organizations establishes the TDD as a part of the overall distribution plan. Different TDD parameters for a specific commodity may be established for different customer units as deemed appropriate by the commander. For example, the corps distribution plan establishes the TDD parameters within which corps will deliver each major commodity to its customers, the FSBs as an example. The division distribution plan would establish TDD parameters for deliveries from division support units such as the DSB to supported units such as the ADA battalion.

  - These TDD parameters are normally expressed in terms of hours or days for each major commodity. Establishing these OST involves making trade offs between responsiveness, i.e., time and speed, stockage levels, and the length of lines of communication. If the commander wants to establish shorter TDD schedules, he will have to accept larger stockage levels forward on the battlefield and/or shorter lines of communication, with an inherent loss of flexibility and battlefield agility. However, if the commander is willing to accept longer TDD schedules, he will enjoy the greater flexibility and battlefield agility that comes with fewer stocks forward and/or longer lines of communication. Another example is the TDD for bulk Class III(B) resupply from corps to a FSBs logistics release point (LRP) which has been established as 18 hours. Corps established this specific TDD parameter based upon the corps commander's operational plans, METT-TC situation and constraints, the supported unit's requirements and desires, and overall corps concept of support. If the FSB requires a Class III(B) delivery other than its normal scheduled delivery, the FSB's commander and planners know that they can expect delivery within 18 hours of their request and plan accordingly. The TDD is directly linked to both situational understanding and an agile CSS force structure.

1-16. **An agile CSS force structure** is one that has a relatively small footprint, and does not encumber the maneuver commander with large stockpiles of supplies or large numbers of combat service support personnel on the ground. The key to agility is to place on the ground only those CSS assets that are truly needed; no more or no less. The following key Force XXI principles relate directly to an agile CSS force structure:

- Modular design.
  - A force structure design parameter used by TRADOC force designers to create company level force structure designs wherein each major company sub-element possesses a cross section of the total company's capabilities, thus enhancing the commander's ability to tailor CSS force structure to the mission and requirements.
  - When a sub-element of a company design is modular, it has the C2 and support structure organic to it, or readily available from the parent company, to deploy alone into a theater and stand alone, or plug into a headquarters already in theater. Modular functional or multi-functional companies with modular multi-functional platoons, teams or sections, when used to create tailored force packages (see tailorable force packages below) can reduce the CSS footprint in an area of operations.

- Tailorable force packages.
  - An operational planning consideration where CSS organizations and units are customized through the use of modular units and sub-units (platoon, team, or section) to produce the required CSS capabilities without adding unnecessary, redundant, or non-value adding units, sub-units, or elements to the task organization.
  - The operational commander uses the modular force structure at his disposal to create CSS force structure tailored to meet the commander's requirements at each echelon without burdening the commander with unnecessary CSS force structure. For example, an early entry CSS company sized task force might be tailored using a platoon from a cargo transfer company, a platoon from a medium truck company, and a platoon from a quartermaster supply company. Each platoon would bring with it a slice of the appropriate support structure from its parent company in order to sustain itself.
- Split-based operations.
  - Leveraging force structure designs, advanced automation, information, and communications capabilities to enable a unit to perform its management and C2 mission in support of the warfighter with a small forward element deployed to the theater of operations, while the balance of the unit remains outside of the theater of operations in a sanctuary area.
  - Split-based operations occur when a function is performed through coordination between elements working in theater and elements working out of the theater. Split-based operations are ideal for management and command and control organizations that do not have to be in theater to perform their function. New information and communications technology makes split-based operations possible. For example, a corps level materiel manager does not have to be in theater to perform his function. Corps materiel managers could process requests sent back to CONUS from the theater. Communications and information technology would allow this materiel manager to cut a release order and send it to a SSA within theater. Split-based operations capabilities can significantly reduce CSS force structure within the theater of operations.
- Contractors on the battlefield.
  - Leveraging contractors to bridge the gap between required capabilities and actual force structure availability within the theater of operations. Contractors may be employed, subject to METT-TC, throughout the AO and in virtually all conditions. Contractors are categorized in FM

4-100.2 (100-10-2) contracting support on the battlefield as:

⇒ Theater Support Contractors: Theater support contractors support deployed operational forces under pre-arranged contracts or under contracts awarded within the mission area, by contracting officers serving under the direct contracting authority of the theater principal assistant responsible for contracting (PARC). Theater support contractors provide goods, services, and minor construction, usually from the local vendor base, to meet the immediate needs of operational commanders. To support the procurement process, finance personnel coordinate with contracting personnel, fund local purchase of goods and services, pay commercial vendors, and prevent improper or illegal payments.

⇒ External Support Contractors: External support contractors provide support to deployed operational forces that is separate and distinct from either theater support or systems contractors. They may be pre-arranged contracts or contracts awarded during the contingency itself to support the mission. Contracting officers who award and administer external support contracts retain unique contracting authority deriving from organizations other than the theater PARC or systems offices under program managers (PM) or Army materiel command (AMC).

⇒ System Contractors: Systems contractors support deployed operational forces under pre-arranged contracts awarded by PMs and AMC. They support specific materiel systems throughout the system's life cycle during both peacetime and contingency operations. The systems include, but are not limited to, weapons systems, aircraft, command and control infrastructure, and communications systems.

- Lessons learned from military operations throughout our history indicate that contracting and outsourcing can be effective force multipliers. Contracted capability can extend existing Army capabilities and provide alternative sources of supplies and services. Use of contractors may reduce the personnel, equipment, and supplies that must be deployed to support a specific operation. Contractors do not replace force structure. They augment Army capabilities and provide an additional option for meeting support requirements. To the extent they are used, they will be incorporated into the force structure as force multipliers, but they will not displace military assets within that force structure. Their use may reduce the size of the

Army force required to support a specific operation, but they will not permanently replace force structure.

- Replace forward/fix rear.
  - Replacing line replaceable units (LRUs) or modules instead of attempting to repair the LRUs or modules by leveraging advanced prognostic and diagnostic tools, support equipment, and training. The LRUs or modules are then retrograded to higher levels of maintenance for repair and return to the distribution system.
  - Force XXI field maintenance operations are characterized by lean, modular, and enabled maintenance units focused on maximizing combat power. The velocity at which future field maintenance operations must be performed, Force XXI distributed operations, the capabilities of battlefield distribution, and expected gains in diagnostics and prognostics facilitate our ability to fix equipment forward through the replacement of LRU or component assemblies.

Replace forward means a soldier performs "on-system" maintenance. "On-system" refers to replacing components or sub-components at the point of repair, breakdown site or unit maintenance collection point (UMCP). Maintainers normally diagnose down to the major component failure. He then replaces that component and returns the system to operational condition. Based on METT-TC, the soldier may diagnose and replace sub-component items depending on the availability of tools, parts, and time. An example of a replace function would be the replacement of a full-up power pack (FUPP). If a serviceable FUPP is available, the maintainer replaces the major assembly. If the FUPP is not available, the maintainer might swap out a serviceable engine from an unserviceable FUPP with a bad transmission.

Repair rear means that soldiers perform "off system" maintenance. "Off system" refers to those actions taken to return components and sub-components of weapon systems to serviceable condition. These repair actions take place at designated places throughout the battlefield. Corps maintenance units may have the capability to repair certain LRUs and/or assemblies for major weapons systems they support. Corps component repair companies or special repair activities in the corps or theater area repair other components and assemblies as determined by sustainment maintenance managers. A repair function at the corps or theater level would be the rebuild of a tank engine or other major assembly.

- Multi-capable maintainer (MCM).
  - A mechanic trained to perform organizational and direct support level maintenance on the M1 Abrams tank and the M2/3 Bradley fighting vehicle system (BFVS). This mechanic has a broad, but shallow range of skills designed to enable him to replace LRUs or modules to rapidly return a vehicle to mission capable status.
  - This supports the concept combining organizational and direct support maintenance by providing maintainers capable of performing both the organizational level tasks as well as the on-board direct support level tasks on the M1 Abrams tanks and the M2/3 BFVS. It maximizes the FSC's ability to provide field maintenance to the maneuver battalion and reduces inefficiencies apparent with the separation of the organizational and direct support levels of maintenance. As a result of the implementation of Abrams and Bradley systems mechanics, maintenance on wheeled vehicles, M113, M981, M88, and MLRS performed by the 63E, 45E, 63T, and 45T have been realigned to MOS 63B/S, 63Y, or 45K as appropriate.
- Combination of organizational/DS maintenance.
  - Unifying organizational and direct support (DS) level maintenance responsibilities and capabilities into one organization, the Division XXI FSC, to focus maintenance leadership, management, technical expertise, and assets under a single CSS operator ensuring maintenance can be planned, allocated, and swiftly executed when and where needed to satisfy the commander’s requirements.
  - Efficiency in maintenance management and effectiveness of maintenance operations are maximized when unit and direct support maintenance operations are collapsed into one level. This concept eliminates the loss of time and loss of job continuity associated with the transition of unit level job orders to DS job orders and vice versa. Consolidated maintenance enables a greater capability to dispatch more effective maintenance capabilities forward because of centralized control over and access to more capabilities. The concept pools maintenance assets under a single CSS operator for maintenance, the maintenance control officer (MCO). It also brings together maintenance leadership and management such that maintenance support is planned, resourced, executed when and where needed, with a unified focus, in support of a common mission and objective. Enablers such as the MCM, forward repair system (FRS), and advanced

diagnostics and prognostics give the combat repair teams (CRTs) the ability to execute this concept. The CRTs have the right people, with the right tools and test equipment to provide field maintenance forward on the battlefield and rapidly return combat systems to the fight.

1-17. **Situational understanding** refers to the logistician's complete picture of the friendly situation, the enemy situation, and the CSS situation through the use of advanced, seamless information technology. The following key Force XXI principles relate directly to situational understanding:

- Common operating picture.
  - Ability to view the same CSS and operational data at all echelons in near real time to provide commanders and CSS managers the identical battlefield picture.
  - Leveraging force structure designs, advanced automation, information, and communications capabilities to fuse operational and CSS data to create a common operating picture of the battlefield, both tactically and logistically, for commanders and logisticians at all echelons from the tactical to the strategic level, which in turn facilitates optimal logistical operations. Commanders and distribution managers at all levels must have access to the same information at the same time in order to have unity of command and unity of effort. The Force XXI seamless information network combined with intransit visibility and integrated standard army management information systems (STAMIS) provides a common operating picture.
- Intransit visibility.
  - Leveraging advanced automation, information, and communications capabilities to track cargo and personnel while enroute from origin to destination.
  - Visibility is the most essential component of distribution management. In fact, distribution managers dedicate most of their work to gaining and maintaining visibility of all the various assets, processes, and capabilities throughout the distribution pipeline. Why is visibility so important? As summarized from FM 4-100.1 (100-10-1), "Visibility is a positive indicator that the distribution pipeline is responsive to customer needs.” Experience has shown that Army leaders must be confident in the supporters ability sustain them. Timely and accurate visibility information provides logisticians necessary information to distribute assets on time thus maintaining high confidence levels. Visibility is based on a continuum of CSS data from the sustainment base into and through the distribution processes of the distribution system (factory to foxhole). Visibility must begin at the point where materiel starts its movement to the theater of

operations, be that a depot or commercial vendor or a storage facility in another theater or war reserve stockpile. The information must be digitized and subsequently entered into the necessary CSS information systems. The next critical element to visibility is the capability to dynamically update that source data with updates from subsequent CSS systems as to the transport, storage, maintenance, or supply status of that particular item/shipment until it is received at the ultimate consumer location. The information must be accessible to all users regardless of the service or echelon of command requiring the data.

- Integrated STAMIS.
  - The consolidation of previously separate, such as stovepiped, functional information systems into a single common operating environment (COE) that allows common usage of information between functions.
  - An integrated STAMIS is defined as one that incorporates multiple types of functionality within a single system and can share database information between functionalities. Global combat support system- Army (GCSS-Army) is an example of an integrated STAMIS; designed to include the functions of manning, arming, fixing, fueling, moving, and sustaining. The system will establish interfaces with other CSS automated systems in order for users to have access to the maximum amount of information with the minimum amount of data entry. The GCSS-Army's management module will act as the data warehouse and will work to tie the integrated STAMIS together.
- Seamless information network.
  - The ability to autonomously exchange large volumes of information across data platforms such as GCSS-Army and CSSCS, and between multiple echelons of command from the tactical to the strategic level.
  - A seamless information network is defined as an autonomous data exchange between systems and levels of command. It provides the fusion of operational and CSS data. A seamless information network provides the common operating picture and intransit visibility (ITV) that makes distribution-based CSS operations and split-based operations possible. It also enhances the security of CSS assets by providing situational understanding of the enemy situation and friendly situation across levels of command as well as across battlefield operating systems.
- Near real time (NRT) information.
  - The ability to autonomously exchange large volumes of information within an information network as the data is created at the point of origination.

- Near real time refers to the ability to capture events in the information network as they are happening; providing the logistician the capability to act almost immediately to the changing situation.

PRINCIPLES OF COMBAT HEALTH SUPPORT (CHS)

1-18. **Conformity**. Conformity with the tactical plan is the most fundamental element for effectively providing CHS. Only by participating in the development of the operation plan (OPLAN) can the CHS planner ensure adequate support at the right time and the right place.

1-19. **Continuity**. Combat health support must be continuous since an interruption of treatment may cause an increase in morbidity and mortality. No patient is evacuated any farther to the rear than his physical condition or the military situation requires.

1-20. **Control**. Technical control and supervision of medical assets must remain with the appropriate force-level surgeon. Combat health support staff officers must be proactive and keep their commanders appraised of the impact of future operations on CHS resources. The CHS system must be responsive to a rapidly changing battlefield and must support the tactical OPLAN in an effective manner. The medical commander must be able to tailor CHS organizations and direct them to focal points of demand throughout his AO. Treatment performed at each echelon of the CHS system must be commensurate with available CHS resources. Since these resources are limited, it is essential that their control be retained at the highest CHS level consistent with the tactical situation.

1-21. **Proximity**. The location of CHS assets in support of combat operations is dictated by the tactical situation and mission, enemy, terrain, troops, time available and civilian considerations (METT-TC), time and distance factors, and availability of evacuation resources. The speed with which medical treatment is initiated is extremely important in reducing morbidity and mortality. Medical evacuation time must be minimized by the efficient allocation of resources and the judicious location of medical treatment facilities (MTFs). The MTFs cannot be located so far forward that they interfere with the conduct of combat operations or are subjected to enemy interference. Conversely, they must not be located so far to the rear that medical treatment is delayed due to the lengthened evacuation time. Further, the location of the MTFs may be affected by the level of conformance to the Geneva Convention protections by the combatants.

1-22. **Flexibility**. Since a change in tactical plans or operations may require redistribution or relocation of medical resources to meet the changing requirements, no more medical resources should be committed nor MTFs established than are required to support expected patient densities. When the patient load exceeds the means available for treatment (mass casualty situation), it may be necessary to give priority to those patients who can be returned to duty the soonest, rather than those who are more seriously injured. This ensures manning of the tactical commander's weapons systems.

1-23. **Mobility**. Since contact with supported units must be maintained, CHS elements must have mobility comparable to that of the units they support. Mobility is measured by the extent to which a unit can move its personnel and equipment with organic transportation. When totally committed to patient care, a CHS unit can regain its mobility only by immediate patient evacuation.

CSS CHARACTERISTICS

1-24. A changing environment has diminished the probability of a prolonged, large-scale conventional war. However, the potential for numerous global actions on a smaller, regional scale has increased. At the same time, available resources are declining.

1-25. In response to these changes the Army has become a force projection rather than a forward-deployed Army. Stability operations and support operations will consume much of the Army's resources and energy. Supporting the Army of today and in the future will require CSS personnel to work faster and smarter.

1-26. The tenets of Army operations - agility, initiative, depth, versatility, and synchronization are basic to successful operations. They also establish the framework for organizing CSS. An effective and efficient CSS system allows the Army to operate in accordance with (IAW) these tenets. Such a system has several fundamental characteristics as discussed in FM 100-5 and FM 100-10.

1-27. For all the changes that technology and force redesigns have brought, one thing remains true, that success in battle is dependent upon the unity of effort between the tactical operation and CSS operations. Now, more than ever, the CSS community will succeed or fail by how well the CSS operators on the battlefield understand and adhere to the following logistics characteristics:

- Anticipation.
- Integration.
- Continuity.
- Responsiveness.
- Improvisation.

1-28. **Anticipation** of CSS requirements is made possible by the enhanced situational understanding provided by secure communications and knowledge-based information systems. The DISCOM support battalions carry limited supplies. To properly provide support, the DISCOM leadership must anticipate future requirements and missions by understanding the tactical commander's plan and by staying aware of current developments.

By using situational understanding, the FSB, DASB, DSB ensures that the required support has been planned for and requested from EAD.

1-29. CSS requirements must be **integrated** into the scheme of maneuver. The decrease in on-hand stockage levels greatly increases the FSB, DASB, DSB's dependence on EAD for resupply. This requires that the CSS planners at all levels clearly identify all support requirements early in the planning cycle. This ensures that the required support is fully integrated into the division's scheme of maneuver.

1-30. Support must be **continuous**. The division requires continuous CSS to perform its mission. Any break in CSS operations can diminish its combat power. The CSS elements continuously both sustain combat forces and replenish their own capabilities. Positive control of CSS assets should be enhanced through more accurate and timely reporting with the use of combat service support control system (CSSCS). The FSB, DASB and DSB must provide continuous support to the maneuver and slice units and maintain positive control of all its CSS operations.

1-31. **Responsiveness** is the ability to meet changing requirements, often on short notice, as operations evolve in unexpected directions. It is also the ability to respond to changes in the maneuver commander's intent and changes on the battlefield without interrupting the flow of support. This must be done with little or no advance notice and as the combat operations are being carried out. The support battalions must maintain maximum flexibility and be ready to respond quickly, often with a task-organized structure to meet force-projection requirements.

1-32. **Improvisation** is often necessary to provide continuous and responsive support. CSS personnel try to anticipate all support requirements and build a CSS structure capable of responding to any eventuality. However, it is inevitable that situations will arise in which even tailored resources will not be available to meet requirements if leaders apply them as outlined in doctrine or support plans. Therefore, support personnel must be prepared to seek innovative solutions to problems. If established support procedures are not providing the support required by the force, CSS personnel must be willing and capable of modifying and devising new ones that meets the needs. If required assets are not available through the normal system, they must be creative in acquiring them. Extraordinary means may be necessary. This is especially true at the tactical level where short time frames often require greater use of improvisation.

1-33. Because of technological advancements, the anticipated OPTEMPO on the battlefield will increase. Through technology the CSS operators will have massive amounts of tactical and logistical information at their fingertips. They will have access to the same common relevant picture of the battlefield as the maneuver elements. Their challenge will be to sift rapidly through the information, assess its effect, and apply the CSS characteristics to provide the right sustainment to the right place at the right time to support the tactical effort. The challenge will be that much greater, for the FSB, DASB, DSB commander and battle staff, as the technology and force redesign have given subordinate units a level of autonomy not seen in CSS structures of the past. At the lowest levels the FSC (as the CSS provider for the maneuver battalion) will operate as an extension of the task force structure. At the same time the FSC will be responsible to the FSB for providing support within the scope of the division plan and guidance.

Chapter 2

Digitized Division Technologies

The redesigned division support command (DISCOM) and its organic units will see an emergence of new technologies and CSS enablers that will greatly enhance the ability of logisticians at division and below to execute their work more efficiently and provide situational awareness. This coupled with the paradigm shifts in organizational structures and support concepts, allows the Force XXI DISCOM to provide the required resources to the maneuver commander to meet the OPTEMPO required to defeat the enemy. Figure 2-1 shows the locations of automated systems within the DISCOM. These systems are discussed in this chapter.

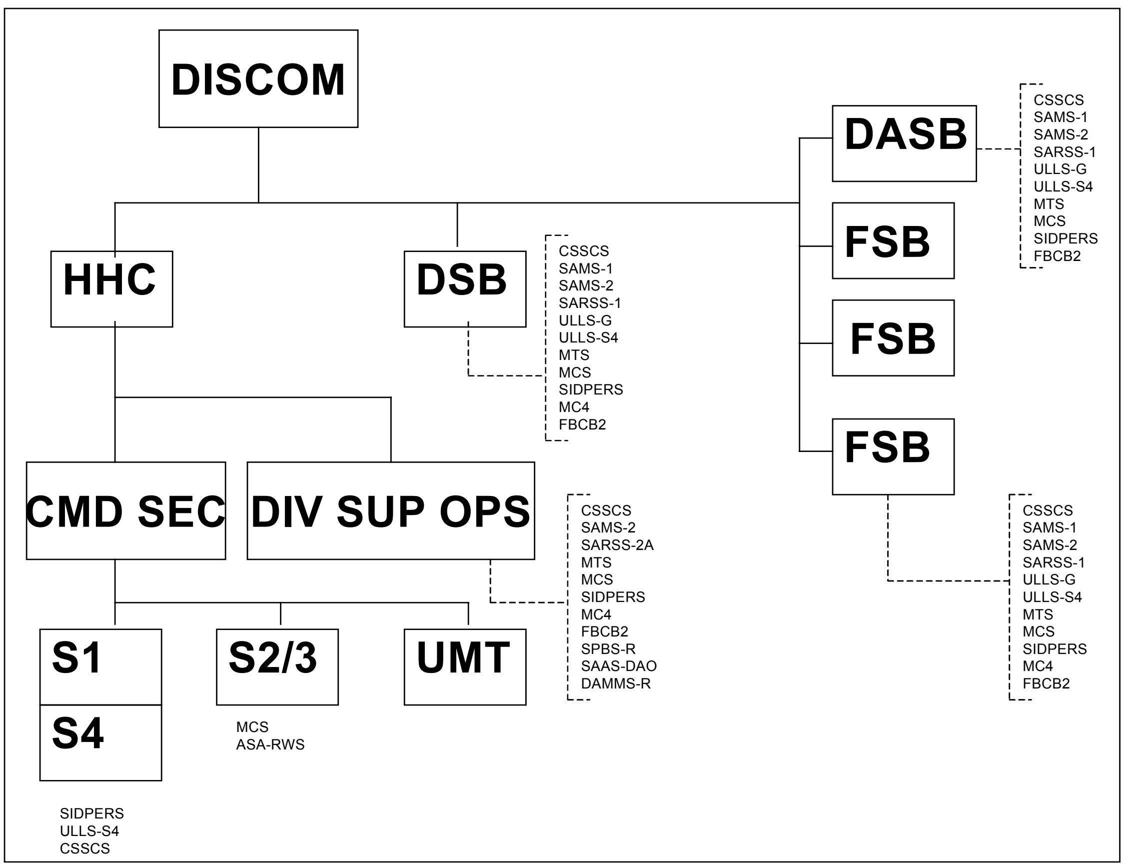


Figure 2-1. DISCOM Automation Architecture

Although the sections in what was previously known as the division materiel management center (DMMC) are now an integral part of the division support operations, the automation used to link the DSB, DASB, and FSBs to the DISCOM, and the DISCOM to the corps, remain resident in the same sections that managed them under the AOE structure. This is particularly true in the case of the STAMIS.

COMBAT SERVICE SUPPORT REDESIGN ENABLERS

2-1. The CSS enablers will assist logisticians by improving efficiency and effectiveness. Discussed below are those enablers that are currently designated to be used by the Force XXI Division.

CONTACT MAINTENANCE TRUCK (CMT)

2-2. The CMT is a self-contained, multi-capable repair system which will perform on-site organizational and DS level repair for wheeled vehicles and equipment. It has high mobility to maintain continuous support of maneuvering forces. It has enhanced hand and power tools, test measurement and diagnostic equipment (TMDE), welding and cutting equipment, and an air compressor, mounted on a heavy high mobility multipurpose wheeled vehicle (HMMWV) (M1097) vehicle chassis. The CMT will replace older obsolete contact trucks utilizing M880 and commercial utility cargo vehicle (CUCV) chassis. It also meets requirements for both ordnance and engineer on-site repair missions. Specific components include:

- Secure enclosure with easy access to tool cabinets and equipment.
- Highly durable, good quality hand tools.
- Enhanced electric power tools.
- Electrical arc and metal inert gas (MIG) welding and gas (oxyacetylene) brazing and cutting.
- Test and diagnostic equipment (TDE).
- High mobility standard chassis.
- Increased payload for spares, special tools, and individual military gear.

CONTACT TEST SET (CTS)

2-3. The CTS (AN/PSM-80 (V) 2) is a modular tester and electronic information delivery device that can be reconfigured to meet maintenance support requirements of different commodity and items at unit level and above. The CTS, a component of the integrated family of test equipment (IFTE), is a rugged man portable, knowledge based test set used at all levels of maintenance. It identifies LRU problems and augments weapon systems built-in test and built-in test equipment (BIT/BITE). It acts as a platform for electronic technical manuals (ETM), and is an Army standard software downloader. It is one-person portable and is capable of interfacing with standard printers to provide hard copy output. The AN/PSM-80 (V) 2 will contain a digital multi-meter board, a counter/timer board and an internal combustion engine board. It replaces the simplified test equipment/internal combustion engine (STE/ICE) in performing expert diagnostics. In addition, it will provide means to upload and download software and support the J1708 digital bus systems. This system would be located wherever needed; organization, DS, or higher levels of maintenance.

FORWARD REPAIR SYSTEM (FRS)

2-4. The FRS is a PLS flatrack mounted maintenance shop. It is designed to provide field level (unit and direct support) maintenance to mechanized/armored forces and is transported by a standard PLS vehicle. The FRS capabilities include: 5.5 ton capacity crane for lifting engines/power packs and other major assemblies; oxyacetylene, electric ARC and MIG welding capabilities; pneumatic power and industrial quality hand tools; a 175 PSI air compressor; and a 15KW tactically quiet generator (TQG) power source to provide power for the welding set, crane, electric power tools, and on-board ancillary equipment. The tool configuration is a standardized load unique to the FRS and is based on the heavy combat fleet. It provides storage locations for general mechanics tool kits (GMTK); battle damage assessment & repair (BDAR) kits for the mechanized fleet, and the soldiers' portable on-system repair tool (SPORT). The GMTK, BDAR Kits, and SPORT are not components of the FRS. The FRS provides space to carry basic issue items (BII), authorized list items (ALI), CTA items and crew member's individual clothing and equipment.

2-5. Specific maintenance features are as follows:

- Lift capability needed to replace/repair heavy combat system components, such as power packs.
- Secure enclosure with easy access to tools and on-board equipment.
- Industrial quality tools and equipment to optimize support of heavy systems.
- Full welding and cutting capability.
- Air compressor for tools and utility support.
- Carries the SPORT for diagnostics, ETM and IETM support.
- Workbench area with limited environmental protection.

HEAVY EQUIPMENT RECOVERY COMBAT UTILITY LIFT AND EVACUATION SYSTEM (HERCULES) (M88A2)

2-6. The HERCULES provides the answer to the current recovery problems with the M1 series tank. It is an upgrade to the current M88A1 medium recovery vehicle that provides recovery support to systems up to 70 tons, which are Abrams, and future heavy combat systems, Wolverine, Grizzly, and Crusader. Improvements include an upgraded power train, better armor protection and improved towing, lifting, and winching capabilities. Key system performance improvements include: an upgraded power pack (engine, 750 HP to 1050 HP and an improved transmission), improved final drive, power brakes, and suspension; overlay armor-30mm protection, increase weight from 56 to 70 tons, and 6000 pounds lead auxiliary winch to aid in deployment of the main winch. The HERCULES will operate in the same environment and geographical areas as the systems it supports. This is normally one terrain feature behind supported units, maximizing cover and concealment techniques and will operate during hostile battlefield conditions compounded by darkness, smoke, dust, and adverse weather. The HERCULES will provide safe operation, braking, steering control, and adequate mobility while performing primarily recovery and maintenance operations such as towing an M1 series tank, removing turrets, recovering nosed-in or overturned tanks and tanks mired to various depths in varying soil conditions. Secondary recovery functions include removing/replacing powerpacks, a cutting capability for removal/repair of damaged components, auxiliary power unit for ancillary tools, refuel/defuel pump, and an impact wrench to support the various recovery tasks and repair actions.

TACTICAL INTERACTIVE GROUND EQUIPMENT REPAIR (TIGER)

2-7. The TIGER provides mechanics expert diagnostic trouble shooting programs and access to ETM/IETMs, standard army maintenance system (SAMS) and databases for float management.

2-8. Tactical interactive ground equipment repair is principally a comprehensive related body of ideas and proposals intended to reform maintenance. Tactical interactive ground equipment repair is intended to furnish the means to diagnose materiel conditions correctly, communicate needs for services and supplies, and track them to the customer, thus reducing repair cycle time. Tactical integrated ground equipment repair includes the following concepts and projects: anticipatory logistics; turbine engine diagnostics (TED)-onboard; driver minder; interactive electronic technical manuals (IETM); pocket unit maintenance aid (PUMA); digital interactive training (DIT).

2-9. Tactical interactive ground equipment repair provides the basic ingredients to establish anticipatory logistics and accurate diagnostics/prognostics. To resolve maintenance deficiencies, TIGER concentrates on such core problems in our logistics systems: lack of communications in contemporary combat service support (CSS) units; fault-diagnosis of weapon systems and other military materiel; identifying, requisitioning, distributing, and applying repair-parts; tactical maintenance processes; the proficiency and performance of mechanics; understanding customer wants; the burden of preventative maintenance checks and services (PMCS) on mechanics, technicians, and most of all users.

ELECTRONIC TECHNICAL MANUALS (ETM)/INTERACTIVE ELECTRONIC TECHNICAL MANUALS (IETM)

2-10. Electronic technical manuals provide the mechanic compact disc-read only memory CD-ROM access to all maintenance technical manuals via laptop computer. Electronic technical manuals provide technical information and directions to maintainers and technicians. However, they do not automatically diagnose inoperable or malfunctioning systems.

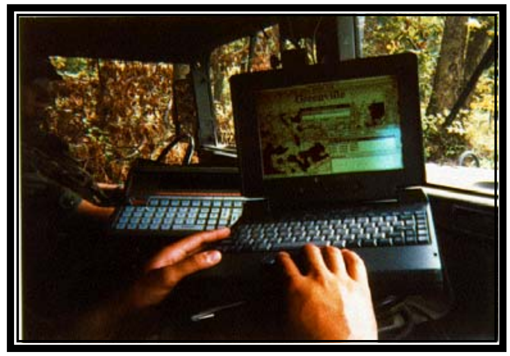
2-11. On-board IETMs have all the capabilities of IETMs, with the additional advantages of being integrated into the weapon system. This enables dynamic diagnosis, and the ability to communicate critical logistics information over the weapon system's digital radio.

2-12. Interactive electronic technical manuals diagnose and direct how to fix complicated, malfunctioning, or inoperable equipment. Interactive electronic technical manuals troubleshoot specific problems that inhibit combat performance of critical weapon systems, or high-maintenance cost drivers. Interactive electronic technical manuals have the capabilities to isolate the fault, determine the required repair part, and provide maintainers the instructions on the repair of the system. Interactive electronic technical manuals have the ability to communicate and interact with weapon systems, and with the supporting management information system. The IETM initiates the repair process. Normally, this occurs at the location of the inoperable equipment. Interactive electronic technical manuals comprehensively diagnose those field (organization and direct support level) maintenance tasks, identifies the parts required to repair the equipment, and forwards those parts requirements to the maintenance STAMIS, ULLS-G and SAMS-2 currently, and GCSS-Army as it replaces existing STAMIS.

2-13. A comprehensive weapon system IETM or onboard-IETM does not exist. The ETM, the IETM, and the onboard-IETM are integrated components, or software objects that perform diagnostic functions. A combination of the IETMs, onboard-IETMs, and ETMs comprise a weapon system's total technical documentation.

2-14. To employ IETMs effectively, the Army requires an interface device, the PUMA. This permits the maintainer to communicate seamlessly with the weapon system, yet connect with customers, and other CSS elements over FBCB2, the global combat support system-army (GCSS-Army), or other available communications systems. Onboard IETMs are accessed over the weapon system's existing computer and communications systems.

MOVEMENT TRACKING SYSTEM (MTS)



2-15. The movement tracking system (MTS) is a stand-alone, satellite-based communication system that provides near-real-time in-transit visibility (ITV) of distribution assets. The MTS provides ITV through the use of vehicular mounted personal computer-based hardware packages with mapping software and commercial satellite assets. The MTS combines global positioning system (GPS) and satellite communication technologies that provide automatically updated position location and two-way digitized message capability between mobile units and control stations.

2-16. The MTS is employed at all levels of the distribution management system. In the corps and division, MTS control stations are located in distribution management center (DMC) support operations sections, movement control/mode operator headquarters elements, support battalion support operations sections within the division, and supply support activities (SSAs) at all echelons. The MTS control stations located at the maneuver brigade S4 and the FSB support operations section, transportation cell provide positive inbound clearance, outbound coordination of transportation assets and supplies, and maintain ITV.

2-17. The MTS provides CSS commanders with near-real-time transportation asset location, movement data, and situational awareness. These capabilities enable distribution managers to redirect (divert) supplies/assets to higher priority needs, avoid identified hazards, inform vehicle operators of changes in unit locations, and improves the overall effectiveness and efficiency of the distribution management system. The MTS mobile units, palm-sized laptop computers, are mounted on common user land transportation (CULT) vehicles, selected C2 and combat support (CS) vehicles, and CSS tactical wheeled vehicles. In addition, a mobile MTS unit will be available for use by host nation and other foreign nations contributing to a combined operation or in leased, contracted and other vehicles that may be used in the distribution role but would not normally be equipped with MTS.

FAMILY OF MEDIUM TACTICAL VEHICLES (FMTV)

2-18. The family of medium tactical vehicles (FMTV) consists of two weight classes of vehicles and trailers; 2 ½-Ton light medium tactical vehicles (LMTV) and 5-ton medium tactical vehicles (MTV) each with trailers. Each family of vehicles shares common design and components to the maximum extent of commonality feasible. The family of vehicles currently features 80% commonality of parts, state-of-the-art systems, and easy to access controls.

2-19. The FMTV overcomes numerous deficiencies in tactical/strategic deployability, mobility, and ammunition/general resupply. It has the central tire inflation system (CTIS), on-board crane availability option, and is transportable on C-5, C-17, C-141, and C-130 aircraft. The FMTV replace existing 2 ½-ton and 5-ton trucks on a one-for-one basis. The FMTV are required to maintain the increased pace of logistical operations and to equal a dominant maneuver OPTEMPO. Theater distribution significantly alters the speed at which we execute service support and FMTVs are a key factor in reinforcing the existing infrastructure within Force XXI operations.

PALLETIZED LOAD SYSTEM (PLS)

2-20. The palletized load system is a 16 ½-ton tactical truck, trailer, and interchangeable de-mountable cargo flatrack combination with built-in self-loading/unloading capability that hauls all classes of supply (minus water and Class III(B)). The PLS has a total system hauling capacity of 33 tons, a 225-mile range, 50 MPH maximum speed, central tire inflation system (CTIS), and is C-5 and C-17 air transportable. When equipped with the container handling unit (CHU), the PLS can also provide increased container movement flexibility within the division rear area.

2-21. The PLS improves cargo handling by minimizing materiel handling requirements on an expanded battlefield and provides enhanced mobility to fielded units within the Force XXI division. These improvements are critical as they provide efficient and effective movement of supplies through a distribution-based logistics pipeline. The PLS is a key distribution platform employed by field artillery, ordnance, and transportation units. The PLS is the DISCOM's transportation operations workhorse under the Force XXI CSS redesign. The DISCOM commander can logistically weight the division's fight with the PLS employed by the transportation motor transport company (TMTC) of the DSB.

2-22. The role of the TMTC is to provide truck transportation for the distribution of supplies in the division's battlespace and assist division and corps elements requiring supplemental transportation. Specific PLS missions include, but are not limited to:

- Lateral redistribution of supplies in the brigade areas.
- Lateral redistribution of supplies between divisions.
- Relocation of ammunition supply/transfer points.
- Support tactical unit relocation and displacement of other divisional units.

HEMTT-LOAD HANDLING SYSTEM (LHS)

2-23. The heavy expandable mobility tactical truck (HEMTT) - load handling system (LHS) is a standard M977 or M985 HEMTT chassis equipped with a PLS-variant load handling system. The LHS is designed for loading/unloading de-mountable cargo beds (flatracks) and 8'x 8'x 20' international standardization organization

(ISO) containers/shelters on flatracks. These flatracks are interchangeable with all fielded PLS flatracks. This system introduces the capability to handle flatracks at the maneuver brigade level.

2-24. The LHS is employed by the FSB's HDC and FSC in the supply & transportation (S&T) distribution sections. Employment of the LHS improves system performance, reduces load and unload times, and increases vehicle availability for CSS units operating in the Force XXI brigade area. The LHS has the capability of transporting an 11-ton payload on the truck-mounted flatrack while towing an additional 11-ton flatrack load with the M1076 PLS trailer (the trailer is issue with LHS only to the FSB HDC). The LHS maintains the capability to transport all classes of supply (minus water and Class III(B)) in a tactical environment.

2-25. The LHS improves cargo handling by reducing container/material handling equipment requirements forward on the battlefield. It also enhances the mobility of CSS units by allowing supplies and equipment to remain uploaded for immediate displacement if required. Additionally, the LHS extends distribution throughput capability and enhances velocity through flatrack exchange with PLS. The use of flatrack distribution and exchange forward in the brigade area increases the supported maneuver commander's tactical flexibility.

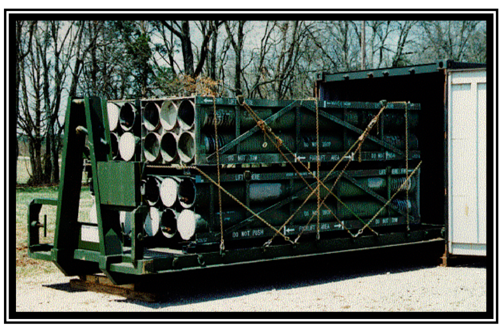
CONTAINER HANDLING UNIT (CHU)

2-26. The container handling unit (CHU) is a configuration of lifting, sliding, stowing, and locking apparatus configured onto to the palletized load system (PLS) that enables it to self-load/unload 20 foot (or equivalent) containers. With this CHU configuration, the PLS interfaces with ISO-conforming containers without the use of a flatrack. The CHU has the ability to adjust to container height variants and retains full flatrack interoperability with minimal reconfiguration required.

2-27. The CHU is employed by the tactical truck platoon, TMTC of the DSB and at ammunition transfer points (ATPs) operated by the FSB, HDC. This employment increases the division's capability to rapidly transport containerized supplies forward on the battlefield. The PLS/CHU has the capability of transporting a 16 ½-ton payload on the truck while towing an additional 16 ½-ton flatrack load with the M1076 PLS trailer. The PLS/CHU configuration (with trailer) maintains the capability to transport 33-tons of supplies in a tactical environment.

2-28. The CHU provides a container handling ability not previously organic to the division and reduces container/material handling equipment requirements, such as rough terrain container handlers. This additional container handling ability enhances distribution throughput capability, velocity, and immediate ATP displacement. The CHU provides CSS commanders with container handling capability forward in the division and brigade areas and increases the supported maneuver commander's tactical flexibility.

CONTAINERIZED ROLL-IN / ROLL-OUT PLATFORM, M3 (CROP)



2-29. The containerized roll-in/roll-out platform (CROP) is the flatrack of the future. It is a PLS/LHS flatrack that will eventually replace the M1077 flatracks currently fielded with the PLS and trailers. This flatrack is configured to fit snuggly into a 20 foot ISO dry cargo container that has an internal door opening width of at least 92 inches and an internal length of 231 inches. It reduces transportation-shipping times and eliminates blocking and bracing efforts at origin and destination when shipped in a container. The CROP can be loaded with miscellaneous unit equipment and all classes of supply, to include ammunition. The CROP has an inward folding A-frame that allows these flatracks to be stacked 2-6 high for retrograding.

2-30. The CROP is a cargo carrying platform (or flatrack) suitable for repeated use throughout the PLS and LHS mission profiles. This improved-design flatrack is a critical enhancement to transportation operations, a key enabling system to battlefield distribution, and the cornerstone to sustainment supply velocity in the distribution pipeline under Force XXI CSS doctrine.

2-31. The CROP offers strategic, operational, and tactical applications that serve an increased pace of logistics operations and significantly alters the speed at which we provide combat service support to the warfighters.

RADIO FREQUENCY - AUTOMATIC IDENTIFICATION TECHNOLOGY (RF-AIT)

2-32. Radio frequency-automatic identification technology (RF-AIT) is an assemblage of commercial off the shelf equipment built around a nucleus of radio frequency tags that possess embedded data of container contents, shipment data, and vehicle identification. The tags are placed on containers or vehicles at the source (such as a shipping depot or supply point) and can then be read by fixed interrogators placed at various in transit points, such as ports of embarkation (POE), ports of debarkation (POD), installations and at the eventual destination. Data input for radio frequency identification (RFID) tags will be generated at the data source supply activity. For sustainment shipments flowing from echelons above brigade (EAB), supply locations to the lowest level supply support activity (SSA), supply item data will be entered through a fixed burn station into the RFID tag. For remote EAB supply locations, supply item data may be entered by the use of a hand held interrogator. There are three sections within the data fields of a single tag that provide specific information. The lead section, or section 1 of the RF tag holds the transportation control and movement document (TCMD) header data. This section contains the primary transportation control number (TCN), major characteristics of the cargo (cube/weight), the primary consignor, and consignee. Section 2 contains a detailed item description to include subordinate consignees and document number information. Section 3 is a free text area that allows the source to input any specific disposition and/or special handling instructions for any line item of the shipment.

2-33. Radio frequency identification tags are separated into three data sections that provide specific information. The lead section, or license plate data, provides specific information about the shipment, such as, port of entry, port of departure, required delivery date (RDD), consignee, consignor, hazardous material (HAZMAT), number of commodity records and the number of transportation control and movement document (TCMD, DD Form 1384) records. The second section, or the TCMD section holds the TCMD header data. This section contains the primary transportation control number (TCN), major characteristics of the cargo (cube/weight), the primary consignor, and consignee. Section 3, or the commodity section contains detailed 1348 type detail. This section includes a database with NSN, document number, unit of issue routing identifier code.

2-34. Radio frequency identification tags will be affixed to the cargo by means of nylon serrated electrical ties. This method ensures the tags remain with the cargo until it reaches the point of delivery or the lowest level SSA.

2-35. The receiving SSA, through the use of a hand held interrogator, gains quick information as to the contents of each shipment and aids in the rapid processing of supplies into SARSS and subsequent delivery to the requesting unit.

Retrograde

2-36. Radio frequency identification tags recovered from previous shipments can be used to retrograde cargo from the user to EAB supporting supply activities. The SSA will take steps to ensure the original shipment data on the tag is deleted. This measure prevents confusion of the old original shipment data and new retrograde data.

2-37. Upon picking up cargo, the FSC or HDC, informs the battalion support operations section. The support operations office of the FSB will then associate that particular RFID tag with the corresponding vehicle equipped with the MTS or FBCB2. The support operations section passes this information via digital non-secure voice terminal or telephone (DNVT) or tactical fax, which provides information to the EAB receiving supply activity.

Return of Unused RFID Tags

2-38. Should recovered RFID tags exceed the number of retrograde shipments, arrangements should be made to return the tags to the next higher supporting SSA. Key points to remember when returning RFID tags are to: delete the original shipment information and flip the battery within the tag. Units, through retrograde operations, or direct returns, should return tags to the system within 72 hours of receipt.

STANDARD ARMY MANAGEMENT INFORMATION SYSTEMS (STAMIS)

2-39. The CSS community has developed functional information management systems that increase the productivity of the individual soldier and effectiveness of the unit. These CSS STAMIS will provide the CSS logistics infrastructure required for any military ground operation. The technical goal is to establish a seamless and interoperable network. The network involves the integration and communication software used by all STAMIS systems. Components of the system primarily include unit level logistics system (ULLS)-ground (G), ULLS air (A), ULLS-S4, standard Army retail supply system (SARSS), and standard Army maintenance system (SAMS). In addition to the above mentioned systems, the STAMIS interim transmission equipment consists of RF modems, mobile subscriber equipment (MSE), and tactical terminal adapters (TTA). The STAMIS communication software utilizes the blocked asynchronous transmission (BLAST) package. A brief description of the various STAMIS listed in Figure 2-1, as part of the DISCOM automation architecture, is discussed in this section.

TRANSPORTATION STAMIS

Department of the Army Movement Management System Redesigned (DAMMS-R)

2-40. Department of the Army movement management system redesigned (DAMMS-R) is an automated system designed to provide capabilities associated with transportation movement scheduling and management as well as transportation asset management within a theater of operations. The DAMMS-R interfaces with the Military Traffic Management Command's worldwide port systems (WPS) and the Air Mobility Command's global air transportation execution system (GATES). These interfaces aid in clearing the ports of personnel, equipment, and cargo inbound to a theater of operations. The DAMMS-R is used exclusively in the OCONUS environment, and tracks DOD cargo from the port of debarkation (POD) to final destination.

2-41. The DAMMS-R operates in the DISCOM support operation's movement control office (MCO) and in the division transportation office (DTO). The DAMMS-R functionality will be combined with other installation transportation office (ITO) unit deployment planning/executing systems and result in a single, easily deployable transportation management system, the transportation coordinator's-automated information management system II (TC-AIMS II).

Transportation Coordinator's - Automated Command and Control Information System (TC-ACCIS)

2-42. Transportation coordinator's - automated command and control information system (TC-ACCIS) is the Army's automated unit deployment planning and execution system that accomplishes transportation functions for ITO/traffic management offices. It generates unit movement data, air load plans, air cargo manifests, rail load plans, bills of lading, and bar-code labels for shipment.

2-43. The TC-ACCIS allows unit movement officers (UMOs) to create, update, or modify unit deployment data for peacetime, mobilization and deployment/redeployment operations. Like DAMMS-R, the TC-ACCIS system will ultimately be replaced by TC-AIMS II.

Transportation Coordinator's–Automated Information for Movements System II (TC-AIMS II)

2-44. Transportation Coordinator's Automated Information for Movements System II (TC-AIMS II) is a Joint Services automated information system designed to function as a universal tool for the unit movements officer, ITO, and theater movement control/mode operations.

2-45. The TC-AIMS II is a system designed for unit movement officers, planners, movement controllers, and transportation operators at all levels. It will be employed from installation transportation offices (ITOs) at the Army's power projection platforms, other TC-ACCIS locations, and from theater level commands to battalion and separate company levels.

2-46. The TC-AIMS II will provide transportation functions such as plan convoys, request convoy clearances, conduct load planning, and manage mode operations. It will also support daily transportation operations and provide enhancements to the deployment process by building automated unit equipment lists and deployment equipment lists. The TC-AIMS II supports planning, executing, managing, and reporting movement-related deployment, sustainment, and redeployment activities. It will facilitate the movement of personnel, equipment, and supplies and provide visibility data of those forces from factory to foxhole.

2-47. Automatic identification technology (AIT) hardware and software capabilities are integrated into TC-AIMS II so in-transit visibility (ITV) can be established. These AIT enablers will allow TC-AIMS II users to create RFID tags which can be affixed/mounted on cargo and equipment. When the tags pass by fixed or mobile RFID tag readers/interrogators, the tags will be interrogated and the tag data will be sent to appropriate CONUS/regional ITV servers which in-turn will send the interrogated tag data to the global transportation network (GTN). The GTN in-turn updates the global command and control system (GCCS). The TC-AIMS II will ultimately provide the theater of operations with a joint transportation system capability supporting the commander-in-chief with visibility of transportation assets in the distribution pipeline. The TC-AIMS II will be the enabler for force projection supporting Force XXI operations and battlefield distribution.

MAINTENANCE STAMIS

Standard Army Maintenance System (SAMS)

2-48. **SAMS-1**. Standard Army maintenance system-1 (SAMS-1) is a maintenance management system which automates shop operations within the FSC MCS, BSC MCS, AMC MCS, and ASMC MCS. It provides shop management control of workload, manpower, and supply. It also has the capability to automatically produce work orders, requisition repair parts, manage shop and bench stock, and provide detailed labor costs related to a specific work order. The FSC MCS, BSC MCS, AMC MCS and ASMC MCS pass the SAMS-1 information to the SAMS-2 located in the respective support operations section. The FSB, DASB and DSB support operations sections pass the information to the SAMS-2 located in the division support operations section. The SAMS-1 interfaces to ULLS-A, ULLS-G, SAMS-2, SAMS-I/TDA, SARSS-1, and SARSS-GW.

2-49. **SAMS-2**. Provides mid-level maintenance management and readiness visibility at the support operations level through selected maintenance, equipment readiness, and equipment performance reports. It produces management reports related to work orders, shop capabilities, production, backlog, manpower and parts costs. It also provides completed work order data and readiness data to the logistics support activity (LOGSA) for equipment performance and other analysis. The SAMS-2 interfaces to ULLS-A, ULLS-G, SAMS-1, SAMS-I/TDA, LOGSA, and CSSCS.

SUPPLY STAMIS

Unit Level Logistics System (ULLS)

2-50. **ULLS-Ground (G)**. The ULLS-G is located at any unit that has an organizational or tactical field maintenance facility, and is designed to be operated by unit level personnel. It automates the entire range of supply functions associated with the prescribed load list (PLL), vehicle dispatching, and the Army maintenance management system (TAMMS) function at the motor pool. The ULLS-G interfaces with SARSS-1, SARSS-GW, ULLS-S4, and SAMS-1.

2-51. **ULLS-Air (A)**. The ULLS-A is located in all aviation units. It performs those functions for aviation the ULLS-G performs for ground units. It will automate the production control, quality control, and tech supply (Class IX) functions at the aviation unit maintenance (AVUM). The ULLS-A interfaces with SARSS-1, SARSS-GW, ULLS-S4, and SAMS-1..

2-52. **ULLS-Battalion (S4)**. The ULLS-S4 is located at all companies, battalion S4s, and brigade S4s. It provides hand receipt accountability for property, requests supplies, and requests transportation. The ULLS-S4 interfaces with SARSS-1, standard property book system-revised (SPBS-R), standard Army ammunition system-modified (SASS-MOD), SARSS-GW, and CSSCS.

Standard Army Retail Supply System (SARSS)

2-53. **SARSS-1**. The SARSS-1 is an interactive, menu-driven, automated supply accounting system providing asset visibility. It automates supply support functions of the DSB SSA, DASB SSA, FSB SSA and FSC supply platoons. It processes supply requests, issues, receipts, and tracks storage of items. It interfaces with the ULLS-S4, SAMS-1, SPBS-R, CSSCS, ULLS-S4, ULLS-A, ULLS-G, and SARSS-2A.

2-54. **SARSS-2A**. The SARSS-2A provides intermediate management of the supply system at the DISCOM level. It provides reparables management and tracks excesses. It also provides referrals by conducting lateral searches among SARSS-1 locations within the division. It interfaces with the SARSS-2A(C/B) located at the COSCOM support operations office , which tracks demand and document history, financial record keeping, and conducts lateral searches at the corps level.

2-55. **SARSS-2B**. The SARSS-2B performs non-time sensitive supply management functions for catalog update, document history, demand analysis, and financial interface. The SARSS-2B is employed at the COSCOM support operations office, TAACOM, TAMMC, TDA/installation, USARC, and the National Guard USP & FO.

2-56. **SARSS-Gateway.** The SARSS-Gateway is designed to make optimum use of automation and communication techniques by integrating the wholesale and retail supply systems into a single seamless supply system. The SARSS-Gateway provides for the same day processing of requests for issue; visibility of all assets within an area; status to users and lateral distribution of assets. This system includes a Gateway computer system at St. Louis, MO, and all units operating a logistics STAMIS. The SARSS-Gateway communications (SARSS GATEWAYCOMM_BLAST) links the existing five STAMIS (ULLS, DS4, SAMS-1, SAILS and SARSS-O) to the SARSS-Gateway using the defense data network (DDN) as the principal communication network.

Standard Property Book System- Revised (SPBS-R)

2-57. The SPBS-R is an interactive, menu driven property accountability system. The system accomplishes the functions of property accountability required by Army regulation (AR) 710-2, department of the Army pamphlet (DA PAM) 710-2-1, and all other pertinent and applicable regulations and guidelines. It operates in both centralized and decentralized mode, and provides asset visibility wherever the requirement exists. The SPBS-R interfaces with ULLS-S4, SARSS-1 and CSSCS.

Standard Army Ammunition System-Modified (SAAS-MOD)

2-58. The SAAS-MOD is an automated ammunition system, which consolidates the following, three levels of operations into a single software baseline: theater support command materiel management center (TSC MMC/COSCOM support operations office), ammunition supply point, and the division ammunition office (DAO). The SAAS-MOD is designed to manage conventional ammunition, guided missiles and large rockets, and related crating and packing materials. The SAAS-MOD provides formal stock record accountability, asset visibility, intransit visibility, management control, and automatic-reporting capabilities for ammunition stored at the retail level. It also supports basic load, war reserve, and operational stock management. It supports Class V conventional ammunition missions for units ranging in size from a brigade-size task force to theater. Any element, except an ammunition transfer point (ATP), when deployed independently, can perform the same functions as a TSC MMC or a DS/general support (GS) ordnance group. Within the division, a SAAS computer is located at the Class V branch of the general supply office, division support operations section. The SAAS-MOD interfaces with the following systems by either disk-to-disk or modem-to-modem transfer:

- SAAS.
- Commodity command standard system (CCSS).
- LOGSA.
- Worldwide ammunition reporting system (WARS).
- SPBS-R.
- DAMMS.
- ULLS-S4.
- CSSCS.

MEDICAL STAMIS

Medical Communication for Casualty Care (MC4)

2-59. Force XXI digitized division and brigade medical units and elements will employ the medical communications for combat casualty care (MC4) medical information system, when fielded. The MC4 system is a theater, automated CHS system which will receive, store, process, transmit, and report C2, medical surveillance, patient movement/tracking, medical treatment, medical situational understanding, and CHL data across all echelons of care. The MC4 system will begins with the individual soldier and continues throughout the health care continuum. The MC4 system will consist of three basic components: software, hardware, and telecommunications capabilities.

- Software: The joint theater medical information program (TMIP) will provide common medical software. The software provides an integrated medical information capability that will support all levels of care in a theater of operation with links to the sustaining base. Medical capabilities provided by the software will address medical C2 (including medical capability assessment, sustainability analysis, and medical intelligence); CHL (including blood product management and medical equipment maintenance management); patient evacuation; medical surveillance, and health care delivery. The MC4 system supports Army-unique requirements and any software needed to interface with Army information systems such as CSSCS, global command and control system-Army (GCSS-A), FBCB2, warrior programs, and the movement tracking system (MTS).

- Hardware: The hardware will consist of commercial off the shelf (COTS) automation equipment supporting the above software capabilities. Examples include, but are not limited to, computers, printers, and networking devices.
- Communications: The MC4 system will rely on current and proposed Army solutions for tactical, operational, and strategic telecommunications systems to transmit and receive digitized medical information throughout the theater and back to the sustaining base. Telecommunications at brigade and below will be accomplished through the tactical internet; above brigade level, telecommunications will be accomplished through the WIN architecture. At end-state, the MC4 system users will exchange data electronically via the WIN architecture.
- Echelon I combat health support. Echelon 1 CHS represents routine or emergency medical care provided by a variety of personnel. The initial first aid for a casualty can be provided by either self-aid, buddy aid or combat lifesaver. This first aid is followed by medical treatment from a trauma specialist. The trauma specialist provides emergency medical treatment and request medical evacuation of the patient to the battalion aid station (BAS). The BAS provides essential emergency care, advanced trauma management (ATM), and prepares the patient for medical evacuation back to the FSMC. All medical treatment elements in the division provide area medical support to those units without organic medical assets, that operate within the division and brigade AOs.
- Echelon II combat health support. Echelon II CHS duplicates Echelon I and expands services available by adding dental, laboratory, x-ray, and patient -holding capabilities. Emergency care and ATM including beginning resuscitation procedures are continued. Preventive medicine and mental health section are also located in Echelon II medical treatment facilities (MTFs) The MC4 system will provide the same augmentation to the C2, treatment, medical evacuation, and CHL elements that were provided at Echelon I.
- Through the use of the medical detachment telemedicine, Echelon II medical companies will have the ability to digitized medical data (x-ray, pictures) and transmits it to clinical consultants at EAD.
- Combat health logistics. The trauma specialist will utilize FBCB2 to request medical supplies from the BAS. This request will be a built-in report on the FBCB2 system. At the BAS, requests for medical supplies will be made utilizing the MC4 system. This automation will not only speed the resupply process, but will also allow the combat commander to maintain visibility of his unit's MEDLOG status, either through FBCB2 or throughout he MC4's link to CSSCS through GCSS-A.

- The FSMCs are responsible for Class VIII resupply for brigade medical elements , see Class VIII in chapter 8.
- The medical material management branch (MMMB) at the division support operations will be the Class VIII commodity manager. Using the same automated tools as the other commodity managers, the MMMB will make arrangements to fill the request through the battlefield distribution system. The MC4 system using TMIP, through its interface with GCSS-A, will automate linkage of Class VIII to the transportation system. The management of complex medical sets and Class VIII material will be automated.

GLOBAL COMBAT SUPPORT SYSTEM-ARMY (GCSS-ARMY)

2-60. In the future, GCSS-Army will be the Army's automation information system to modernize and integrate the capabilities of existing logistics STAMIS. Those capabilities to be integrated will include supply, property, ammunition, and maintenance functions (less medical) with significant enhancements. The principal logistics STAMIS to be functionally integrated include the ULLS, SARSS, SPBS-R, SAAS-MOD, and the SAMS. The GCSS-Army modules include:

- Situational awareness (SA) throughout a modernized supply and property module that integrates supply operations and property accountability in all units.
- A modernized maintenance module that integrates maintenance operations (such as ground, aviation, and water equipment) at all levels of maintenance.
- A modernized ammunition module that integrates Class V management and operations.
- A modernized supply support activity module that integrates the supply management and operations at supply support activities and storage sites.
- A modernized and integrated materiel management module that integrates supply, property, ammunition, and maintenance management in all materiel management organizations.
- A management module that integrates information from multifunctional CSS data sources and allows for data exchange with other GCSS-Army modules and external automation information systems.
- The GCSS-Army will improve CSS information management by eliminating duplicative information systems, improving the sharing of data, and leveraging advances in advanced information technology. It will provide the ability to support joint operations with sister services as well as provide support to our allies. The GCSS-Army will have a link into the command and control systems through CSSCS and GCSS-Army.

COMBAT SERVICE SUPPORT FUNCTIONS ON FBCB2

2-61. The FBCB2 is a hardware/software suite that digitizes C2 at brigade level and below. The FBCB2 concept provides a seamless battle command capability for performance of missions throughout the operational continuum at the tactical level. The FBCB2 is the implementation of information age technology to provide increased battlefield operational capabilities.

2-62. The system, positioned on specified platforms, will perform combat, combat support (CS), and CSS functions for the planning and execution of operations. The FBCB2 represents a major paradigm shift for the CSS community. For the first time, the CSS organizations are digitally linked to the platforms and organizations that they support. The FBCB2 provides a common battlespace picture enabling CSS providers to maintain the OPTEMPO set by maneuver commanders.

CSS FUNCTIONS

2-63. Combat service support functionality within FBCB2 gives the combatant a common-relevant-picture of the current CSS situation at his/her echelon of command and at subordinate levels. Additionally, it provides the personnel and logistics leaders CSS situational awareness of their battlespace. It also provides enhanced capability to synchronize support to customer units. The CSS functionality on FBCB2 includes the following: logistics situational reports (LOGSITREP), personnel situation report (PERSITREP), supply point and field services status report, command tracked item list update message (CTIL/BRIL), a task management suite which includes: logistics call for support (CFS), logistics task orders (LTO), logistics task synchronization and logistics task management. Additional FBCB2 CSS reports include: medical unit situation report, mortuary affairs report, logistical and tactical situational awareness. Currently, FBCB2 permits information to be entered using free text, such as comments and other pertinent CSS information. Ideally, automated systems should be designed to limit free text input. In these cases, the user of the system should understand that the information cannot be automatically manipulated or rolled-up by higher headquarters.

LOGISTICAL SITUATION REPORTS (LOGSITREP)

2-64. The LOGSITREP provides input for logistical status for all classes of supply as determined by the CTIL, for example, Class I, II, III(P), III(B), IV, V, VII, and IX. The CTIL items are selected from the CSSCS BRIL and passed through each echelon of command using the CTIL/BRIL update message and posted to each FBCB2 platform. Platforms are only required to report CTIL items authorized and available on-hand. The LOGSITREP primarily flows through the noncommissioned officer (NCO) chain of command to the battalion S4 and the maneuver brigade S4, with information copies to the FSB support operations section. All reports will follow the chain of command as specified in the unit task organization (UTO). As each unit's report is submitted to the next higher echelon of command, information copies are sent to key personnel. For survivability of the reporting process, key personnel are identified to replace the primary roll-up point duties should the primary roll-up point become non-operational. At brigade level, the maneuver brigade S4 submits company level roll-ups to CSSCS. See Figure 2-2.

2-65. All recipients of the LOGSITREP (action or information message) have the ability to look one level of command down. This gives that user the ability to see the report submitted at that level for each class of supply and any comments that were made. Comments made with the LOGSITREP cannot be rolled-up. Any comments necessary for further processing up the reporting chain must be reentered in the next report.

2-66. The purpose of the LOGSITREP is to provide the unit commanders and key personnel visibility of the latest logistics status of their unit. A secondary purpose of this report is to provide the CSS unit visibility of a unit's logistics status to better anticipate their logistics requirements. Optimally, the user will not have to request resupply of commodities reported through this report. This is because the CSS unit is aware of their requirements and can begin the necessary CSS action prior to the company needing to ask for it.

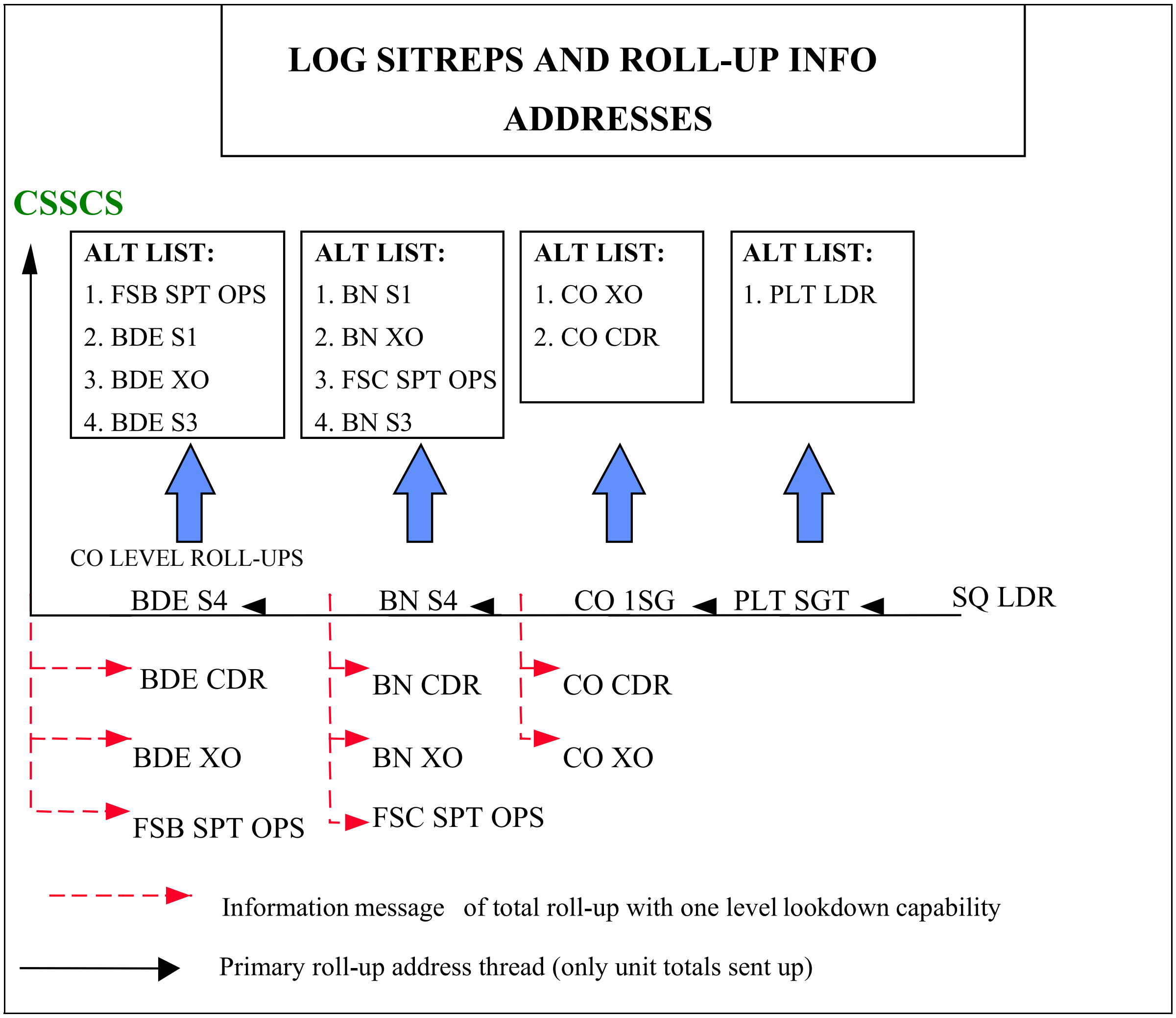


Figure 2-2. LOGSITREP Digital Report Flow

LOGISTICS CALL FOR SUPPORT

2-67. The purpose of this message is to request immediate CSS support. Any platform with an FBCB2 can request CSS support through the CFS message function. The CFS is a templated message and may be sent directly to the supporting logistics activity, but should be sent to the company first sergeant (1SG). This enables immediate support action on the battlefield, a combat multiplier. Any FBCB2 can send or receive a CFS message. The LOGSITREP reports on hand quantities of classes of supply. However, in the event that the support requirement was not or could not be anticipated, the company may specifically request support through this function.

2-68. The CFS is entered as a templated message and is sent, per unit standard operating procedure (SOP), to the supporting logistics organization that will provide the service or support. The FBCB2 system hosts six categories of CFS requests; maintenance, transportation, supply, medical, religious and others. Supply Actions include, Class I, III, IV, IX, laundry and bath, and mortuary affairs; Transportation Actions, pick up, deliver, and information; Maintenance Actions, repair, recover, services, and information; Medical Actions, evacuations, medic, Class VIII, and information; Religious Actions, worship, pastoral care, PW/refugee support, funeral services, memorial services, and information; Other, request not covered in the other 5 categories, sent in free text mode.

LOGISTICS TASK ORDER

2-69. Once the appropriate CSS activity receives the CFS, the CSS manager identifies the most appropriate CSS resource to execute the mission. The CSS manager (tasking authority) sends a LTO to the resource. This message is the same template as the CFS message, therefore, the requesting unit and its location are specified in the order. Once the CSS resource receives the message, the FBCB2 will prompt him to return an acknowledgment message (ACK) stating whether he can, can't, or already has executed the mission (WILCO, CANTCO, HAVECO). If the resource replies with a WILCO, he will also be prompted to send an acknowledgment message of IDLE or ACTIVE. This action specifies whether the resource is actively executing the mission or is working on another mission. Once the acknowledgments have been sent, the resource will conduct synchronization with the requesting unit by sending him a free text message stating that he is on the way, will be there, or at a rendezvous point by a specified time, what he understands the mission to be, etc.

PERSONNEL SITUATIONAL REPORT

2-70. The FBCB2 transmits personnel strength information through the PERSITREP. The PERSITREP is a CSS report submitted from platform level through the command hierarchy to brigade headquarters (HQ) level. FBCB2 users at platform level submit duty status changes through their 1SGs. The 1SG forwards these changes simultaneously to the battalion and brigade S1. The 1SG can also initiate a duty status change. The S1s update the duty status changes from FBCB2. The personnel functionality will be added into a future version of the CSSCS.

2-71. The PERSITREP provides commanders digitized updates to personnel status. The PERSITREP also provides changes to the deployed personnel database. When soldiers deploy, the brigade S1 manifests every deploying soldier. The S1 builds the deployed personnel database through the manifest process. This deployed database is the baseline of personnel deployed. The PERSITREP provides information to change the duty status of the deployed personnel. These changes update the deployed database. These updates give the S1 the capability to retrieve data that they previously required subordinate units to send through recurring reports.

2-72. The PERSITREP follows the NCO support chain. The 1SG receives copies of all reports as they are distributed to the battalion S1 and the brigade S1. All reports will follow the chain of command specified in the UTO. Key leaders receive copies of the PERSITREP as it is transmitted to the next higher echelon of command. For survivability of the reporting process, key personnel are identified to replace the primary recipients in case of operational failure.

2-73. The battalion and brigade S1 use the information provided through FBCB2 to update the deployed personnel database. This database provides commanders the latest information on their soldiers. It also allows the commander to monitor his personnel resources, assess his needs and allocate his resources to maximize combat power. The brigade S1 is responsible for monitoring the status of all personnel within the brigade area and will assign replacements based upon the commander’s priority of fill. When replacements arrive they report into the battalion S1 section and then immediately assigned to their unit. Each unit 1SG must assume responsibility or assign responsibility to specific platforms to report personnel not assigned to a specific vehicle with FBCB2. For example, headquarters section personnel not assigned to the 1SG vehicle (unit armored and unit supply sergeant). The 1SG must ensure each member within the unit is accounted by an FBCB2 platform. FBCB2 users at platform level submit duty status changes through their 1SGs. The 1SG conducts a rollup of the PERSITREP and forwards to battalion and brigade S1. Subsequent PERSITREPs should only reflect changes in duty status from individual platforms or in accordance with standard operating procedures. The 1SG can also initiate a duty status change

Supply Point and Field Services Status Report

2-74. The supply and field services status report is designed to support the customer with specific information on supply or field service being provided. The supply point and field service report can be used to report on the following: ambulance exchange point (AXP), caches, logistics release points (LRPs), ammunition supply point (ASP), ammunition transfer point (ATP), forward arming and refuel point (FARP), Class I, II, IIIP, IIIB, IV, V, VII, VIII, IX supply points, aviation refuel point, ground refuel point, trailer transfer points (TTPs), water supply point, salvage point, maintenance collection point (MCP), shower, laundry, clothing repair point, and mortuary affairs collection point (MACP). The report can either be broadcast as SA depicting opening/closing times, location, type of supplies or services available quantity of the type of logistics support being provided. Opening and closing times can be established which will aid both the customer and support operations in management of the supply point types. All direct support stock status will be reported via this report. The LOGSITREP will report organic stocks and supply point and field services status report will be used to provide status on direct support stocks of Class I and water, II, IIIP, IIIB, IV, V, VII, VIII, and IX. Management of supply point and field services status report icons are a responsibility of the owning unit and their respective support operations section at both the FSC and FSB.

SITUATIONAL AWARENESS

Overlays

2-75. The FBCB2 operator can gain situational awareness by activating the overlay feature of the FBCB2. The CSS overlay depicts the various CSS assets in the brigade sector. The overlay has icons depicting CSS assets (for example supply points, CSS CP, logistics release points (LRP)). The brigade S4 posts these points to the CSS overlay. Supply points send their locations to the brigade S4 with an information copy to the FSB support operations cell through free text message for posting or updating the CSS overlay. This feature significantly assists supported elements in locating key CSS supply activities during supply point distribution. It also assists the supporting CSS units in locating supported units when conducting unit distribution.

Icons

2-76. The FBCB2 operator can pick up visibility of assets within the brigade. These assets will automatically transmit position reports that will update each FBCB2 screen within his autonomous system. The updates are frequent and will maintain near real-time position awareness. This feature allows significant asset visibility of key CSS assets with FBCB2. Combat service support synchronization with the supported element will depend heavily on this feature of FBCB2. For example, if an M2A3 Bradley needs recovery, the driver submits a CFS through the platoon sergeant (PSG) and the 1SG. The CFS messaging will task a recovery vehicle (M88) to recover the track. If the M88 is FBCB2 equipped, the LTO message received identifies the platform requesting recovery. During the synchronization process, the M88 will send a free text message to the supported 1SG stating that it will conduct the recovery mission and will coordinate the most appropriate time to conduct the recovery mission. The M88 then identifies and selects the M2A3's icon on the situational awareness map on the screen. The M2A3 can do likewise to observe the supporting M88 as it approaches the M2A3. This feature prevents any confusion in locating the M2A3 and significantly increases the tempo of CSS support on the battlefield.

ARMY TACTICAL COMMAND AND CONTROL SYSTEM (ATCCS)

2-77. The ATCCS integrates five of the seven battlefield operating systems (BOS), maneuver, fire support (FS), air defense (AD), combat service support (CSS), and intelligence that the DISCOM/DSB/FSB/DASB has the capability to interface. Each of these functional areas is supported by a control system designed to provide leaders and planners with information to effectively plan, coordinate, control, and direct the battle. These BOS control systems are oriented toward combat operations and provide the commanders and staffs at corps and below with situational information and decision support in executing operational/tactical battle. A brief description of the various ATCCS listed in Figure 2-1 as part of the DISCOM automation architecture is discussed in this section.

MANEUVER CONTROL SYSTEM (MCS)

2-78. The MCS is the maneuver component of ATCCS. It is the primary information system supporting the BN/TF commander and staff. The MCS provides the principal operational interface with necessary applications to access and manipulate the force level database to realize the force level commander concept. There are a wide array of capabilities available, which make planning and executing a battle plan more efficient. Capabilities range from modifying UTOs to creating overlays. Commanders and staffs update the MCS database by entering readiness data, battle plans, and battle plan changes as they occur at each echelon.

2-79. The MCS system consists of window and menu-based software allowing system operators to process, retrieve, store, and send information in textual or graphical form. Reports, operation orders (OPORD), overlays, UTO, and messages are available to the user.

ALL SOURCE ANALYSIS SYSTEM-REMOTE WORKSTATION (ASAS-RWS)

2-80. The ASAS-RWS is a functionally integrated intelligence support system component of ATCCS. It manages sensors and other resources; collects, processes, and fuses intelligence data; stores, manipulates, and displays this data; and quickly disseminates information to the commander by providing situational awareness of enemy activity.

2-81. The ASAS-RWS supports the commander's decision-making process 24 hours a day whether on the battlefield or in rear support areas. It prioritizes and manages collection assets; processes, receives, and correlates data from strategic and tactical sensors and other sources to produce ground battle situation displays. The system then disseminates intelligence information to assist the commander in refining that guidance, aids in target development, and provides recommendations.

COMBAT SERVICE SUPPORT CONTROL SYSTEM (CSSCS)

2-82. The CSSCS is the CSS component of ATCCS. As this is the primary CSS tool used within the DISCOM, it will be discussed below in more detail. CSSCS provides a concise picture of unit requirements and support capabilities by collecting, processing, and displaying information on key items of supplies, services, and personnel that the commanders deem crucial to the success of an operation. The CSSCS does not duplicate STAMIS functions. The management of all items within a class of supply or support function remains STAMIS functions. Items tracked in CSSCS represent a small portion, but critical, list of the items managed by STAMIS.

2-83. The CSSCS also supports the decision making process with course of action (COA) analysis. Staffs can analyze up to three COAs for a 4-day period. Variables include combat posture, unit task organization, miles traveled, and geographical region.

2-84. The CSSCS maintains a database of unit personnel and equipment authorizations by standard requirement code (SRC) similar to table of organization and equipment (TOE) and unit and equipment planning factors. The CSSCS includes a database of equipment and personnel called a baseline resource item list (BRIL). The items that a commander identifies as critical to the operation can be selected from the BRIL to establish the commander's tracked item list (CTIL).

2-85. The CSSCS currently provides situation awareness of critical elements within supply Classes I, II/IV, III(B), III(P), V, VII, VIII and personnel strength management. Maintenance, transportation, and medical functionality are a few features to be added as the system matures.

2-86. The commander identifies a CSSCS plans and operations officer who is responsible for developing and coordinating the plan to establish the CSSCS nodes and network. The CSSCS plans and operations officer responsibilities include:

- Ensure that each echelon is resourced and trained properly to operate CSSCS.
- Coordinates acquisition of information to build the CSSCS database.
- Ensures that CSSCS operations are integrated into all OPLANS, OPORDS, and annexes.
- Ensures that TSOPs contain current CSSCS operations.
- Coordinates training and maintenance of CSSCS.

2-87. Some critical steps in establishing the CSSCS network and database are:

- Configure the unit task organization (UTO) IAW the current OPORD.
- Develop data flow diagrams and build message handling tables IAW the diagrams.

- Develop the commander's tracked item list (CTIL).
- Establish status threshold percentages.
- Determine and set support to supported relationships.
- Establish reporting procedures and schedules for the command.
- Establish continuity operations (CONOPS) pairing.

CSSCS DATA COLLECTION

2-88. Units supply status and requirements can be entered manually using standard input forms (screens) at the brigade S4, DSB, DASB, or FSB CSSCS terminal. Electronic interfaces to systems such as FBCB2 will greatly enhance the entry of unit data. The CSSCS tracks unit information down to the company level.

2-89. Battle loss spot reports are input to the CSSCS node at any level (brigade, division, or corps). Information is inputted either manually, as in the case of Class III, or by electronic transfer as when a STAMIS disk is downloaded into the CSSCS terminal. The CSSCS automatically updates the database.

2-90. The data is then distributed to other CSSCS nodes. The primary means of communication is MSE. The CSSCS nodes then manipulate the data through a series of algorithms that are based on Army planning factors, the specified task organization, and the established support relationships. This way, large quantities of data are presented in comprehensive, but useable, decision support information formats. This information is graphically portrayed to the commander through green, amber, red, and black bubble charts, situational awareness, subordinate unit locations, and supply point status. Status may be projected out to four days using a combination of planning factors and manually generated estimates. The commander and his staff can further evaluate simplified color status by accessing more detailed numerical data that supports the color status displayed.

2-91. At the brigade level, two CSSCS devices (or nodes) will exist. One is located in the brigade S1/S4 operational facility and the other in the FSB support operations section. The brigade node is the point of entry in CSSCS for all organizational level CSS status and requirements of the brigade and its subordinate units. The brigade S1/S4 can also view the status of its supporting FSB/DASB and higher echelon supply points. Through interfaces to the other ATCCS, a CSSCS node provides the brigade S1/S4 with the battlefield common picture.

2-92. The FSB, DASB, and DSB CSSCS node serves as the entry point for some supply point data that is not supported by a STAMIS and all organizational status of their elements. The FSB, DASB, and DSB use CSSCS to:

- Provide common relative picture for CSS.

- Identify CSS commanders logistic posture.
- Enhance C2, decision support, planning, and forecasting.
- Provide CSS status reports for item status, unit status, and supply point status.
- Track and anticipate customer logistics status and requirements.
- Track supply point status, issues, receipts, and dues-in of CTIL items.

UNIT TASK ORGANIZATION

2-93. Currently CSSCS functionality allows any CSSCS node to change the UTO. Therefore, it is critical that UTO changes be controlled. Generally, responsibility for UTO changes within CSSCS should rest with the G4 in coordination with the G3. However, with responsibility and command relationships for CSS units resting with the COSCOM, the corps G4 may request that the COSCOM G4 coordinate and make changes to the CSSCS UTO, with final approving authority resting with the corps G4. Within the Army tactical command and control system (ATCCS), the maneuver control system (MCS) is the system of record for the UTO. Once combat units have been task organized within MCS, CSSCS must task organize CSS units to support the mission. When CSS units have been tasked organized, and the organization approved by the corps G4, that information is provided to MCS, through the corps G3. The corps G3 is responsible for making changes to the MCS UTO and synchronization of the UTO within MCS.

2-94. The corps G4 is responsible for creating or changing the CSSCS UTO. There are two UTO messages created in CSSCS. The SYNCUTO message contains the complete UTO that is resident in the database where created. When it is posted, it overwrites all UTO data in the posting node. The CSS-022 message is the UTO update message that is created whenever a UTO change is made and saved and the user quits the process. When this message is received and posted to other CSSCS nodes it only writes the changes to the posting node.

2-95. If the UTO gets out of sync with the MCS UTO, reports within each of the systems (MCS and CSSCS) will not be the same, nor will they be easily reconciled. This causes confusion and creates problems for both the force commander and logistics officers, when attempting to answer questions or concerns of the commander.

2-96. Whenever the force echelon status report is calculated by CSSCS, it is based on the sum of all the unit requirements. This is called "roll-up". All CSSCS nodes must therefore use the same UTO. If CSSCS is to report the status for a force echelon, this status must be calculated based on the same underlying data at all nodes. The data for individual units and supply points must be the same, and the units must be rolled-up or summed the same way.

BASELINE RESOURCE ITEMS LIST (BRIL)

2-97. These items (approximately 3400) are contained in the CSSCS database, and allow commanders to select specific items they want CSSCS to track. However, CSSCS will only track a BRIL item if it is selected to a smaller list called the commander's tracked item list (CTIL). The BRIL is a list of items from the following:

- Class I/Water
- Class II Clothing/Equipment
- Class II Parts
- Class III POL
- Class IV (Under development)
- Class V Ammunition
- Class VI (Under development)
- Class VII Equipment
- Class VIII (Under development)
- Class IX Repair Parts
- Personnel

COMMANDERS TRACKED ITEMS LIST

2-98. The purpose of the CTIL is to list the items that the commander has determined to be the most critical to the performance of the unit's mission. These provide a view of the CSS situation. The more items that are selected to the CTIL, the more items CSSCS must track in its database. If too many items are selected, the system performance may be noticeably slower. The CSSCS sends, receives, and posts messages that include all of these items. To operate, it must calculate unit status for reports and messages, based on these CTIL items. Conversely, if the item is not selected to the CTIL, CSSCS will not track or report the item.

2-99. Only "global" and "local" CTIL items are tracked at a CSSCS node. Subordinate CTIL items are displayed as information only, and are not tracked by a higher echelon node, so they will not appear on reports for the higher echelon node.

2-100. The CSSCS reports allow several views of CTIL items. One view is "worst to best", and the other view is "alphabetical". However, if the CTIL list is large, it may become cumbersome to display all the items when attempting to brief the commander. For example, if the CTIL is large, 50 items or more, and contains multiple classes of supply, the commander may only be interested in ten (10) items. In this case, it will be necessary for you to assign an "alias" to the CTIL item. The alias can be formed by adding the numeral "1 through 10", or "a through j" in front of the CTIL nomenclature. This will cause those items to be displayed in order on the CSSCS item reports.

2-101. The CSSCS is designed as a C2 system to provide commanders with analysis and decision making capability. It will receive data feeds from the logistics STAMIS or the global combat service support-Army (GCSS-Army) system, SIDPERS (personnel), FBCB2, and TAMMIS (medical), to provide CTIL tracking and status updates.

INPUTS

2-102. The CSSCS provides for data input through electronic message, magnetic media, and manual input on CSSCS unit and supply point input forms through the CSSCS keyboard. Electronic data transfer is the routine means by which CSSCS users will receive resource data, however, in those instances where STAMIS data exchange may not be available, i.e., no STAMIS interface exists, the STAMIS device is inoperable, or when operational requirements dictate, manual data entry will be required.

- Class I and water. There is no CSSCS-STAMIS interface for Class I and water. These items are tracked at unit and supply point by manual input into CSSCS.
- Class II. The CSSCS divides and tracks Class II items as Class II clothing and equipment and Class II parts. The CSSCS receives Class II clothing and equipment data from the standard property book system-redesign (SPBS-R). It tracks this information at the unit level only. The CSSCS receives Class II parts information from the standard army retail supply system (SARSS), and tracks this information at the supply activity level only.
- Class III. The CSSCS divides and tracks Class III items as Class III (Bulk) and Class III (Packaged). There is no CSSCS-STAMIS interface for Class III Bulk. These items are tracked at unit and supply point by manual input into CSSCS. The CSSCS receives Class III Packaged information from SARSS and tracks this information at the supply activity level only.
- Class IV. Class IV is not currently tracked within CSSCS.
- Class V. The CSSCS receives Class V information from the standard Army ammunition system (SAAS). Class V is tracked by CSSCS at unit, ammunition transfer point (ATP), ammunition supply point (ASP), corps storage areas (CSA), and theater storage area (TSA).
- Class VI. Class VI is not currently tracked within CSSCS.
- Class VII. The CSSCS receives Class VII data from SPBS-R, and tracks this information at the unit level only. Class VII maintenance information is received from the standard Army maintenance system (SAMS).
- Class VIII. Class VIII is not currently tracked within CSSCS.

- Class IX. The CSSCS receives Class IX information from SARSS, and tracks this information at the supply activity level only.
- Personnel. The CSSCS receives personnel information from the standard installation/division personnel system (SIDPERS). The CSSCS tracks this information within the categories: personnel strength report, personnel daily summary, personnel supported summary, personnel projected gains, force echelon report, and critical military occupational specialty (MOS) report. At the current time the personnel function within CSSCS is undergoing minor revisions to include social security number level of detail.
- Battle Loss. The CSSCS produces battle loss reports that list reported CTIL item losses by unit or supply point. It displays losses by class of supply in six-hour increments, for losses that were reported before the established report cutoff date and time.

DATABASE RELATIONSHIP

2-103. Although asset data is collected in CSSCS by individual resource category, e.g. classes of supply and personnel, these resource categories do not stand alone in the CSSCS database. There is a database relationship that exists between certain classes of supply and personnel and must be a consideration in establishing and maintaining an accurate CSSCS database.

- Personnel to Class I and water. Since Class I and water status is calculated based on consumption factors, such as the individual daily feeding rate, it is necessary that an accurate personnel count exist in CSSCS before the system can determine Class I and water status.
- Class VII to Class V and Class III (B). This same type of relationship exists between Class VII (equipment), Class V (ammunition), and Class III Bulk (fuel). The CSSCS cannot accurately calculate unit fuel and ammunition requirements unless the equipment, e.g., tanks, trucks, aircraft, etc., being utilized, have been entered into the database. Obviously, it would be impossible for the system to tell you what your expected daily requirement for fuel and ammunition would be if the equipment does not exist in the database. Nor, could the CSSCS calculate what your fuel and ammunition consumption rates would be, as once again, the equipment intended to consume the fuel and ammunition does not exist in the database. Thus, it is necessary to enter and establish your Class VII database prior to establishing your Class V and Class III Bulk database.

REPORTS

2-104. As discussed in data collection and inputs, for almost every CSSCS input, there is a corresponding report. Simply put, inputs to

CSSCS, either manually through use of unit and supply point input forms, through an interface with a STAMIS, or received from other CSSCS nodes, reflect the raw numbers entered into the CSSCS database. The CSSCS uses this raw data to calculate outputs in the form of reports. Calculations within CSSCS are driven by a series of predefined logistical algorithms. These algorithms are unique to the individual resource tracked by CSSCS and include considerations such as current on-hand quantities, authorized quantities, daily requirements, consumption/usage/attrition factors, and battle losses.

2-105. After any new asset data is input to the CSSCS, the CSSCS must then recalculate these numbers to determine and identify the new current and projected unit strength, or status as it is referred to in CSSCS operations.

2-106. The CSSCS creates reports by "rolling up" unit and supply point data by force echelon and displaying in on a single report. A force echelon is defined as a brigade element or higher, i.e., division, or corps.

2-107. Reports are available for the classes of supply and personnel previously identified under data collection.

2-108. When reviewing CSSCS reports there are two important things to understand:

- Status (reflected as gumballs color coded as either green, amber, red, or black), is calculated based on requirements. In current operations, CSSCS does not take combat posture or intensity into account when determining status or consumption rates. The capability to reflect combat posture in current operations is provided for information only. Only in the course of action analysis (logistics planning) process are these postures taken into account for affecting consumption rates.
- Subordinate units are identified to CSSCS by the CSSCS UTO only, and not by any other doctrinal UTO or garrison UTO. When units are attached, detached, OPCON, etc. in the CSSCS UTO, this dictates who is subordinate to whom. When collecting and compiling reports, CSSCS looks to the CSSCS UTO to identify who is the senior element and who are the subordinate units. If the CSSCS UTO has been changed erroneously, or a unit is misplaced in the CSSCS UTO, this will affect the force echelon's status.

2-109. Corps reports are complied by collecting all subordinate unit data, which includes division, and below.

COURSE OF ACTION ANALYSIS (COA)

2-110. The CSSCS has a requirement to provide a force level logistics planning capability to evaluate the supportability and sustainability of proposed mission courses of action. This capability is identified as course of action analysis (COA) in CSSCS and has been partially implemented. New releases of CSSCS software should be checked for improvements and fixes to COA. Users should check the validity of COA results before using them for planning.

2-111. The COA function relies on the current data in the system's operational database and the application of user defined factors and parameters to conduct its analysis. The COA analysis utilizes approved attrition factors, consumption rates, and user-defined parameters, such as task organization, geographical area, combat posture and intensity, and distances to be traveled. Three COAs for a five-day period can be simultaneously assessed and compared.

2-112. The COA function produces two primary system reports to assist the decision support process. They are the COA analysis report and COA comparison report.

2-113. The COA analysis report lets you conduct an analysis for each day of the 5-day period to evaluate the projected status of Class III, V, and VII assets, and an overall daily status. The report also shows a readiness color code and a commander's evaluation for each day of the analysis. You can peel back selected fields of the report to obtain more detailed information to assist you in deciding whether to accept the system's evaluation or change the commander's evaluation.

2-114. The COA comparison report captures the data presented in the analysis reports for up to three COAs and presents them in a comparative format. As with the analysis report, you can peel back selected fields to get more information and change the commander's evaluation.

CSSCS INTERFACES

2-115. All CSSCS nodes will be able to interface with all other CSSCS devices and are also able to interface with other ATCCS. The CSSCS may connect to FBCB2 via LAN at the brigade S1/S4 level. The FBCB2 will serve as a data source for CSSCS by passing aggregate data (LOGSITREP and PERSITREP) that has been rolled up from squad/section, platoon, and company. The LOGSITREP includes roll-ups of Classes I, III(P), III(B), IV, V, VII, and VIII. Class VII data also includes non-mission capable information. The CSSCS consolidates battalion data selected by the commander on the CTIL, up to 120 items. The CSSCS reports to higher HQ and then provides lower echelons the location of supply points via FBCB2. The FBCB2 transmits personnel strength information by officer/warrant officer/enlisted through the PERSITREP. This information is rolled up from platform through battalion to brigade S1 where it may be entered directly into CSSCS. The CSSCS uses this information to update its database on those personnel categories listed on the CTIL. The CSSCS updates supply point locations whenever supply points move in an electronic map overlay format and passes it down to platform level via FBCB2.

2-116. Figure 2-3 depicts the CSSCS to BFA interfaces, and identifies the type of messages that are exchanged between these systems.

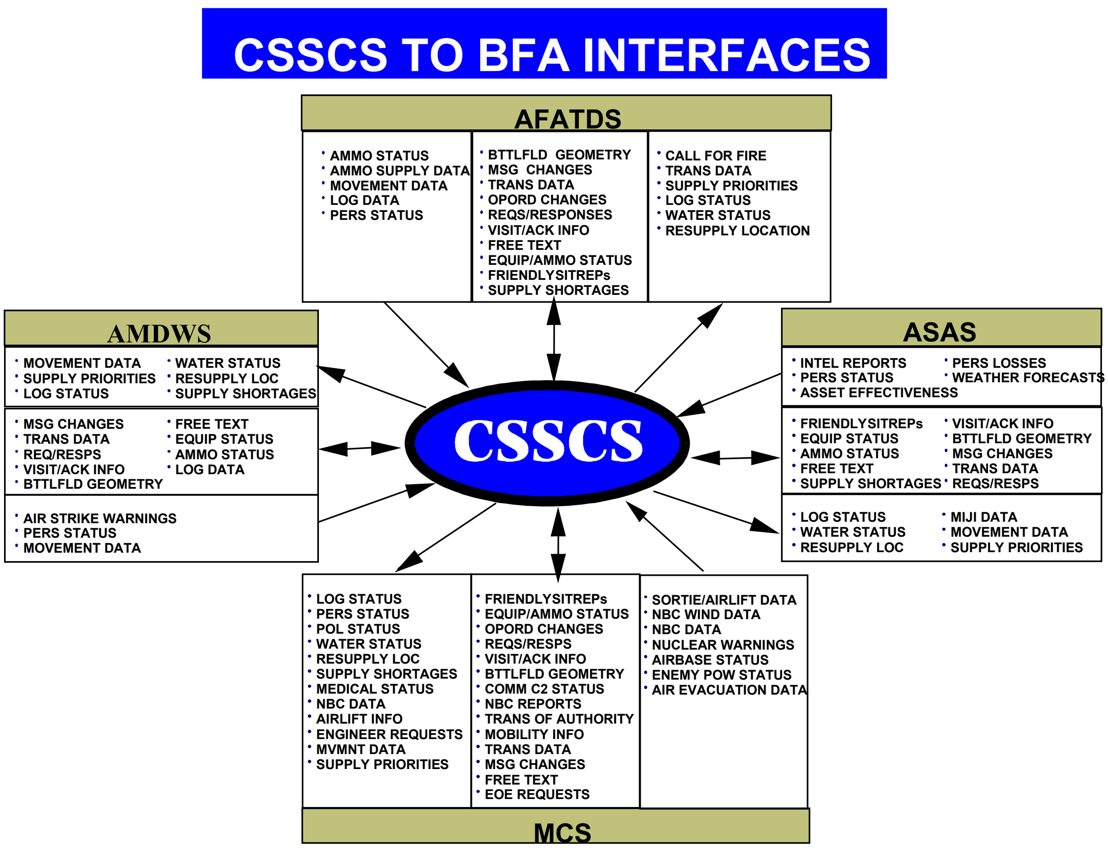


Figure 2-3. CSSCS Interfaces with Battlefield Functional Area (BFA) Systems.

2-117. Figure 2-4 depicts current CSSCS to STAMIS interfaces, and identifies the data elements that are exchanged between CSSCS and the STAMIS. Work is currently progressing on the development of the global combat service support-Army (GCSS-Army) system. This will be the single system that will integrate and replace the current separate logistics STAMIS, with the exception of SIDPERS and TAMMIS.

CSSCS to STAMIS Interfaces

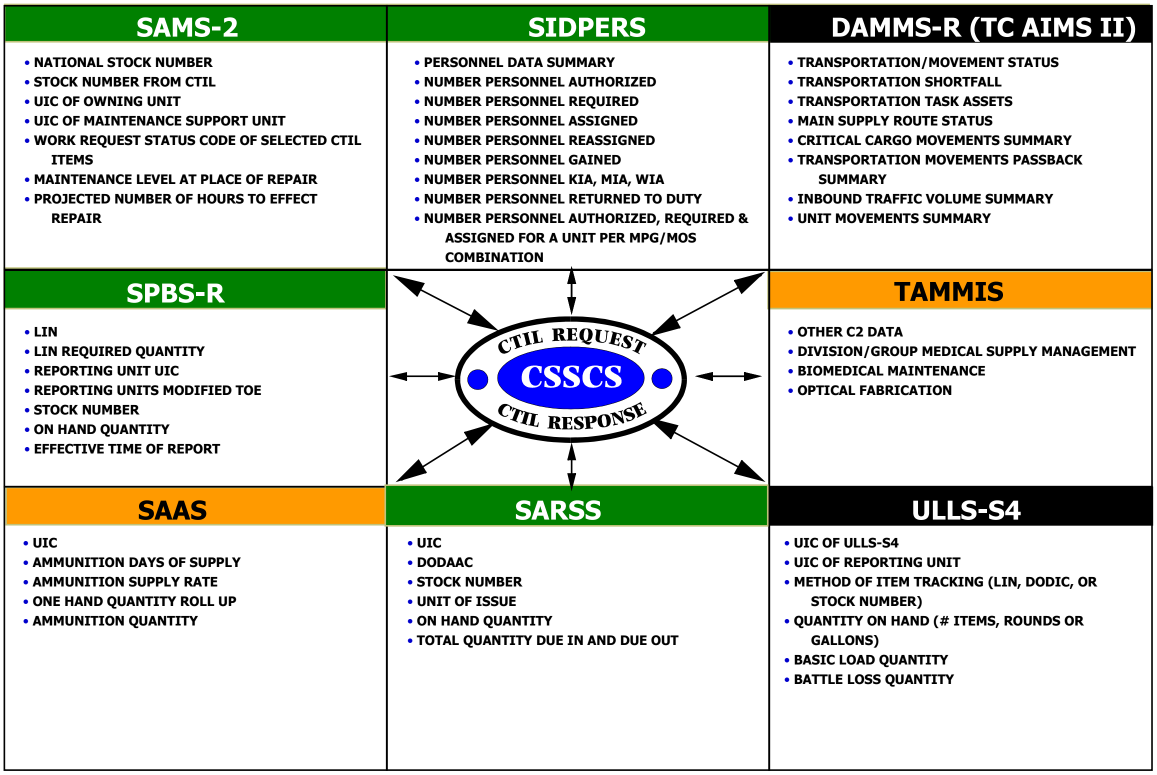


Figure 2-4. CSSCS to STAMIS Interfaces.

Chapter 3

Missions, Functions, And Organizations Of The DISCOM

OVERVIEW

3-1. The DISCOM commander is the division commander's senior battle logistician and serves as the single CSS operator for support to the division. His battle staff monitors and manages sustainment operations through an array of digital information systems and other technological innovations. See Figure 3-1 for the organization of the DISCOM HHC. The DISCOM commander advises the assistant division commander (support) (ADC(S), the division commander (as required), and the division staff on those CSS matters pertaining to division operations. The DISCOM commander normally receives guidance and direction from the division commander through the ADC(S).

3-2. The responsibility for CSS planning belongs to the division G4 staff. The DISCOM commander is tasked by the division commander to evaluate the CSS viability of future division courses of action. The DISCOM commander tasks and provides guidance to the DISCOM staff. The staff gives the alternatives and preferred solutions to the DISCOM commander for a decision.

3-3. The DISCOM has the following responsibilities and functions:

- Conducts continuous logistics preparation of the battlefield.
- Commands and controls organic and attached units of the DISCOM. It also monitors the operations of other units within its area of responsibility (AOR).
- Based on the tactical situation and CSS support requirements, the DISCOM may task the DSB, DASB, or FSBs to organize a tailored forward logistics element (FLE) to push critical supplies forward or rearward to a designated unit or location.
- Supervises and controls all division-level maintenance, materiel, and movement management operations within the division.
- Advises the ADC-S, division commander, and division staff concerning supply, maintenance, transportation, field services, and food service operations throughout the division.
- Monitors operations to determine the proficiency of the DISCOM and attached units in the field.
- Organizes and synchronizes the movements of subordinate units within the DSA in accordance with tactical plans. This function requires coordination with the rear operations center (ROC) concerning current and proposed locations and movement of all DISCOM and supported units.

- Trains personnel and units of the DISCOM.
- Coordinates and implements plans for assigned rear operations responsibilities in the DSA.
- Plans and executes augmentation procedures for subordinate units.

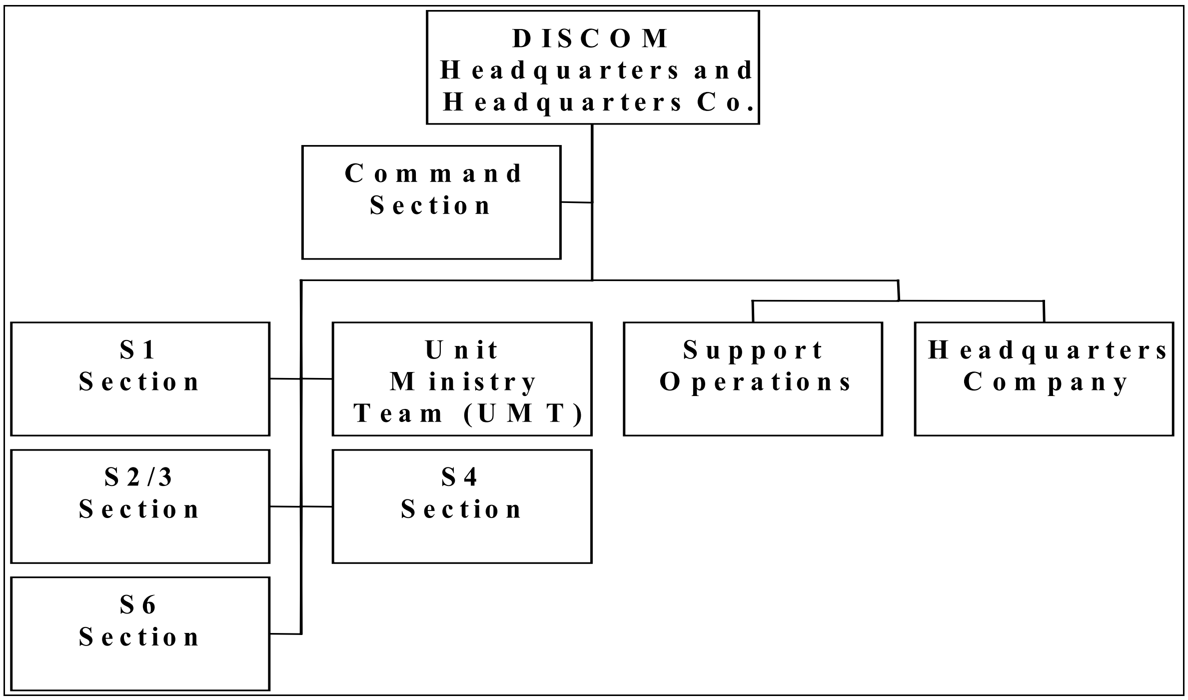


Figure 3-1. HHC DISCOM Organization

SUSTAINMENT CELL

3-4. The sustainment cell is one part of the division XXI main, which also consists of the mobility cell, targeting/fires cell, and information/intelligence/plans cell. The sustainment cell consists of several 5-ton expandable vans, which contain the key division and DISCOM staff CSS personnel, as well as the DISCOM commander. Figure 3-2 depicts how a sample sustainment cell will be organized.

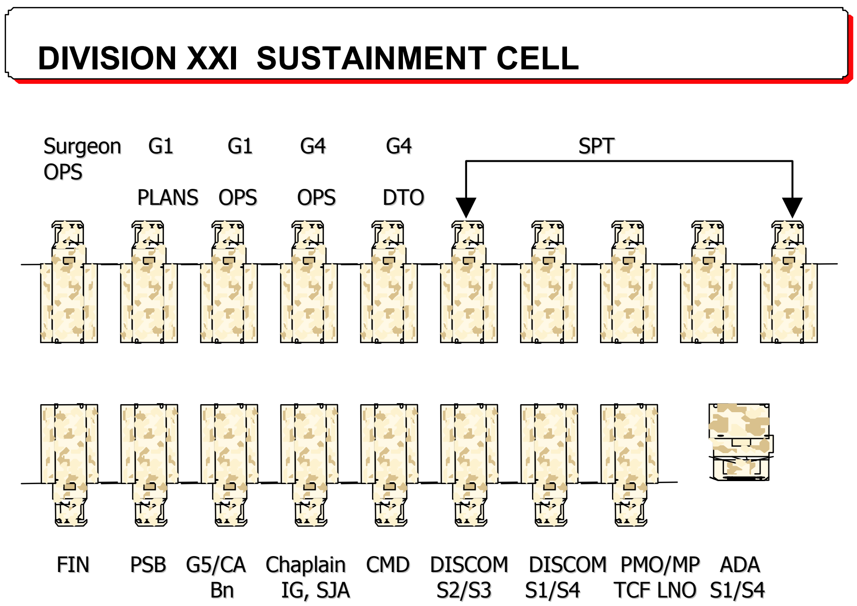


Figure 3-2. Sample Sustainment Cell Configuration

DISCOM COMMAND GROUP

COMMANDER

3-5. The DISCOM commander commands and controls organic and attached units of the DISCOM. He provides DISCOM elements with clear missions, taskings, and statement of his intent. He gives planning guidance to his staff. With information from his staff, he restates the mission in a clear, concise statement of tasks to be done and purpose to be achieved. He gives the staff specific COAs to pursue and directs his S2/S3 to issue the warning order to DISCOM elements.

3-6. The DISCOM commander is responsible for all training of DISCOM personnel and units. The DISCOM commander is the senior CSS operator for the division. Because of the wide range of skills found in the DISCOM and the need for expertise in training, certain division staff officers are responsible for technical training programs. These officers include the Gl/AG, division surgeon, and division chaplain.

3-7. In carrying out his CSS responsibilities, the DISCOM commander:

- Advises the division commander and staff concerning supply, maintenance, transportation, CHS, and field services.
- Supervises and controls division-level CSS and medical operations of the division.
- Coordinates CSS operations and movements with the ROC and the division staff.
- Conducts inspections to determine the ability of the DISCOM and attached CSS units to function in the field.
- Complies with applicable joint, combined, and host nation support (HNS) agreements and commitments.

EXECUTIVE OFFICER

3-8. The executive officer is the principal assistant and advisor to the DISCOM commander. His functions are similar to those of a chief of staff (C of S) as outlined in FM 5-20 and 6-99 (101-5), Staff and Organization and Operations. He should understand the support the non-CSS functions of the DISCOM. He supervises the DISCOM staff and coordinates assigned missions with subordinate unit commanders. In accordance with command directives, he formulates staff operating policies. He also oversees the maintenance of the master policy file and supervises sustainment cell operations.

3-9. The duties of the DISCOM XO include:

- Coordinates staff planning and response to the DISCOM commander’s guidance.
- Disseminates time analysis limitations to all staff sections.
- Supervises battle staff mission analysis process.
- Develops, approves, and monitors battle staff operating policies.
- Responsible to oversee coordination of information manager responsibilities for the battle staff.

COMMAND SERGEANT MAJOR

3-10. The command sergeant major (CSM) is the principal enlisted advisor to the DISCOM commander on all matters pertaining to the enlisted members and their families. He is a personal battle staff member whose general duties and responsibilities pertain to all levels of the command. The CSM serves as the senior enlisted representative for the DISCOM and provides the DISCOM commander information on the status of enlisted matters. As an extension of the eyes and ears of the DISCOM commander, he maintains frequent contact with his subordinate units and monitors the espirit of the DISCOM.

3-11. The duties of the command sergeant major includes:

- Serves as the DISCOM commander's principal enlisted assistant.
- Maintains liaison with the division command sergeant major.
- Provides the DISCOM commander on the status of enlisted matters.
- Ensures the health, morale, and welfare of the DISCOM.
- Serves as the DISCOM's senior enlisted master trainer. The CSM is critical to identifying training requirements for individuals, crews, battle staff, units and leaders. The CSM ensures training solutions are resourced, executed, and assessed to satisfy mission essential task list (METL) and battle tasks.
- Ensures that new soldiers/leaders replacement training is conducted.
- Ensures training and development of first sergeants, battle staff NCOs, and platoon sergeants within the battalion.
- Emphasizes and follows through to ensure soldiers are trained in field crafts (command post setup, field sanitation, erect field tents, etc…).
- Emphasizes and follows through to ensure soldiers are trained in force protection, including marksmanship, fortifications, convoy operations, NBC, and combat lifesaver.
- Demonstrates expertise in operation of DISCOM equipment such as weapons, vehicles, generators, communications, and automation.
- Understands ongoing missions of his unit(s) and supported headquarters.
- Engaged in medical evacuation and mortuary affair operations.
- Helps identify and resolves any battle field sustainment problems.

S1 SECTION

3-12. This section provides and coordinates personnel service support for the command. Support from organic assets includes limited personnel and administrative services and legal service support. Coordination with division and corps assets provides additional personnel & administration (P&A) and legal support as well as finance support. Postal services, morale and welfare activities support, and public affairs support are also provided. The S1 must work in conjunction with the S3, S4, support operations and database. The S1 section responsibilities include:

- Conducting continuous logistics preparation of the battlefield.
- Preparing the DISCOM personnel estimate.
- Preparing casualty reports.
- Conducting replacement operations.
- Developing DISCOM personnel-related procedures for reconstitution.
- Processing personnel actions and reports.
- Establishing and operating the enemy prisoners of war (EPW) system within the DISCOM.
- Maintaining duty rosters.
- Monitoring legal support functions.
- Controlling the administrative publication and the distribution of orders, directives, and forms originating at the DISCOM level.
- Maintaining close coordination with the medical operations branch, the weapon system manager (WSM), and the DISCOM S4.
- Preparing a section SOP and S1 portion of the tactical SOP, operation plan/operation orders(s) OPLAN/OPORDs.
- Gather, input, and maintain personnel data in the CSSCS database.
- Establish the DISCOM personnel CTIL.
- Validate the CSSCS personnel data for all DISCOM units.
- Set status thresholds for personnel.

S2/S3 SECTION

3-13. The S2/S3 is the principal staff advisor to the DISCOM commander on military intelligence and counterintelligence, organization, training, and NBC matters.

PLANS/INTELLIGENCE BRANCH

3-14. The plans/intelligence branch has the following responsibilities and functions:

- Conducts continuous logistics preparation of the battlefield.
- Assists the commander in areas of intelligence, operations security, nuclear biological chemical (NBC) defense, smoke operations, rear operations, plans and orders, air defense, and defense against unconventional and psychological warfare operations.

- Determines DISCOM unit readiness and mission capability.
- Prepares current and long-range contingency plans.
- Develops intelligence estimates.
- Develops, in coordination with the division main CP and ROC, requirements for intelligence, NBC, smoke, civil-military affairs, movement, air defense, engineering, security, aviation support, and unit augmentation.
- Coordinates, plans, and requests, fire support requirements with the division ROC.
- Develops, coordinates, and integrates defense plans for all units located in the DSA with the ROC.
- Monitors and updates intelligence information.
- Maintains in coordination with other staff elements, CSS and tactical status, situation maps, reports, and journals.
- Recommends task organization in coordination with the division support operations.
- Monitors unit locations and coordinates relocation of DSA or subordinate units out of the DSA with the ROC.
- Develops plans for the collection and dissemination of intelligence information.
- Conducts reconnaissance for DISCOM or for unit movement.
- Coordinates counterintelligence with operations cell of the division main CP.
- Coordinates unit movement with higher HQ staff, adjacent and subordinate units, and other units in the division's area of operations.
- Prepares, coordinates, and authenticates operation estimates, OPLAN/OPORDs, annexes, and DISCOM SOPs.
- Coordinates operations security (OPSEC) program.
- Plans physical security and CP access.
- Coordinates enemy prisoner of war (EPW) collection point operations with the G1 and provost marshal (PM) representatives at the division main CP.
- Coordinates and maintains LOC with all units in the DSA for rear operations.
- Plans, coordinates, and monitors DISCOM participation in civil-affairs (CA) activities.
- Orders, receives, stores, and distributes classified maps to subordinate units.
- Validate the CSSCS unit task organization to ensure that it reflects the current organization IAW the existing OPLAN/OPORD.

S4 SECTION

3-15. This section is responsible for all CSS matters pertaining to DISCOM units but is not concerned with division level CSS. The S4 section has the following responsibilities and functions:

- Conducts continous logistics preparation of the battlefield.
- Reviews internal CSS status reports.
- Maintains the current status of the commander's critical list.
- Coordinates transportation requests for administrative moves.
- Submits requests for highway clearances.
- Assigns technical supervision over internal supply and maintenance procedures.
- Provides staff supervision and overall coordination for the DISCOM food service program.
- Monitors supply economy in subordinate units.
- Perform functions as the CSSCS manager and is responsible for ensuring that all tasks outlined in the CSSCS section of Appendix A are accomplished through the DISCOM. He must work in conjunction with the S3, support operations and signal officers to establish, validate, and manage the CSSCS network and database.
- Validate unit/organic data entered into the system.
- Establish the DISCOM CTIL to track unit items of interest to the commander.
- Validate message handling table routing of unit status messages.
- Establish and validate status thresholds for unit supplies.
- Establish reporting times for subordinate units.
- Establish and validate continuity operations (CONOPS) pairing IAW guidance from the Division G4.

Division Food Service Section

3-16. This section is located in the DISCOM S4 for administrative purposes. The division food service section plans and conducts the Army food service program (AFSP) within the division. It provides technical advice on matters for the establishment of field messing facilities and food preparation. It coordinates with the general supply section in regards to storage and disposal of food items and coordination with veterinarians for the inspection of rations.

S6 SECTION

3-17. The communication-electronics (C-E) officer is the coordinating staff officer responsible for coordinating for the external support and managing the communication assets in the DISCOM. He advises the commander and staff on all signal functions. He works closely with the XO/S3 in determining communications training and maintenance requirements. He interacts with the S3 and other staff officers to determine the communications requirements of the force. Other duties include:

- Conducts continuous logistics preparation of the battlefield.
- Provides technical staff supervision over signal support operations within the DISCOM.
- Exercises staff supervision of all communication assets assigned or attached to the DISCOM.
- Identifies signal support needs to support the commander's mission and intent.
- Coordinates with the S3 in selection of future sustainment cell locations to determine the ability to provide uninterrupted signal support.
- Works with the S3 to determine manipulative communications deception plans and tactical electronic counter-counter measures (ECCM).
- Troubleshoots communications equipment or system problems and ensures necessary repairs and installations occur as required.
- Coordinates all tasks normally associated with information technology operations ranging from passwords, anti virus software and CSS network management.
- The S6 is also responsible to ensure installation and proper operation of local area networks.
- He is responsible for determining requirements and exercising staff supervision over communications services related to DISCOM operations.
- Advises the commander, staff, and subordinate units on all communications and AIS system matters.
- Performs CSSCS network management functions.
- Works closely with the CSSAMO to resolve software application problems with CSSCS.

SUPPORT OPERATIONS OFFICE

3-18. The organization of the division support operations office is shown in Figure 3-3. The division support operations office includes the following sections:

- Maintenance management office.
- Distribution management center.
- CSS automation management officer (AMO).
- General supply office.
- Property book office (PBO) Class VII.

- Movement control office.

3-19. The mission of the support operations office is to provide division units with centralized, integrated and automated command, control, and planning for all logistical distribution management operations within the division. The support operations section ensures that supply, maintenance, transportation, and field services resources are used efficiently and effectively. The support operation office also provides management support and direction to DISCOM assets responsible for providing CSS. The support operations section will gather, input, and maintain supply point CSS data in the system. The section must also conduct the daily SAMS-2 and SARSS download to CSSCS. Management includes planning, coordinating, and controlling the allocation and use of available resources to fulfill the DISCOM commander's CSS requirements. The DISCOM commander is charged with providing CSS direction for the division. The division support operations office is responsible for the following:

- Conducts continuous logistics preparation of the battlefield.
- Develops administrative plans and coordinates CSS plans.
- Recommends priorities for allocating critical resources.
- Anticipates future logistical requirements through improved situatonal understanding.
- Maintains coordination with reinforcing maintenance units.
- Advises the DISCOM commander on problems affecting supply, maintenance, transportation, and field service operations.
- Recommends to the DISCOM S2/S3 the future allocation and location of CSS elements.
- Controls, through the MCO, the commitments of the transportation motor transport task vehicles for CSS within the division.
- Ensures that supply, maintenance, transportation, and field service SOPs are established.
- Ensures established movement priorities are followed.
- Plans, coordinates, and evaluates supply, maintenance, and field service operations.
- Prepares appropriate supply, maintenance, and field service directives. It also prepares operating orders for DISCOM elements based on information received from the DISCOM S2/S3.
- Coordinates, monitors, and informs division elements and attached units of the location of DISCOM supply points.
- Coordinates closely and parallel plans with the G4 CSS planner.

- Determines requirements for the development and technical supervision of division ASL. Requirements are determined in accordance with AR 710-2, Supply Policy Below the Wholesale Level, associated pamphlets, and automated systems user manuals.
- Manages the division master property records. It establishes and maintains a centralized division property book for all divisional units.
- Manages maintenance workload of corps reinforcing units and maintenance support teams (MST)s in support of the division, when located in the division area.
- Manages the automated supply processes performed by DSU’s and GSO branches.
- Manages weapon system replacement operations (WSRO) within the division.
- Prepares or reviews and approves detailed plans and policies for supply and maintenance operations from a management point of view. This is done based on guidance received from the DISCOM commander and the division G4.
- Maintains, with automated data processing (ADP) support, the division materiel management status profile.
- Advises the commander on the status of maintenance and repair parts.
- Works in conjunction with the S1, S3, S4 and S6 to establish, validate and manage the CSSCS network and database.
- Validates direct support supply point and maintenance data entered into the system.
- Ensures that subordinate units conduct the daily SAMS-2 and SARSS download to CSSCS to capture maintenance and Class IX data.
- Establishes the DISCOM CTIL to track supply point items of interest to the commander.
- Validates message handling table routing of supply point items.
- Establishes reporting items for subordinate direct support units.
- Validates support to supported relationships to reflect which supply points support which units.

3-20. Figure 3-3 depicts how the division support operations is organized.

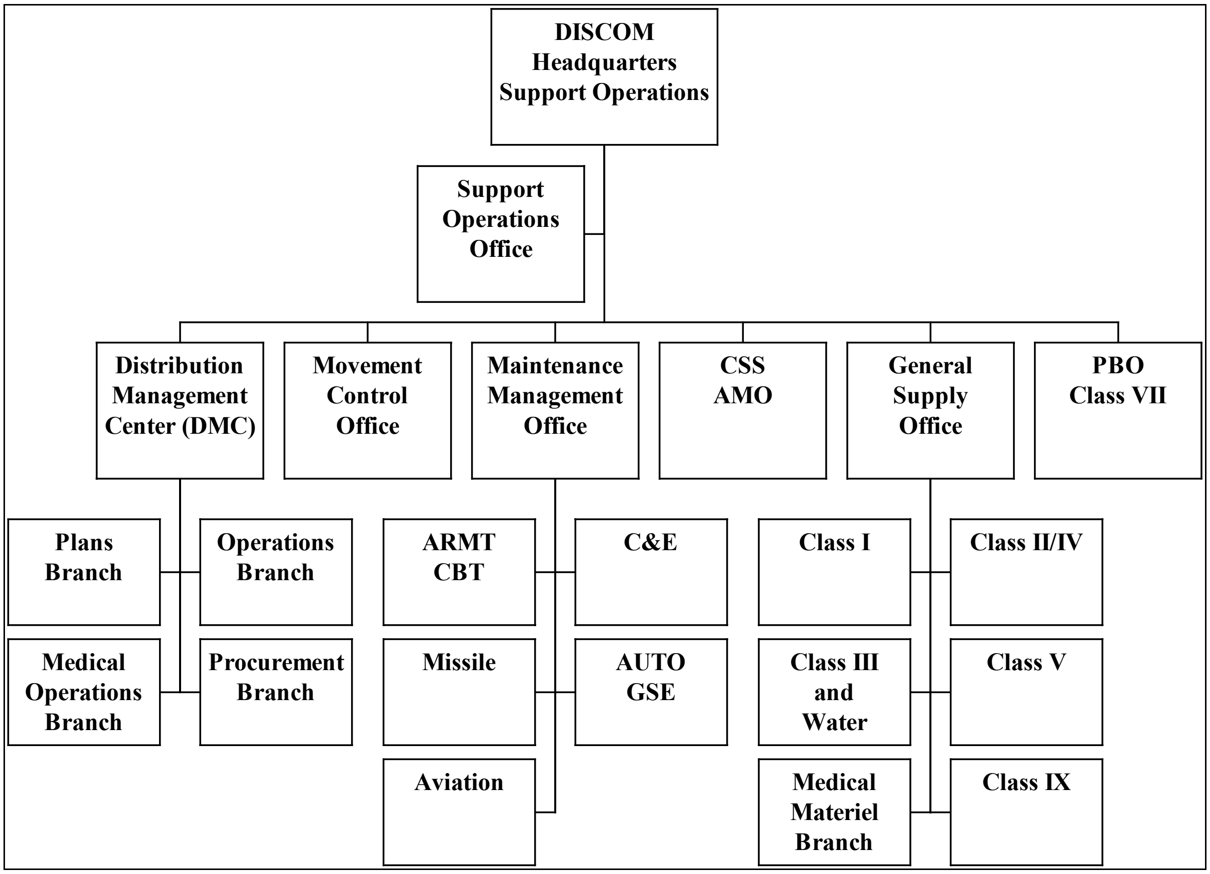


Figure 3-3. Division Support Operations Section

DISTRIBUTION MANAGEMENT CENTER

3-21. The DMC has four branches; plans branch, operations branch, procurement branch, and medical operations branch. The DMC provides the division support operations the overall total asset visibility and the intransit visibility of all commodities, movements and units within, assigned or inbound to the division area of operations. Focus of the section is establishing a "fusion center" to collect, collate, and analyze TAV/ITV distribution information for the DISCOM commander. This office develops the distribution support plans for current and future operations; it also exercises directive authority over subordinate DISCOM units during the performance of divisional distribution support operations. This section performs the management functions associated with tasking control for external distribution support operations. It recommends task organization within the division structure and incorporates non-divisional support assets into the support plan. It incorporates all technologies and automation, combat unit requirements, unit historical data, current/future division CSS posture, mobility data, and commander's guidance into the development of the support plan. All support operations will channel information to this section to improve the total distribution "pipeline" visibility. The primary responsibilities of this section include:

- Serves as the focal point for centralized distribution management.
- Forecasts the division distribution picture.
- Maintains the total asset visibility and intransit visibility of all commodities within the division area.
- Plans and controls divisional CSS transportation assets in coordination with the division transportation office.
- Synchronizes materiel and movement with EAD.
- Briefs the DISCOM commander on CHS planning and operations as required.
- Provides current information that will assist the DSS with development of staff estimates and the division CHS plan.
- Coordinates the attachment of corps medical unit/elements with DISCOM units.
- Provides information to the DSS on the DISCOM commander's intent for CSS operations.
- Coordinates division CHS plan with all DISCOM staff elements.
- Coordinates operations information with the DSS and makes recommendations to ensure synchronization of CHS activities in support of the division.
- Ensures CHS information from the DSS is staffed to all DISCOM elements in timely manner.
- Coordinates with brigade surgeon's section, as required, for synchronization of division CHS.

Plans Branch

3-22. This branch develops plans for providing field services support to all division soldiers. The branch recommends allocations and priorities for DISCOM units engaged in field services functions. The branch develops personnel and equipment requirements data and recommends changes to the troop basis and modification of field services unit MTOE's. The branch develops the battlefield distribution scheme for the division in concert with EAD supporting units and subordinate units. The branch identifies required resources for an effective battlefield distribution program. The branch identifies and recommends future disposition of distribution assets to satisfy tactical commander's concept of operations and the DISCOM commander's concept of support.

Operations Branch

3-23. This branch exercises directive authority over subordinate DISCOM units during the performance of divisional support operations. This branch performs the management functions associated with tasking control for external support operations. It recommends task organization within the division structure and incorporates non-divisional support assets into the support plan. It incorporates all technologies and automation, combat unit requirements, unit historical data, current/future division CSS posture, mobility data, and commander's guidance into the development of the support plan.

Medical Operations Branch

3-24. The primary responsibility of the medical operations branch is to assist with synchronization of the division CHS plan. The medical operations branch works with the DSS and the DISCOM staff in assisting with the development of the division CHS plan. This medical operations branch briefs the DISCOM commander and staff on CHS initiatives, as required. The medical operations branch and the DSS plan and coordinated for the employment of division medical assets and relocation of DISCOM CHS elements. The medical operations branch coordinates and synchronizes the division CHS plan. This medical operations branch collects medical information of intelligence value from reporting medical assets and forwards it to the appropriate division and DISCOM staff elements. The medical operations branch coordinates the placement of direct support corps medical assets with supported DISCOM units, either in the DSA or BSAs. The medical operations branch is responsible for:

- Briefing the DISCOM commander on CHS planning and operations required.
- Providing current information that will assist the DSS with development of staff estimates and the division CHS plan.
- Coordinating the attachment of corps medical unit/elements with DISCOM units.
- Providing information to the DSS on the DISCOM commander's intent for CSS operations.
- Coordinating division CHS plan with all DISCOM staff elements.
- Coordinating operations information with the DSS and making recommendations to ensure synchronization of CHS activities in support of the division.
- Ensuring CHS information from the DSS is staffed to all DISCOM elements in a timely manner.
- Coordinating with brigade surgeons' section, as required, for synchronization of division CHS.

3-25. The plans and operations officer assists the DSS with developing and coordinating the division CHS plan. He monitors and tracks CHS operations and updates the DISCOM commander and staff elements and the DSS. He coordinates with division C2 elements to ensure task organization for mission accomplishment. This officer is assigned to the division support operations section. The medical operation NCO assists the plans and operations officer in accomplishing his duties.

Procurement Branch

3-26. This branch identifies contracting sources, which contribute to improved division sustainment. The branch identifies supported unit requirements, which can be best satisfied by contacting. They coordinate with higher headquarters contracting organization to ensure efficient use of contracting. The branch monitors contracting effectiveness and contract execution. The branch may appoint with the battalion commander's approval ordering officials at subordinate battalions. The branch uses monetary limitations and restrictions on types of goods or services to control ordering officers. Only warranted contracting officers can legally obligate the government to pay for goods and services. The acquisition method depends upon the dollar amount and complexity of the acquisition. Prior to deployment, the branch has the following responsibilities:

- Coordinates with CA elements to acquire and update contingency contracting kit materials, to include maps, telephone books, and other documents.
- Validate with the COSCOM support operations office those items of supply or required services authorized by the corps G4 to be obtained by contract.
- Determine the need for and nominate ordering officers for appointment.
- Receive from units validated purchase requests.

MOVEMENT CONTROL OFFICE

3-27. The MCO controls the employment of DISCOM CSS surface and allocated air movement assets, maintains total asset visibility of all commodities, movements, and units inbound, outbound, and operating within the division area. These assets include the DSB transportation motor transport company and other surface assets, and air assets allocated by the division for CSS operations. He also has access, through the division transportation officer, to corps CSS transportation assets. The MCO's functions include the following:

- Coordinates the consolidated shipments of materiel to subordinate DISCOM units and other divisional units as required.

- Monitors all inbound and outbound clearance through automated movement control links with the DTO and movement control teams (MCT).
- Controls the division first-destination reporting point.
- Maintains the status of main supply route (MSR) conditions and coordinates with the DTO to COSCOM movement control team support.
- Controls commitment of the DSB TMT company task vehicles for CSS within the division. This requires close coordination with the DSB support operations, which receives commitments from the MCO and passes them to the motor transport company.
- Maintains current data on the status of transportation assets committed to meet existing CSS requirements. Develops and publishes, in accordance with COSCOM support operations office, division movement program.
- Ensures that established movement priorities are followed. When transportation requirements exceed capabilities, the MCO submits a request to the DTO for additional capability. The DTO requests additional capability from the COSCOM support operations office. However, if the corps cannot provide the required support, or if transport capability exceeds the receiving unit's off-load capability, the MCO may request from the DTO a reevaluation of priorities from the division G3 and G4.
- Coordinates, as appropriate, arrival of personnel replacements and resupply movements with the FSB, DSB, DASB, the receiving organization, and other units.
- Monitors the status of containers and military vans (MILVAN)s in the division area. The MCO coordinates with receiving units to ensure that the capability exists to unload and move the containers and MILVANs.
- Provides mobility intelligence data to the DISCOM S2/S3 and to the DTO. This data is usually obtained through contact with the transport mode operators.
- Provides contingency commitment of the DSB's vehicles for emergency evacuation or relocation of ATPs.
- Maintains automated transportation movement control, tracking and request systems with internal support battalions, division transportation office, and supporting movement control.

3-28. The precise control of movements for CSS is critical to any operation. Movement responsibilities within the division are stratified from the division HQ down to the FSB. The following explains the basic responsibilities within the division for movement planning and control:

- Division G4. Designates MSRs within the division and coordinates with corps for MSRs to support corps units.
- Division G3. Prioritizes the movements of units and assets along the MSRs to support the tactical plan.
- Division transportation officer. Provides staff supervision and assistance in transportation matters as they pertain to all modes of transport. Develops the movement plan for the operation. The movement plan orchestrates and sequences unit movements within the division area of operations to array the division to support the tactical plan. Gives broad policy guidance to the MCO. The DTO is also the link between the division and corps MCC for additional movement assets when movement's requirements within the division outstrip division assets.

COMBAT SERVICE SUPPORT AUTOMATION MANAGEMENT OFFICE

3-29. The CSS AMO provides customer support in operating and sustaining the Army's CSS standard Army management information systems and the combat service support control system. This includes support for all application software, limited hardware repair, monitoring user training programs, and new equipment fielding of STAMIS and CSSCS. The CSS AMO is responsible for the following tasks:

- Loads, reloads and copies software.
- Tests, loads, and copies system change packages.
- Tests, loads, and copies interim change packages.
- Restores, rebuilds, edits, and reconfigures corrupt files.
- Loads, reproduces, and maintains tape libraries.
- Provides, rebuilds, and reproduces catalogs.
- Develops temporary workarounds.
- Test user suggestions.
- Conducts customer assistance visits.
- Assists units during deployments.
- Task organizes resources to support deployments.
- Troubleshoots hardware/software problems.
- Maintains hard receipts and small computer exchange LRUs.
- Maintains stockage of PLL.

GENERAL SUPPLY OFFICE

3-31. This office coordinates and supervises the supply management for water, Classes I, II, III(B), III(P), IV, V, VIII, and IX supplies for the division. This section determines the requirements and recommends priorities for the allocation and other control of supplies. Provides advice on the receipt, storage and distribution of supplies within its area of responsibility. This office consist of a Class I branch, Class II/III(P)/IV branch, Class III(B) and water supply branch, Class V branch, Class VIII medical materiel management branch and Class IX branch.

3-32. Provides advice on the receipt, storage, and distribution of Classes I, II, III(B&P), IV, V, and IX supplies. It establishes and maintains files of all supply publications and regulations required support to the section activities. It develops a catalog research and retrieval service. It develops and maintains requirements for current and contingency operations. It also analyzes and assists in the development of the supply portion of operations or administrative orders.

Class I Supply Branch

3-33. The Class I supply branch performs stock control of Class I supplies and the free issue of health comfort packs. It also develops unit and division basic load data. The Class I supply branch plans and prepares for the procurement, receipt, accountability, storage, and issue of subsistence supplies. It plans, coordinates, and supervises the Army’s subsistence supply system and is accountable for all division Class I stocks.

Class II, III(P), & IV Supply Branch

3-34. The Class II, III(P), & IV supply branch performs automated stock control for expendable and durable division Class II (to include unclassified maps), III(P), and IV items stocked and supplied by the operating units of the DISCOM.

3-35. The allocation of unclassified maps is determined by the G3. The division support operations manages and consolidates requirements and places bulk orders for these maps. Unclassified maps are stored at the QM company, DSB, HSC DASB and HDC in the FSB. Units order maps from the DISCOM through their own unit ULLS-S4. The division support operations directs the distribution point to issue the ordered maps if the request meets division G2 requirements. The maps requested must have been identified by the G2 as authorized for the unit. The amount requested must not exceed the G2 established distribution scheme for that map. When units request maps that have not been allocated by the G2 or that exceed the G2 distribution scheme, they must get approval from the G2 prior to the division support operations taking action. Unclassified map requirements of the divisions are submitted to the COSCOM support operations via SARSS.

3-36. The Class II, III(P), & IV supply branch responsibilities include:

- Performs stock record functions pertaining to receipt, distribution, and issue of construction materials.

- Manages the supply or replacement of mission support items and division special project items.
- Manages map ASL requirements for contingency operations and for current operations.
- Coordinates resupply of industrial gases.
- Provides liaison with the map supply point in the DSB.
- Is responsible for defense personnel support center related supplies and the supply of unclassified maps.

CLASS III(B) AND WATER SUPPLY BRANCH

3-37. The Class III(B) and water supply branch controls and manages the supply of bulk fuel and water supply to division elements. It also determines requirements, recommends priorities, and manages allocations for bulk fuel.

3-38. Typically the branch:

- Directs the acquisition, storage, inspection, testing, issue, and distribution of bulk fuel.
- Directs preparation of reports and maintenance of records pertaining to bulk fuel accounting and distribution.
- Supervises the acquisition, storage, inspection, testing, issue, and distribution of water.

Class V Branch

3-39. The Class V supply branch maintains records of ammunition allocations, receipts, and quantities on hand at ATPs operations and expenditures for division units. It coordinates activities of division ATPs, and provides technical assistance and advice on ammunition management to division units. This includes the DS ammunition supply company ATP.

3-40. Class V is one of the most critical classes of supply. These supplies must be provided at the right time and the right place to enable the division to win the battle.

3-41. The Class V branch of the division support operation keeps records on ammunition so that Class V supplies will be available when and where needed. These records include allocations, credits, debits, and expenditures for all division units, including basic loads, training ammunition, controlled supply rate (CSR)s, required supply rate (RSR)s, and other necessary data.

3-42. The Class V supply branch is a continuous refill system. Stocks moved up from the rear area replace stocks issued to the user. This section maintains records of ammunition allocations, receipts, and expenditures for division units.

3-43. The Class V supply branch consists of a Class V supply section officer, also known as the division ammunition officer, an inspection section, an operations section, and an ATP section. The

Class V branch/division ammunition office has the following functions and responsibilities:

- The DAO is the division manager for ammunition and provides assistance in all matters pertaining to ammunition support to the division.
- The DAO coordinates and controls the use of Class V supplies for the division, monitors required supply rate, and enforces controlled supply rates.
- The inspection element advises the DAO on safety, serviceability, maintenance, and security of ammunition assets in the division.
- The inspection element monitors the division's activities to ensure proper and safe loading for movement of munitions and liaisons with explosive ordnance disposal (EOD) as required.
- The operations element provides technical advice and assistance on ammunition supply, transportation, handling and storage.
- The operations element maintains all ammunition stock records and supporting documentation and assists units in preparing forecasts.
- The ATP element coordinates the operation of the ATPs and controls the issue of ammunition in the BSA and DSA based on guidance from the DAO.
- The ATP NCOs ensure ATP operations are conducted according to SOPs, corps transportation assets are back-hauled on a timely basis, ammunition is accounted for at all times, and the TCMD is signed and properly distributed.

Medical Materiel Management Branch

3-44. The MMMB manages the Class VIII supply system in the division. The branch coordinates and recommends the prioritization of medical supplies and blood products. It also coordinates for the disposition of captured enemy medical materiel. Under the technical guidance of the health service materiel officer of the division surgeon's section, the medical materiel management branch monitors and coordinates Class VIII resupply for division medical units/elements. Using MC4, the MMMB monitors, via an information copy, all Class VIII requisitions submitted from the division to the supporting corps medical CSS company. The MMMB maintains a record of the requisition until it is filled. The MMMB coordinates shortfalls in throughput distribution with the DSS and division support operation section. The MMMB may update priorities with the MEDLOG company to correct deficiencies in the delivery system. The MMMB provides Class VIII situational understanding to the DISCOM staff and the DSS according to the tactical standing operating procedure (TSOP). The MMMB, in coordination with the CHL cell of the DSS, manages the distribution of blood and blood products for division medical units. It also coordinates through the DSS with the G5 for disposition of captured enemy medical materiel.

Class IX Branch

3-45. The Class IX branch manages Class IX supply functions, except medical and communications security (COMSEC). It designs and manages the overall ASL/PLL repair parts supply using SARSS as the STAMIS. The branch supervises the distribution and accountability of repair parts and maintenance-related items and assists in the development of wartime ASL load plans. This section is tailored to meet the management needs of maneuver brigades and division troops.

3-46. The maintenance management office receives all repair parts supply request from the DS units organic to the FSBs, the DSB, and the DASB. The section assigns control numbers to the documents and maintains registers of such documents. It receives all machine-produced outputs (printed listings or punch cards) for distribution to the office's branches and to the DSUs. It also provides catalog research and retrieval services (using CD ROM catalog data) and provides catalog changes to materiel managers.

PROPERTY BOOK OFFICE-CLASS VII

3-47. The property book/Class VII office supervises and controls all input and output from the automated process supporting the property book system. It also manages the Class VII items stocked and supplied by operating units of the DISCOM using SPBS-R as the STAMIS. It coordinates the supply transaction documents, verifies, records, processes data, and maintains the master hand receipts for the division property book.

3-48. This section receives supply transactions documents and verifies, records, and processes data for the division property book. It manages the hand-receipt accounts and processes reports of survey and statements of charges. It assists in equipment status reporting. It also manages division Class VII assets and Class II and IV non-expendable supplies. It provides input to the division support operations and the G4 for the development of Class VII requirements for contingency operations.

3-49. Property book teams receive, record, and verify data entered on supply transaction documents. They also manage the hand receipt documents for the division and process the unit request for issue and turn-in of organizational property. These teams process reports of survey, statements of charges, and similar documents.

MAINTENANCE MANAGEMENT OFFICE

3-50. This office manages maintenance for all items of materiel, less medical and COMSEC. This office supervises its branches in providing integrated materiel management on a materiel-systems basis using AR 750-1, Army materiel maintenance policies and DA PAM 738-750. The standard Army maintenance system (SAMS) is the automated tool manager's use to track maintenance actions.

3-51. Management is limited to maintenance functions that are generally external to the DSB, DASB, and FSBs. These include the monitoring of unit maintenance throughout the division. The office also collects, analyzes, and reports maintenance statistics and keeps records on the status of modification work orders (MWOs). It compiles reports of the operational status of division equipment and provides disposition instructions of unserviceable materiel.

3-52. One of its primary functions is to plan future maintenance requirements based on information from the DISCOM and division staffs. Maintenance management functions such as planning, scheduling, and supervising internal procedures and maintenance operations are the responsibility of the DSB, DASB, and FSBs.

3-53. The office uses the SAMS as a tool for developing data and reports for maintenance management. The SAMS includes a maintenance control system and MWO accounting procedures. Data to support the SAMS are provided from using organizations, maintenance units, and the US Army Materiel Command. The data is summarized and prepared in the form of reports. These reports are used for management purposes by supported units, maintenance unit commanders, the division support operations, and the DISCOM commander and staffs.

3-54. Each systems-oriented branch manages designated materiel systems end items and selected Class IX items that are critical or significant to the operational readiness of those systems. Each branch has the following responsibilities:

- Recommends maintenance data requirements and reports formats.
- Implements ADP collection procedures and supervises the operation of the maintenance reporting system.
- Analyzes data and reports (automated and manual). This is done to recognize trends, problem areas, and any other data that create a need for action by the maintenance units and staff elements.
- Compiles special reports on the status of division equipment.
- Assists in developing policies and plans for controlling and managing data and reports and suggesting corrective actions.
- Provides disposition instructions for unserviceable items of equipment that exceed the repair ability or capacity of maintenance support units. This is done together with the property book-Class VII section. Working closely with the

DISCOM movement control office, each branch develops transportation requirements for removing such items from the division area.

- Develops maintenance plans to support projected combat operations. This is done by coordinating with the maintenance units and staffs.
- Monitors unit maintenance operations and evaluates procedures and use of equipment and personnel.
- Maintains the status of all MWOs for equipment and recommends the order of completion for MWOs.
- Coordinates with other division support operations sections of the status of end item supply.
- Identifies materiel that needs calibration. It schedules calibration actions to be completed by TMDE support activities. It coordinates the calibration of division test, measurement, and diagnostic equipment by supporting the calibration activity.

3-55. Through its branches, the office serves as the centralized maintenance management activity for the division. Centralized management takes care of much of the effort related to, but not directly involved in, repair operations. The management effort mainly includes reporting, compiling, and interpreting data as a basis for management decisions.

Armament-Combat Branch

3-56. The armament-combat vehicle branch performs integrated materiel management for armament (weapons) and combat vehicles. This includes artillery weapons, individual and crew-served weapons, common-type armament tools, common-type armament tools, and shop sets. The branch is responsible for the supervision of armament-combat vehicle maintenance activities. Key activities include the classification and diagnosis of malfunctions. They also include the repair and replacement of parts or the overhaul of components, and the testing and final inspection of equipment.

Automotive/Ground Support Equipment Branch

3-57. The automotive/ground support equipment branch performs integrated materiel management for automotive and ground support equipment. This includes management for tactical wheeled and general-purpose vehicles; construction and material-handling equipment; and test equipment that is part of, used with, assigned materiel. Key maintenance activities are the same as those listed above for the armament combat vehicle branch.

COMMUNICATIONS-ELECTRONIC BRANCH

3-58. The C-E branch performs integrated materiel management for communications equipment, intelligence equipment, and electronic warfare equipment. Also included are combat surveillance equipment, target acquisition equipment, and night vision equipment. It coordinates, organizes and supervises subordinate personnel activities of units, shops, or activities engaged in maintenance, calibration, or installation of C-E equipment. This branch also performs quality assurance. The C-E branch has the following responsibilities:

- Plans and coordinates DISCOM C-E requirements and activities.
- Plans, directs, and monitors the operation and management of DISCOM field communications system.
- Determines capabilities and limitations of assigned C-E equipment as related to the tactical mission.
- Directs and controls the installation, operation, and maintenance of C-E equipment for all means of communications. It also advises commanders, staffs, and other interested parties on C-E/COMSEC requirements, capabilities, and operations.
- Assists in resolving maintenance problems within the DISCOM on assigned C-E equipment.

Aviation Branch

3-59. The aviation branch performs materiel management for aeronautical, airdrop equipment, and test equipment that is a part of, or used with, assigned materiel. Equipment includes materiel for aircraft and airdrop, avionics, aircraft armament, and related test equipment.

3-60. The branch supervises aviation maintenance activities. Key activities are the same as listed in the maintenance section above. In the event of aviation maintenance company work overload, the branch along with the support operations branch passes back to the COSCOM. The branch supervises the maintenance of aircraft and applies production control principles and procedures to aviation maintenance systems.

Missile Branch

3-61. The missile branch performs integrated maintenance management for missiles, less the Class V portion of missiles that are managed by the DAO. Missile maintenance includes rockets, guided missiles, ballistic missiles, and target missiles. Also included are missile fire coordination equipment and related special and multi-system test equipment. Test equipment, which is part of or used with assigned materiel, missile launching and ground support equipment, and missile fire control equipment, are also included.

UNIT MINISTRY TEAM (UMT)

3-62. The DISCOM commander is responsible for the religious program in his unit. The DISCOM UMT is the staff section that provides religious support (RS) to units assigned or attached to the DISCOM. Its primary mission is to advise the commander on RS to elements of the DISCOM. It advises the commander on unit moral and ethical issues and to meet the religious and spiritual needs of the soldiers. It also advises the commander on the role of indigenous religions in the area of operations.

3-63. The team consists of a chaplain and a chaplain assistant. The chaplain provides the clergy related support to the unit. These include worship and prayer services, funeral and memorial services, and in depth grief counseling. The chaplain assistant provides the administrative and logistical management for the team.

3-64. Initially, the UMT develops an RS annex for the DISCOM OPORD/OPLAN. This annex is based upon the division RS plan and the commander's intent. It addresses the priority of RS to the units assigned or attached to the DISCOM. This includes UMT support to medical facilities, actions during mass casualty situations, support to enemy prisoners of war, and planning for worship, funeral, and memorial services.

3-65. During operations, the UMT keeps abreast of the situation by maintaining contact with the DISCOM S1 and S3. Through FBCB2, the UMT can receive calls for RS directly from units through the religious support call for support FBCB2 screen.

3-66. Because the team is small and the mission sensitive, it is critical that the commander allow the UMT as much autonomy as possible. This will provide the most responsive and effective support to the soldiers.

BATTLE STAFF

3-67. The combination of the battalion and supporting staff elements form the commander's battle staff. Listed below are the battle staff roles and an example of a portion of a logistic synchronization matrix, see Figure 3-4, that assists the battle staff in the execution of their respective roles:

- Maintain situatonal understanding.
  - Install information management architecture.
  - Train members of the battle staff.
  - Access available CSS and operational databases.
  - Receive, process and transmit information.
  - Know the current CSS, operational, and geo-political situation.
  - Know current CSS and other key locations.
- Synchronize logistical and operational activities.
  - Analyze data from multiple sources/disciplines.

    - Match capabilities to requirements efficiently.
    - Coordinate CSS activities with all involved.
    - Optimize CSS resources and time.
- Anticipate future operations (branches/sequels)
    - Understand higher/subordinate/supported commanders' intents.
    - Conduct logistics preparation of the battlefield (LPB).
    - Know OPLANs/CONPLANs of involved HQ's.
    - Conduct intelligence preparation of the battlefield (IPB)
    - Employ liaison team(s) at key HQ's.
    - Workload battle staff planners.
    - Conduct wargaming drills.
    - Identify projected CSS capabilities available.
    - Identify projected CSS unit displacements.
    - Identify external resources/solutions required.
- Make recommendations, decisions; and, execute those decisions.
    - Conduct risk assessments.
    - Employ deliberate decision-making process.
    - Employ quick decision-making process.
    - Provide clear and understood verbal orders.
    - Provide timely and accurate responses to unit issues.
- Maintain current estimates, status, and data
    - Maintain one continuously updated estimate.
    - Display estimate in the battle staff area.
    - Provide command group with periodic estimate updates.
    - Transmit estimate electronically as needed.
- Maintain secure/non-secure, assured communications with key HQ's.
    - Exploit communications and other technologies.
    - Train battle staff on available technology.
    - Employ alternate means of communications.
    - Coordinate with supporting signal units/HQ's.
    - Provide assault CP with communications/automation package.
- Receive, prepare, coordinate, and disseminate plans, orders, annexes, reports, and taskings.
- Integrate augmentation forces
    - Coordinate equipment, supply, and soldier link-up.

- Exchange SOP and Policies.
- Provide/receive SITREP/briefings.
- Establish command/technical/support relationships.
- Provide liaison team to assist force.
- Assess soldier/unit readiness shortfalls.
- Reduce or eliminate unit readiness shortfalls.
- Employ augmentation forces.

H HOUR	H+4	H+8	H+12	H+16	H+20
D-DAY	D+1				
DAY/NIGHT					
Phase	Phase I				
ENEMY ACTION	Defends in sector with two brigades. 13th IQ in the west and 14th in the east.	Continues Defense	Continues Defense	Shifts Priority to OBJ APPLE	Shifts Priority to OBJ APPLE
DECISION POINT	What is the level of success that 4AD is having Along Route Jackson?	What is the level of success that 4AD is having Along Route Jackson?	Does 4AD take operational control of 3rd BDE?	Does 4AD take operational control of 3rd BDE?	Is 9LID and 230th SAB attack to seize OBJ apple being successful?
MANEUVER	3rd BDE LD/LC. All other elements areREDCON1.	3rd BDE arrive MCP 2. 1st BDE SP. 2nd Bde REDCON1.	3rd BDE prepared to support 4AD ATK on OBJ Glory.1st BDE LD, 2nd BDE SP	3rd BDE prepared to support 4AD ATK on OBJ Glory.1st BDE MCP2, 2nd BDE LD	3rd BDE arrives TAA Hood. 1st BDE PL Colt. 2nd BDE MCP 2.
FIRE SPT	FSCL is PL NUT and PL Cougar. CFL PL Aqua. RFA TAA Hood/Bragg. NFA OBJ apple.	FSCL is PL NUT and PL Cougar. CFL PL Aqua. RFA TAA Hood/Bragg. NFA OBJ apple.	FSCL is PL NUT and PL Cougar. CFL PL Aqua. RFA TAA Hood/Bragg. NFA OBJ apple.	FSCL is PL NUT and PL Cougar. CFL PL Aqua. RFA TAA Hood/Bragg. NFA OBJ apple.	FSCL is PL NUT and PL Cougar. CFL PL Aqua. RFA TAA Hood/Bragg. NFA OBJ apple.
MOB/SURV	Focus is on Mobility	Focus is on Mobility	Focus is on Mobility	Focus is on Mobility	Focus is on Mobility
C2	Located with 1st Bde. Rear with DISCOM	Located with 1st Bde. Rear with DISCOM	4th AD potentially assumes control of 3rd BDE	4th AD potentially assumes control of 3rd BDE	Located with 1st Bde. Rear with DISCOM
MAN/MED					
SUSTAIN					
FIX					
ARM					
FUEL					
MOVE					

Figure 3-4. Synchronization Matrix

HEADQUARTERS COMPANY

3-68. The headquarters company provides the necessary administration, supply, unit maintenance, and field feeding to support unit operations. The company provides overhead and housekeeping support for the HHC. The company is responsible for accountability of equipment assigned to the headquarters. It is responsible for C2 and security of the company.

3-69. The headquarters company provides for billeting, training, discipline, and security in the company. It also provides internal supply, food service, and unit level maintenance for vehicles and generators organic to the HHC and the division main. Some of the specific functions of the company are:

- The organic training, management, upkeep, and accountability of supplies, equipment and human resources of the company.
- The installation, operation, and maintenance of basic wire, switchboard, and radio communications equipment systems of the company.
- The receiving, storing, preparing, cooking, and serving of food for company and designated personnel.
- The management and distribution of all fuel for the company.
- The unit maintenance on the wheeled vehicles and trailers as well as internal combustion engines, power generation equipment and accessories, tactical utilities and precise power generation equipment, electric motors, and company-associated items.
- The coordination for recovery of disabled vehicles that are organic to the company.

Chapter 4

Combat Service Support Planning

COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE, SURVEILLANCE, RECONAISSANCE (C4ISR)

4-1. To be successful in battle, commanders must make sound decisions rapidly. Battle staffs assist the commander in making these decisions and translating them into coherent changes to the concept of support. Units must act quickly and decisively once changes are received to maintain logistical support.

4-2. This chapter describes C2 techniques and procedures that exploit the unique capabilities of digitized forces. It will assist the DISCOM commander and his battle staff in realizing the advantages of automated information exchange during the planning, preparation, and execution phases of combat operations.

BATTLE COMMAND

4-3. Battle command is the art of battle decision-making and leading. It includes controlling operations and motivating soldiers and their organizations into action to accomplish missions. Armed with the knowledge of the current state and the desired end state, commanders visualize those actions necessary to achieve the desired future state and then translate that visualization into action. It also includes the following:

- Assigning missions.
- Prioritizing and allocating resources.
- Selecting the critical time and place to act.
- Knowing how and when to make adjustments during the fight.

THE ARMY BATTLE COMMAND SYSTEM

4-4. Army battle command systems (ABCS) provide the DISCOM with the C2 systems that enable the DISCOM commander to see the battlefield with unprecedented clarity in near-real time.

4-5. The ABCS is designed to provide the commander and his staff with the needed information to effectively plan, coordinate, control, and direct the battle. The ABCS includes the global command and control system-Army (GCCS-A), the ATCCS of which CSSCS is the CSS component of ABCS, and the FBCB2.

4-6. The key knowledge base is in the battalion HQ. Currently the data is gathered by MCS at this level. The information is provided to the battalion TOC via the tactical internet. From the battalion, it is in turn provided to the other companies for their common relevant picture and to DISCOM, for its knowledge base. This current system places a significant burden on the battalion staff to simply move information from one location to the other.

BATTLEFIELD VISUALIZATION

4-7. The definition of battlefield visualization is the process whereby the commander develops a clear understanding of the current state with relation to the enemy and environment, envisions a desired end state which represents mission accomplishment, and then subsequently visualizes the sequence of activities that moves the commander's force from its current state to the end state."

4-8. Battlefield visualization is the mental process that supports the commander's decision-making process and his ability to anticipate support. Using a vision of proposed support of the battle allows the commander to know when, where, and if a decision should be made. It is a continuous process that commences with the receipt of the first warning order and continues through the end of an operation. It provides the key to where and how the commander can best provide support.

4-9. Digital information systems have the capability of providing a clearer picture to the commander. Digital systems enhance the commander's ability to have an understanding of the current state of friendly and enemy forces. This extends beyond the knowledge of their physical location and includes environmental, readiness, and human considerations. It includes the ability to see and understand the dynamic relationship between opposing forces as the commander leads his forces through the sequence of events.

4-10. The available digital information systems enhance the commander's situational understanding by providing him with an unprecedented level of friendly and enemy information. Commanders must recognize that the common relevant picture that is produced by a myriad of information systems represents both known and estimated information, and is possibly flawed by human input. The commanders must tailor this information with their judgment, intuition, and experience.

COMMAND AND CONTROL SYSTEM

4-11. The C2 system refers to the arrangement and functions of personnel, equipment, communications, facilities, and procedures a commander employs in planning, directing, coordinating, and controlling forces and operations in the accomplishment of a mission. The C2 system are two dependent concepts that have distinctive meanings rather than one word or system. Command is the art and science of assigning missions, prioritizing resources, guiding and directing subordinates, and focusing the entire division's energy to accomplish clear objectives. Control is defining limits, computing requirements, allocating resources, prescribing requirements for reports, monitoring performance, identifying and correcting deviations from guidance, and directing subordinate actions to accomplish the commander's intent. The C2 system must support the ability of the commander and his staff to anticipate plans for future operations even while focusing on current support requirements. The related tools for implementing command decisions include communications, computers, and intelligence.

4-12. There are two types of control; procedural and positive. The ABCS will allow us to move from procedural to positive control. Procedural control is indirect. Commanders use regulations, policies, doctrine (principles and graphic control measures), techniques and procedures, and SOPs to impose procedures that control subordinate unit actions. Digitization of the DISCOM's C2 systems will increase the commander's situational understanding and reduce the requirement for excessive control measures. Positive control requires the active involvement of all leaders. The dangers of positive control are that it will also lend itself to information overload, increase in fatigue, and the risk of allowing the commander to over control the situation. Commanders must guard against robbing subordinates of their latitude by micromanaging the movement of small units.

INFORMATION FOCUS

4-13. The common relevant picture is derived from multiple databases and can be tailored to specific unit needs. The systems, which provide input to the commander's MCS terminal, include the following:

- **FBCB2**. Provides situational understanding of friendly ground maneuver elements from individual weapons platforms through battalion echelons with near-real time information. Unit databases continuously exchange information producing the common, relevant picture. The friendly situation is automatically updated with current unit locations, their CP locations, and logistical status.
- **ASAS**. Combines the information from many sources to include space and aerial platforms, sensors, and reports from other units, human intelligence, and information derived from computer-assisted intelligence analysis to provide a detailed picture of the enemy's situation and intent.
- **CTIS**. Engineer terrain visualization gained through combined terrain information system (CTIS) and MCS will allow the commander to view terrain represented digitally in three dimensions, showing percent of slope, types of vegetation and trafficability and other man-made features (including known and templated obstacles).

4-14. The ATCCS, with MCS as the central focus at the battalion level, will enhance mission planning, rehearsal, and execution. Simulation will facilitate the decision making process by assisting the commander in the wargaming process and evaluating courses of action. The MCS will also allow the commander to conduct rehearsals remotely using distributed communications on digital terrain. During execution of the operation, MCS provides the commander the tools to monitor, coordinate, and revise execution across the entire spectrum of his battlespace.

4-15. The key to the experienced and intuitive commander's effective exercise of battle command is information management. All information that is produced and processed, whether by automated or manual information systems, has one overriding purpose: to help the commander formulate and answer sustainment requirements and then make timely decisions.

Commander's Critical Information Requirements

4-16. The digital information system employed by the commander and staff is as sophisticated as the weapon systems they employ. The information available to the commander is only valuable if it can be focused to a manageable level. Information that the battle staff generates focuses on and is driven by the CCIR. The commander and his staff prepare it. They are based upon the commander's continuously evolving vision for the concept of support (current, future, and sequel to the future) and the commander's continuing, independent estimate of the situation. The staff supports the commander's development of CCIR, develops the common relevant picture in response to the CCIR and other parameters the commander identifies. The battle staff manages the type and volume of information fed to the commander based upon satisfying the commander's CCIR. In response to the CCIR, information systems focus on getting the right information to the commander or decision-maker as soon as possible. The battle staff processes most information into an information product (knowledge) that enables the commander to quickly grasp the meaning of the information and its impact. This should not imply that the commander does not receive any unanalyzed data. He does, in the form of spot reports, situation reports and other combat information from his subordinate commanders.

4-17. The use of CCIR focuses the information gathering process for the battle staff. It is that information which the staff will notify the commander, regardless of his location or time. They vary with each phase of an operation and consist of only those essential information requirements that the commander must know to make a decision concerning logistical support of a particular phase of a battle. The battle staff must continuously update the CCIR so that they are current with the ongoing operation. The following sources normally feed the CCIR:

- Priority of information requirements (PIR) - What we want to know about the enemy?

- Essential elements of information (EEI) - Crucial information on enemy and environment needed by commander by a specific time.
- Essential elements of friendly information (EEFI) - How the enemy sees the friendly unit?
- Friendly forces information requirements (FFIR) - They allow the commander to see how the unit sees itself?

4-18. How can the commander anticipate CSS requirements to best support the division's combat mission? The CCIR allows the commander to define information needs and, in turn, focuses the staff (and subordinate commanders) on information acquisition, fusion, and analysis. The CCIR can be further described as being:

- Dependent upon the situation.
- Specified by the commander for each operation or phase.
- Generally time-sensitive in terms of the decision point on a decision support template or the event requirements of the synchronization matrix driving their collection.
- Applicable only to the commander, who specifies and publishes them; normally published in the applicable operations plan/order; and transmitted via specified means.
- A link between current, future, and sequels to operations.

LOGISTICS PREPARATION OF THE BATTLEFIELD (LPB)

4-19. Logistics preparation of the battlefield is the process of gathering data against pertinent battlefield components, analyzing their impact on sustainment, and integrating them into tactical planning so that support actions are synchronized with maneuver. It is a conscious effort to identify and assess those factors, which facilitate, inhibit, or deny support to combat forces. Just as intelligence preparation of the battlefield is important to the conduct of actual combat operations, logistics preparation of the battlefield is equally important to sustaining the combat power of the force. Although it may be true that even the most optimal support plan may not win the battle, it is also true that poorly planned support can certainly lose it. Working together leaders must synchronize support actions with maneuver in a unified plan so that CSS is a factor in the success of a mission rather than a cause of failure. In addition to mission, enemy, terrain, troops and time available and civilians (METT-TC), logistics preparation of the battlefield focuses on determining the status and impact of the specific components that make up tactical CSS. It assesses how time and space requirements and restrictions of the battlefield affect support.

4-20. The process requires tacticians to understand the data needed by logisticians to plan and provide timely, effective support. It requires TF logisticians to understand the mission, the tactical plan, and the battlefield's time and space implications for support.

It is a coordinated effort to prepare the battlefield logistically. The basic steps in systematizing the process are:

- Determine battlefield data pertinent to support actions.
- Determine sources from which raw data can be derived.
- Gather pertinent data.
- Analyze collected data elements and translate them into decision information by assessing their impact on the mission and the competing courses of action.
- Integrate decision information into tactical planning by incorporating it in CSS estimates and TF plans and orders.

4-21. When determining what battlefield data are relevant to sustainment, it's helpful to break down CSS operations into certain key elements against which data can be collected for study and analysis. These data elements are called the components of tactical CSS. The following descriptions of the components of tactical CSS are not intended to be all-inclusive. They are offered here, however, to stimulate thought and to facilitate an understanding of those factors which impact on tactical CSS support:

- Logistics resources are the wherewithal to effect support, including CSS organizational structures, command and control, task organizing for support, communications, information automation systems, medical facilities, and materiel such as transportation assets and supply, maintenance and field services equipment.
- Logistics capabilities include soldier and leader skills and the personnel staffing which, collectively, activate CSS resources and bring to life the required support. Capabilities are degraded in adverse situations such as severe climatic conditions, night operations, or elevated mission-oriented protective postures (MOPP).
- Logistics capacities include reception and clearance capacities, carrying capacities of transportation assets, volumes of storage facilities, maintenance production output rates, and supply route characteristics such as surface composition, tunnels, overhead obstructions, bridge weight limits and traffic circulation rates.
- Materiel stocks include the quantity and status of weapon systems, ancillary equipment, ammunition, repair parts and consumable supplies required or available to sustain or reconstitute combat power of deployed units. Also included are CSS status reports and known or projected shortfalls.
- Consumption and attrition rates include experienced or expected usages of consumable supplies and weapon systems, which must be considered to anticipate support requirements.

- Time and space factors are those requirements and restrictions of the battlefield, which influence whether logistic support is provided to deployed forces at the right place and time. Included here are plans, orders, rehearsals, priority of support, positioning for support, tempo of support (intensity of demand), security, risk assessment, the effects of terrain, weather, contaminated areas, minefields, night time enemy threat on CSS operations, and the battlefield signatures of logistic resources. Time and space factors, especially, impact on the synchronization and integration of CSS on the battlefield.

4-22. Sources from which relevant battlefield data are derived include:

- Higher headquarters briefs, plans and orders.
- The commander's planning guidance. This is made up of the restated mission, initial concept of the operation, scheme of maneuver, deception objective, rear operations priorities, time plan, type of order to be issued, and type of rehearsal (backbrief, reduced force, full force). It may indicate what support tasks are required before, during, and after the mission.
- The commander's intent (or concept). The intent may indicate when and where support actions are to be synchronized with maneuver, thereby suggesting CSS triggering mechanisms.
- Operations and intelligence briefings and overlays. These provide locations of friendly and enemy forces, weather, terrain, likely logistics release points, resupply routes and distances.
- Modified table of equipment (MTOE) of task force units. These provide data on CSS resources, capabilities and capacities.
- CSS status reports. These reports from CSSCS and FBCB2 digital systems and manual sources, provide data on the readiness of primary weapon systems and materiel stocks.
- Scouts. They are especially helpful if the need to gather data against the components of tactical CSS is included in their collection requirements (such as airlift resupply landing zones).
- Engineer route reconnaissance overlays.
- Traffic circulation and highway regulating plans.
- Personal reconnaissance. Logistics battle staff members may be required to collect data on likely resupply routes, obstructions, bridge weight limits or the composition of streambeds.

4-23. Logisticians routinely apply, available battlefield data in developing CSS estimates without thinking of it as a formal process. By focusing on the components of tactical CSS while collecting, analyzing, and applying this critical information in planning, logisticians systematically help prepare the battlefield for their commanders. These lessons are offered to stimulate a reciprocal understanding among tacticians and logisticians of the interdependency that exists between maneuver and support in planning, preparing, and executing combat missions.

4-24. Logisticians should treat the components of tactical CSS as essential factors that should be assessed for each plan. By doing so, they bring a professional approach to the contributions they make in the planning process. The components are variables. Some are dynamic and change with METT-TC so they should be validated daily, even hourly, if necessary. Commanders should appreciate the unique contributions their logisticians make in the planning process and when they've done a thorough job of collecting and analyzing pertinent battlefield data. Commanders must not accept less. The lessons that follow show how the components of tactical CSS relate to the sustainment imperatives of anticipation, integration, continuity, responsiveness and improvisation. They also show how the components of tactical CSS are used in developing effective CSS estimates.

4-25. The commander and staff conduct LPB. Successful LPB contributes immeasurably to the favorable outcome of battle. Logistics preparation of the battlefield is an on-going process by which logisticians analyze:

- Tactical commander's plan/concept of operation.
- Tactical commander's intents.
- Supported force CSS requirements.
- Available CSS resources.
- Combat service support shortfalls.
- The enemy (intentions, capabilities, weaknesses, doctrine).
- Terrain and weather.
- Intelligence preparation of the battlefield (IPB) products.
- Transportation infrastructure.
- Host nation support available.
- Time/distance factors.

4-26. Logistics preparation of the battlefield (LPB) products are:

- A logistics estimate.
- A visualization of the pending battle and logistics activity required by phase of operation.
- Anticipated logistics challenges and shortfalls.
- Solutions to logistics challenges and shortfalls.
- How, when, and where to position logistics units to best support the tactical commander's plan.

- A synchronized tactical and logistical effort.

INFORMATION MANAGER

4-27. The DISCOM commander appoints an information manager because of the importance and volume of information in the DISCOM. The XO may be the information manager for the battle staff. He oversees the staff in processing information to support the operation and the information flow that feeds the force-level knowledge system. Because the CCIR are directly linked to current, future, and sequel operational situations and previously identified decision requirements, the XO ensures that the staff collects, analyzes, and presents information meeting the CCIR on a timely and accurate basis. In particular, he supervises the DISCOM's part of the sustainment cell in maintaining and disseminating the DISCOM's knowledge base which is a logistical data-base that contains information meeting the commander's common relevant picture requirements. The common relevant picture is a comprehensive view of the commander's battlespace, consisting of a graphic portrayal of the enemy and friendly situation on the same display. In the digital CP, these are typically computer-generated flat board displays. The operations section of the sustainment cell CP generates specific requests for information from BOS or other sources to answer the commander's CCIR. The S2/S3 plans cell generates requests to answer planning specific questions. Specific queries can be initiated within MCS and CSSCS or flags placed on select information to ensure that it is rapidly forwarded to the commander.

SUPPLY OPERATIONS

SUPPLY SUPPORT OPERATIONS

4-28. The two types of support operations are shown below. These operations include regular resupply of all classes of supply:

- **Mission support**. Mission support is designed for a specific maneuver operation. The designated CSS elements conduct mission support to ensure maximum unit resources is available to support the fight and the specific operation is not hampered by a lack of supply support.
- **Continuous Support**. Continuous support operations keep the maneuver unit's resources sustained over a period of time. Continuous support operations are conducted as close to the supported unit as practical.

BASIC LOAD

4-29. For classes of supply other than ammunition, basic loads are supplies kept by units for use in combat. The quantity of each item of supply in a basic load is based on the number of days the combat unit may have to sustain itself without resupply and on available transportation assets. For ammunition, the basic load is the quantity of ammunition required to be on hand to meet combat needs until resupply can be accomplished. The basic ammunition load is specified by the Army services component commander (ASCC)/Army forces (ARFOR) commander and is expressed in rounds, units, or units of weight, as appropriate.

MISSION LOAD

4-30. Mission loads consist of those materiel required for a specific mission (for example, a standard fixed minefield). The basic load can be used for missions to save time; however, it is to be replenished from the materiel in the mission load.

4-31. Mission loads normally stretch or exceed the transportation assets available. Palletized standard loads/flat racks help solve the planning and distribution problem. Class IV/Class V resupply for the defense is one of the most demanding mission load operations the unit must carry out and requires all the assets that can be made available. A total cooperative effort by the unit, including engineers, is required if the defense is to be adequately resourced.

CLASSES OF SUPPLY

4-32. There are ten classes of supplies. During defensive operations Class IV/Class V supplies require special engineer considerations. During offensive operations Class III(B) requires special consideration.

Class I

4-33. Class I consists of subsistence and gratuitous health and welfare items. Quantities are determined by the unit strength sent forward on digitized reports.

Class II

4-34. Organizational clothing and individual equipment (OCIE) support is not normally available at battalion. The supply and transportation (S&T) platoon of the HDC in the FSB provides supply point distribution of limited quantities of OCIE in the BSA. The HDC also provides supply support for other Class II items, such as tentage, tool sets, and administrative and housekeeping supplies. These items are moved to forward locations when dictated by the tactical situation and METT-TC. This function is performed by the quartermaster company in the DSB for division troops. In the aviation support area (ASA) the HSC in the DASB provides OCIE support.

Class III

4-35. Class III consists of POL, including petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquids and gases, bulk chemical products, coolants, deicer and antifreeze compounds. Refueling operations are conducted using a combination of unit distribution and supply point distribution.

Class IV

4-36. Cache or throughput to the barrier site of Class IV is a procedure used in preparation for defensive operations. The following items are normally throughput from corps assets based on unit requirements:

- Construction materials.
- Barrier materials.

Class V

4-37. Technological advancements in real-time forecasting of Class V sustainment requirements allow more effective planning of this support. In addition, throughput distribution of Class V items, packaged to weapon system requirements, and reduces the need for stockage of ammunition at ammunition supply points (ASP) and the resultant use of ammunition transfer points.

Class VI

4-38. This class covers personal demand items, such as candy, and toiletry articles that are normally sold through the exchange system during peacetime. In a combat environment, these items are sent with Class I as health and comfort packs (sundry packs). Class VI requirements are determined by supported strength.

Class VII

4-39. This class includes major end items. These are major pieces of equipment; assembled and ready for intended use, such as radios, tool sets, combat vehicles, and other major end items. Major end items that are destroyed or become inoperative are reported immediately to CSSCS by means of LOGSITREP reports. The supporting CSS unit replaces them, as they become available.

Class VIII

4-40. This class includes medical supplies, medical equipment sets and their components which are provided through the FSMC of the FSB and DSMC of the DSB. Included are individual medical supplies such as first-aid dressings, refills for first-aid kits, water purification tablets, and foot powder. Combat lifesaver bags are reported to CSSCS using the FBCB2 LOGSITREP.

Class IX

4-41. Repair parts are stocked at FSC and BSC maintenance platoon level based on usage requirements (shop stock and PLL). The FSC and BSC maintenance control section manages repair parts. Within the DSB the quartermaster company maintains the division troops Class IX (common) ASL. Supporting the aviation brigade the DASB's HSC maintains the Class IX (air and common) ASL. The FBCB2 equipped maneuver brigade obtains repair parts either from the Class IX supply point in the HDC or by throughput from other echelons of supply support organizations. Parts are moved forward to the combat repair teams location during routine logistics package (LOGPAC) operations or as required. The maintenance platoons request Class IX items (less reparable exchange) and major Class IX subassemblies, such as engines and transmissions, by submitting requests to the supporting FSC or HDC supply and transportation platoons.

Class X

4-42. Class X consists of materiels in any other class of supply to support nonmilitary programs, such as agriculture and economic development.

LOGISTICS RELEASE POINT OPERATIONS

4-43. A LRP is the point along the supply route where the supported unit meets the supporting unit to transfer supplies. Likely functions performed at the LRP are:

- Synchronization.
- Load adjustment and cargo diversion.
- Transfer of responsibility.
- Updating battlefield intelligence.
- Driver briefing/vehicle maintenance.
- Decision making/C2 node.
- Link-up point for convoy guides.

4-44. Within a division's battlespace, one LRP is normally established in the vicinity of the BSA for each FSB, one for the DSB, and one for the DASB. Additional LRPs may be established based on METT-TC.

4-45. Optimally, the LRP is located along a well-protected supply route. The exact location takes advantage of cover and concealment. The LRP is large enough to accommodate expected inbound and outbound convoys under all weather conditions. At the LRP, dry cargo, liquid cargo, and flatrack transfer may occur. Trailer transfer may occur also. If practical, convoys may proceed past the support area LRP to the vicinity of the supported unit where supplies are then transloaded on to customer vehicles or downloaded on to the ground. When rotary wing aircraft are available for CSS resupply, the forward LZ may also be at or near the LRP.

4-46. Logistics release point security and C2 are critical. Routes into and out of each LRP must be secure. Security arrangements must be preplanned, synchronized, and executed. Convoys must include self-protection measures such as a combination of gun trucks, military police escort vehicles, armed helicopters, and combat vehicle escorts. Field artillery, engineer, and air defense unit support may also be required.

4-47. Logistics release point C2 considerations include:

- Assured, secure communications.
- Requirement for liaison officers from supporting and supported units.
- Twenty-four hour operations.
- Situational understanding and situational understanding mechanism.
- Decision-making authority or access to key decision-makers.
- Need for linguists at LRPs.
- Location(s) of future LRPs.
- Frequency of LRP displacement.

FLATRACK COLLECTION POINT (FRCP) OPERATIONS

4-48. Flatrack collection points are predetermined points conveniently located to facilitate the harvesting and management of common user flatracks. Flatrack employment, management, and retrograde operations are the responsibility of distribution managers integrated at each echelon of support throughout the distribution pipeline. For detailed flatrack management operations and reporting procedures see the moving the force section in CSS operations chapter of this manual.

- Proposed FRCP locations are identified and reported to higher headquarters early in the planning process. Exact locations are reported immediately upon occupation. The FRCP location considerations include:
- Collocation with existing logistical nodes (SSAs, ATP vicinity, other supply points and collections points) or consolidation with other FRCPs on an area basis.
- Access to supply routes (MSRs/ASRs), feeder routes to supply routes, and traffic circulation. Maximize force protection, cover and concealment, and other security resources.

METHODS OF RESUPPLY

4-49. A company uses voice or digital means to request resupply and report status. The method used is determined after an analysis of the factors of METT-TC. The distribution methods of resupply are:

- **Supply point**. Supply point distribution requires unit representatives to move to a supply point to pick up their supplies.

- **Unit**. Unit distribution provides delivery of supplies directly to the unit. A unit representative meets the resupply package at the LRP and guides the package to the company's position.

4-50. Throughput to forward areas leverages configured loads, containerization, information, force structure design, technological enablers, and command and control relationships to deliver sustainment from the operational level directly to the customer or its direct support unit. Throughput bypasses one or more echelons in the supply system to minimize handling and speed delivery forward. Direct throughput relies on unity of command and situational understanding.

TECHNIQUES OF RESUPPLY

4-51. The tactical situation will dictate which technique of resupply the company will use: tailgate, service station, a variation of one type, or a combination of both types. The situation will also dictate when to resupply. Generally, the company should attempt to avoid resupply during offensive operations; resupply should be done during mission transition. Resupply is unavoidable during defensive missions of long duration.

4-52. In the **tailgate** technique, fuel and ammunition trucks, which have been handed off to the platoon sergeants (PSGs), are brought to individual vehicles. This method is used when routes leading to vehicle positions are available, and the company is not under direct enemy observation and fire. It is time-consuming, but it is useful in maintaining stealth during defensive missions because the vehicles do not have to move. If necessary, certain supplies can be hand-carried to vehicle positions to further minimize signatures. See Figure 4-1.

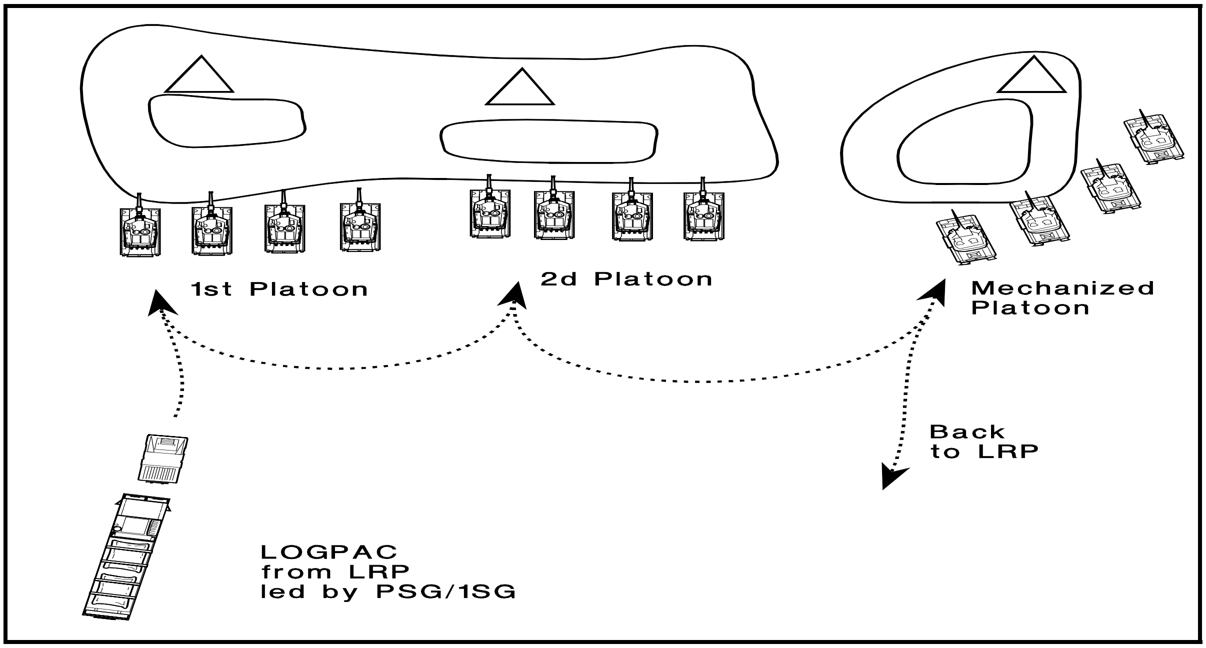


Figure 4-1. Tailgate LOGPAC

4-53. In the **service station** technique, vehicles move to a centrally located point for rearming and refueling, either by section, platoon, or an entire company. Service station resupply is inherently faster than the tailgate method, because vehicles must move and concentrate, however, it increases the security risk. See Figure 4-2.

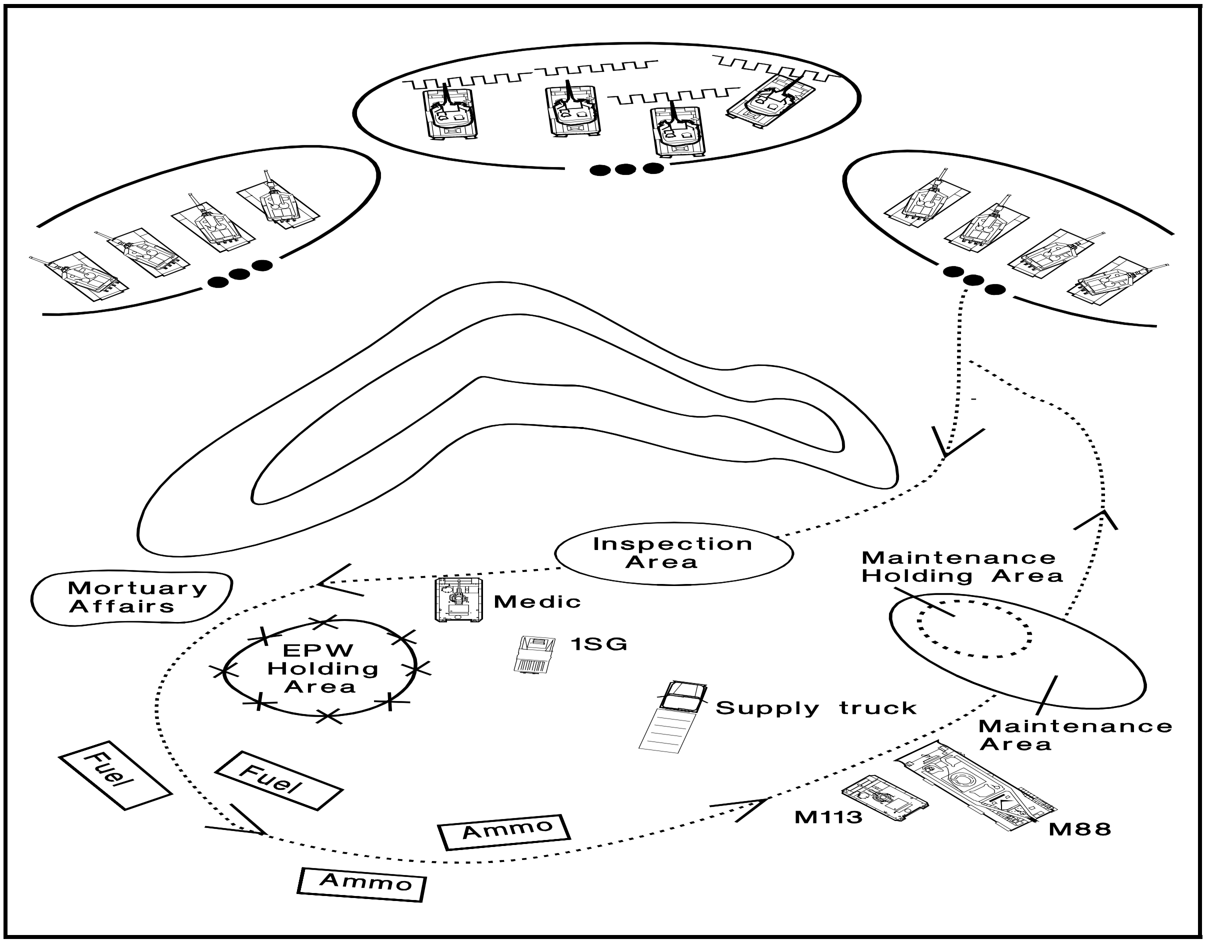


Figure 4-2. Service Station LOGPAC

4-54. A company commander can vary the specifics of the two basic techniques, or he can use them in combination for various platoons. During a defensive mission, for example, he may use the tailgate technique for selected forward observation post (OPs), and the service station method for the remainder of the company located in their positions. See Figure 4-3.

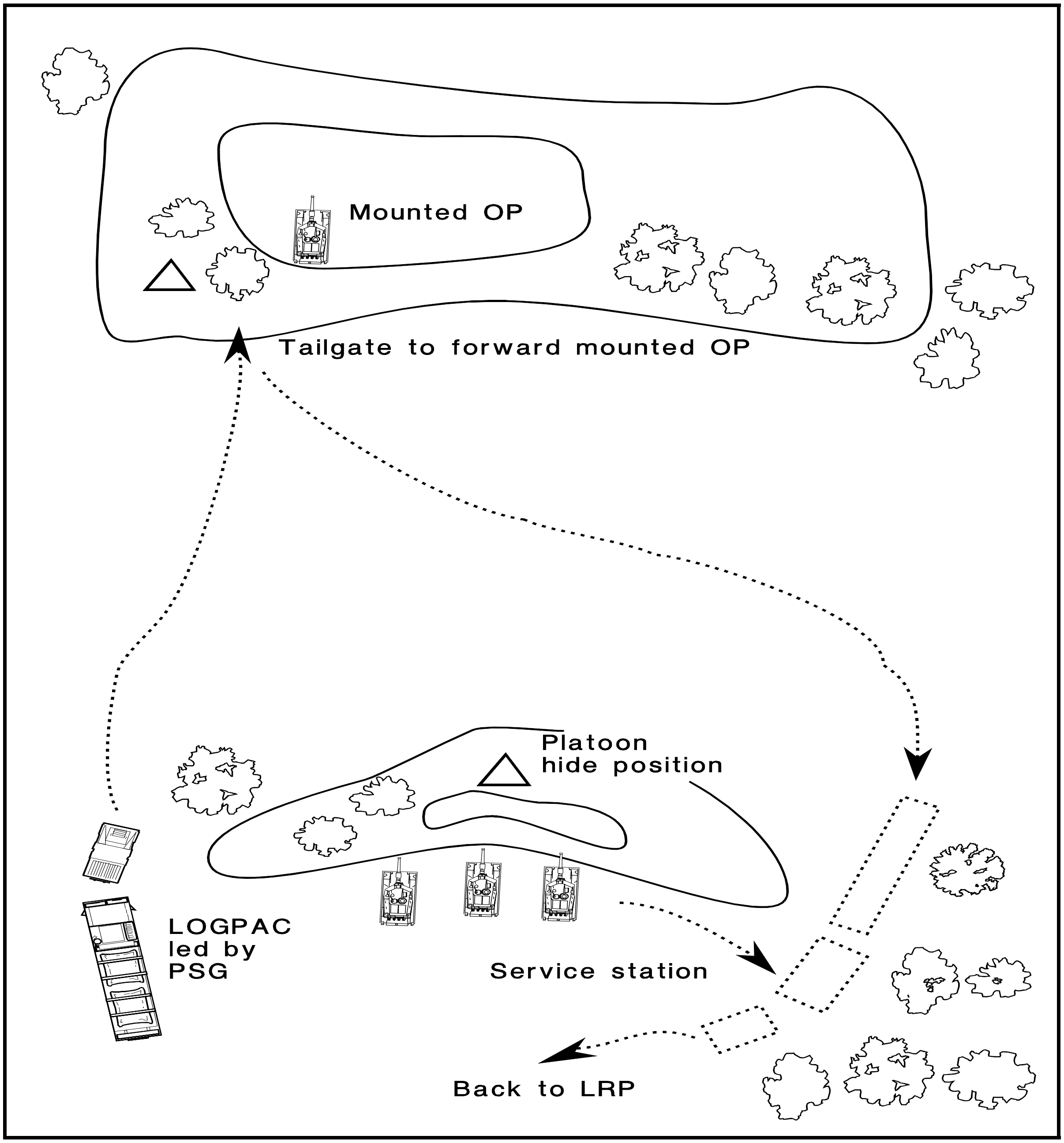


Figure 4-3. Modified Tailgate LOGPAC

IMMEDIATE RESUPPLY

4-55. Immediate resupply, normally involving Classes III, IV, and V, is executed when the company has such an urgent need for resupply that it cannot wait for the routine LOGPAC. Immediate resupply procedures start with the redistribution of supplies, for example, the redistribution of ammunition in individual vehicles, within the platoon, followed by cross leveling of ammunition between platoons. It is better to have four Bradley fighting vehicles (BFVs) with 50 rounds of 25-millimeter ammunition each than two BFVs with 100 rounds and two others with none.

4-56. The commander, XO or 1SG transmits a “call for support” for Class III/IV/V through FBCB2 to the support operations section of the FSB. Immediate supplies are brought forward by the S&T platoon of the HDC. Based on the enemy situation, the platoon may conduct resupply while in contact with the enemy. Two techniques are used to resupply platoons in contact:

- Limited supplies are brought forward to the closest concealed position, where the tailgate technique of resupply is used.
- Individual vehicles or sections disengage and move to a resupply point, obtain their supplies, and then return to the tactical mission. This is a version of the service station technique.

OFFENSIVE OPERATIONS

4-57. The goal of CSS offensive planning is to ensure the division warfighters begin the tactical operation with their basic loads of all classes of supply and planned resupply is coordinated. The planning process for DISCOM operations is led by the division support operations. The planning tool most critical to the sustainment is the enemy course of action (most likely and most dangerous). The common denominator between the CSS plan and the maneuver plan is the S2’s assessment of the enemy’s courses of action.

4-58. Accurate offensive CSS planning will reduce the immediate resupply focus to the individual combat vehicle. By identifying the point of consumption by the warfighters, the DISCOM, DSB, DASB, and FSB support operations will be able to position mission-tailored support.

4-59. The two most critical supplies for offensive operations are Class III and Class V. The DISCOM sustainment cell will direct the movement of resources to resupply planned or forecasted requirements, as stated in the CSS support matrix. The resupply of the division may come from the DSB.

DEFENSIVE OPERATIONS

4-60. The CSS defensive plans are characterized by a clear and defined time at which the CSS assets will begin to conduct survivability operations and discontinue mission support. However, mission supports the mobility and survivability efforts of the division rear.

4-61. The most critical supplies for the preparation for the defense are Classes III, IV, and V. Class III may be critical depending on the type of defense and possible follow on missions. Routine resupply of planned/forecasted requirements will be directed to designated units as stated in the CSS support matrix. Class IV will be pushed from corps directly to the emplacement site. Class V is given the highest priority of all critical supplies during defensive operations. The increased expenditures of ammunition will significantly impact transportation assets. Throughput of supplies from the corps to lowest level SSA will be used to expedite deliveries.

URBAN WARFARE CSS OPERATIONS

4-62. There is an increased likelihood of U.S. forces fighting in urban environments, which is the preferred battlespace for many potential adversaries. Most wars have included major battles in and around urban areas with U.S. deployments being centered on or in the vicinity of urban areas. The CSS organizations must have the capabilities to support units in combat and peace operations urban environments. Mechanized and armored divisions, although not ideally suited for urban operations, may have to conduct various missions in or in the vicinity of urban areas.

4-63. The MOUT is a significant challenge for CSS personnel to prepare for. Commanders identify those cities in their areas of responsibility that could become urban battlefields and direct their staffs to prepare detailed studies for those possible contingencies. Developments and refinements in force structure, equipment design, and CSS procedures support the tactical mission. During MOUT, the terrain and the nature of the operations create unique demands on support units and operations. The CSS units must be included in joint and multi-national urban warfare training. Increased ammunition consumption, high casualty rates, and transportation difficulties resulting from rubble and the decentralized nature of operations all make CSS challenging.

4-64. Historically, urban combat operations have required a significant amount of time and quantities of ammunition and other CSS. Assaults on cities cause heavy military and civilian casualties and shattered cities resulting in increased stress on CSS systems. The DISCOM may be called upon to supply food, shelter and public safety services to indigenous populations.

CSS SITUATIONAL UNDERSTANDING IN URBAN OPERATIONS

4-65. Knowledge of the urban battlespace as it pertains to logistics preparation of the urban battlefield is critical in terms of the following:

- Supported commanders' intents and concepts of operation.
- Transportation infrastructure (air, rail, waterways, pipelines, subway).
- Telecommunications and automation network posture.
- Traffic patterns/flow/selection of main and alternate supply routes.

- Local resources with military sustainment value.
- Local population sentiments (friendly/non-friendly).
- Contracting, bartering, and trading capabilities.
- The CSS commanders' access to intelligence preparation of the battlefield (IPB) products.

4-66. Other CSS factors in an urban environment:

- Expect increased consumption of small arms ammunition and explosives.
- Expect increased consumption of precision munitions.
- Expect decreased consumption in certain large-caliber and area-type munitions.
- Expect increased usage of non-lethal munitions.
- Expect increased aerial resupply requests.
- Expect increased medical workload (increased casualties).
- Expect increased mortuary affairs workload.
- Routes within an urban area can be denied easily.
- Movements' control is more complex.
- Force protection of CSS nodes and convoys is exacerbated in urban areas. Vertical ambushes and other terrorist-type attacks are real threats to CSS activities.
- Smaller resupply vehicles (HEMTT/PLS) may be in greater demand than tractor-trailers.
- Gun trucks are required to protect convoys.
- Expect the operation to be asymmetric (not linear) and multi-dimensional (building tops can be the high ground).
- Adequate CSS C4ISR may be nearly impossible within a large urban area. Avoid sites where communications are severely degraded.
- Urban areas afford numerous CSS hide locations (warehouses/industrial parks).
- Understanding the Law of Land Warfare (FM 27-10) and applicable rules of engagement (ROE) are imperative.
- Expect refugee and displaced person sustainment missions.
- Expect support requirements from other services, combined or coalition organizations (NGOs), and private volunteer organizations (PVOs).

Chapter 5

CSS Operations

CSS SUPPORT STRUCTURE

5-1. The DISCOM is a multi-functional organization capable of providing, coordinating, and synchronizing logistical support to the division. The DISCOM consists of FSBs, a DSB, a DASB, and the (HHC). The DISCOM provides combat service support for the division. It provides arming through its Class V operations, fueling through Class III operations, fixing through its maintenance operations, transportation through the truck company in the DSB and the supply and transportation sections in the FSBs, sustaining through the provision of rations, individual equipment, and CHS support. The personnel sections throughout the division provide the manning function. This chapter will discuss the six tactical CSS functions throughout the DISCOM to provide an understanding of what and how CSS integrates from higher, DISCOM and EAD, laterally with the DSB and DASB, and to the lower supported units. The DISCOM organization is shown in Figure 5-1. Shown in Figure 5-2 are the non-divisional CSS assets, their command and support relationship, and their location in the divisional battlespace.

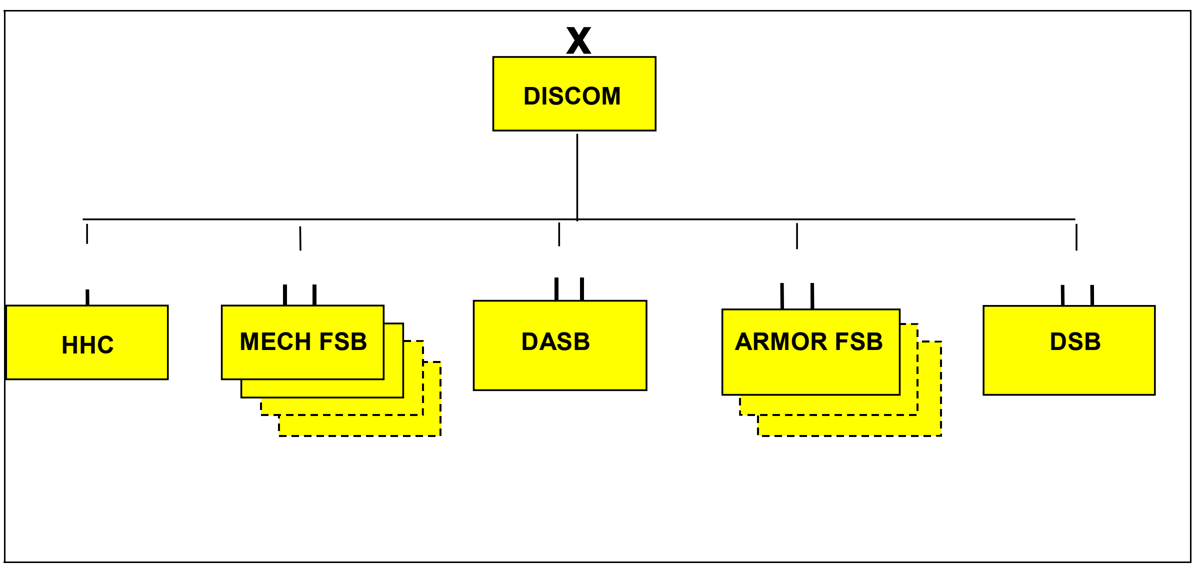


Figure 5-1. DISCOM Organization

Non-divisional CSS Inside FXXI Divisional Battlespace

(METT-TC)

Command and Support Relationships May Vary Based on METT-TC, as well as Availability of EAD CSS Capability

In Support of the Division

MST	+Air MEDEVAC
F&E Rpr	+Gnd Ambulance
Allied Trades	+FST
DS Reinf Trk&Whl	+Cbt Stress Ctrl Tm
	+ Contingency K Tm
Wtr Purif Det/Tm	+AMC-LSE/LAO Tm
ASP	+CA Tm
MCT	

In Support of Corps Trps/Div Area Spt

Trailer Transfer Point FDRP

TMDE/Cal Tm	EOD Det
PSB&Fin Bn elements	Field Svc Co

In Support of Corps Trps In Div Rear

CSB HQ/HHC	DS Supply Co
DS/GS Mt Co	Perishable Sub Plt
Wh/Trk Veh Rpr	DS Ammo Co
Arm/FC Rpr	Trk Co(PLS/POL)
FA/ADA/Msl Rpr	MCT
Pwr Gen Rpr	MA Sect
Commel/F&E Rpr	
Allied Trades	+Area Spt Med Co
Recovery	+Air MEDEVAC

In Spt of the Div in BDE Battlespace

Commel Repair
Wtr Purif Det/Tm
MA Tm

+Air MEDEVAC Element
+Gnd Ambulance Element

In Spt of Corps Trps in BDE Battlespace

FLE FA Bde	FLE Engr Bde
Log C2	Log C2
MST	MST
Supply	Supply
Trans	Trans

Log Tsk Force ACR
Log C2
MST
Supply
Trans

+Air MEDEVAC Element
+Gnd Ambulance Element

Note: Med units denoted by + will likely be C2 by Med HQ; CA/AMC by their respective command

Figure 5-2. Non-divisional assets inside divisional battlespace

ARMING THE FORCE

5-2. The division operates four ATPs. These are usually arrayed to support one maneuver brigade each and one to support the aviation brigade and division cavalry squadron. A DAO representative manages each ATP. In addition to the division ATPs, the corps DS ammunition company establishes an ATP, which provides Class V, support to divisional and non-divisional troops in the division area. The corps DS ammunition company also operates an ASP to provide support to the ATPs in the division and as an alternative source of Class V to units not supported by an ATP. Both the ASP and rear ATP are corps assets.

UNIT LEVEL AMMUNITION STATUS REPORTING

5-3. Using the LOGSITREP, unit ammunition on-hand status is reported per unit SOP to the 1SG, with information copies going to the company commander. The 1SG consolidates the unit's on-hand quantities and forwards them via the LOGSITREP to the BN/TF S4, with information copies to the BN/TF commander and S3. Company commanders will indicate in their LOGSITREP remarks any critical ammunition shortages or forecasted changes in ammunition requirements. At the discretion of the CO/TM commander cross leveling on-hand ammunition within platoons or throughout the company is accomplished.

DETERMINING/REQUESTING BATTALION AMMUNUNITION REQUIREMENTS

5-4. The BN/TF S4 will determine ammunition resupply requirements based on information provided in the LOGSITREP and guidance received from the battalion commander and S3. The BN/TF S4 will consolidate the entire battalion ammunition requirement. He will then submit company roll-ups for ammunition resupply through the LOGSITREP to the brigade S4. The brigade S4 will consolidate the ammunition request and pass that request to the support operations officer located in the supporting FSB.

5-5. Units in the division rear submit their requests through the LOGSITREP or LOGSTAT to the support operations officer located in the DSB. The support operations officer for the FSB, DASB and DSB will request the ammunition support from the DAO. The DAO will compare the request with the controlled supply rate (CSR). If the request is within the limits of the CSR, the DAO will order the ammunition from corps either to be shipped directly to the FSC, or to replace stocks that will be issued from the ATPs located in the FSBs, DASB, or the rear ATP.

5-6. The ATP, operated by the HDC in the FSB, is responsible for supporting all units located in the brigade rear that are assigned, attached, have established a support relationship, or as directed by the DISCOM commander. The rear ATP, operated by corps, is responsible for supporting all divisional and non-divisional units in the division rear.

5-7. The ATP is designed to provide the required lift and transload capability associated with high-volume and high tonnage. The support operations officer of the FSBs and DASB, in conjunction with the DAO NCO representative, will coordinate directly with those non-organic units that will be supported by the ATPs. The support operations officer/DAO representative will consolidate their ammunition requirements, and their request for resupply will be “rolled-up” with the brigade’s request. Ammunition and explosives will be accounted for and provided proper physical security at all times.

AMMUNITION REQUEST VALIDATION

5-8. The DAO validates the brigade's ammunition requests by comparing the amount of ammunition requested against the CSR and the on-hand stocks in the brigade’s ATP, DASB ATP, and the rear ATP. The DAO will take into account the current mission posture, scheduled/future mission posture, and operational guidance. Once all of these factors have been considered, the DAO will either validate the request or adjust it to meet the situation. The DAO will then determine, based on mission enemy, terrain, troops, time available, civilians (METT-TC) and transportation availability, whether the ammunition resupply will be throughput to the unit's combat trains command post (CTCP) location or delivered to an ATP. Ammunition can be throughput to a cache (a storage location where corps transportation drops flatracks loaded with ammunition, the ammunition will be closer to the maneuver unit to reduce transit time) unless the tactical situation does not allow delivery that far forward. “Prep-fire” ammunition will be delivered as close to the batteries as possible to prevent the artillery ammunition carriers from having to up-load after the “prep-fire.” The ammunition resupply requests and transportation requests are then sent to the COSCOM support operations office , with information copies to the brigade DAO representatives, and the brigade and battalion S4s. The brigade DAO representatives will notify the HDC ATP (FSBs), HSC ATP (DASB), or rear ATP section (run by corps) of any scheduled ammunition deliveries.

AMMUNITION RESUPPLY

5-9. The division support operations Class V section, using SAAS-MOD and recommendations from the DAO, then determine whether the ammunition resupply will come from the ASP or the CSA. The DAO will use the CSSCS Class V Taps report to determine the ammunition status of the five Taps in the division. This information will determine if ammunition within the division can be cross-leveled to meet ammunition requirements. If the ammunition is coming from the ASP, the COSCOM support operations office cuts a MRO directing the ammunition shipment. If the ammunition needs to be brought forward from the CSA, the COSCOM support operations office will submit a request for ammunition resupply to the corps

G4. Ammunition will arrive in theater in standard configured loads (SCL)s. The supporting activity, either the corps ASP in the division area or the CSA, will reconfigure the SCLs into mission configured loads (MCLs) prior to transportation asset arrival. The COSCOM support operations office will schedule transportation IAW priorities. The ASP is then notified of where and when transportation will arrive by the COSCOM support operations office. After ammunition has been loaded, the RFID tags will be verified along with the correct cargo and destination. All ammunition shipments will be tracked through the movement tracking system (MTS). Delivery coordinates and time will be sent by CSSCS free text message to the receiving unit/activity, with information copies furnished to the DAO, brigade S4, brigade DAO representative, the BN/TF S4, and respective FSB/DASB/DSB support operations. In the event an ammunition shipment needs to be diverted within the brigade, the brigade commander or designated representative will retain the sole authority to do so. This will be done through the FSB support operations officer using the CSSCS through free text. Ammunition shipments that need be diverted within the division will be directed by the DISCOM commander or designated representative. See Figure 5-3 for Class V distribution within the DISCOM.

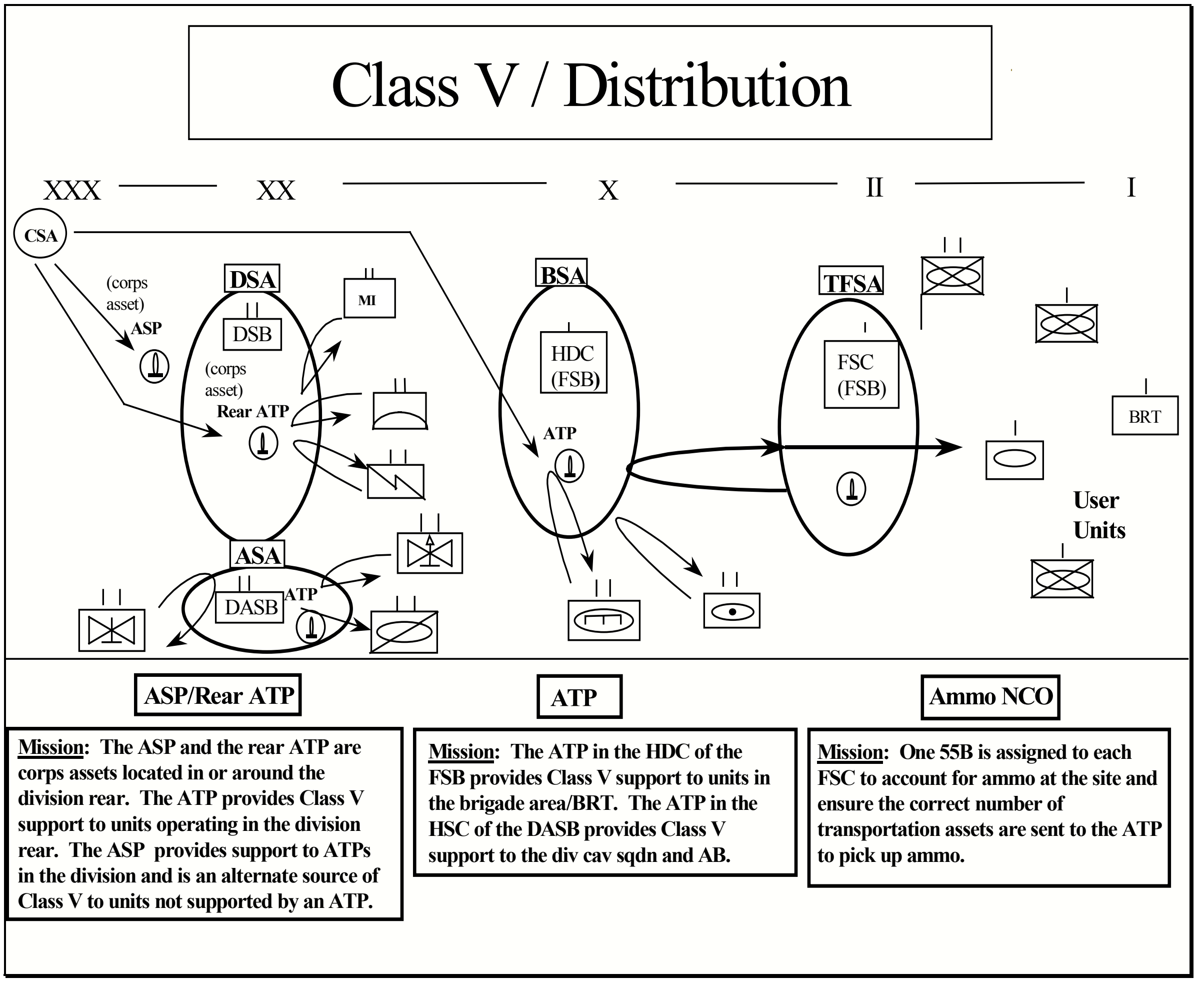


Figure 5-3. Class V Resupply

AMMUNITION TRANSFER POINT OPERATIONS

5-10. The Taps act mainly as a temporary distribution point, conveniently located to facilitate rapid issues to users. The Taps are operated by the HDC (FSB) for the maneuver brigades and the HSC (DASB) for the aviation brigade and division cavalry squadron. The rear ATP, when utilized, is located vicinity of the DSA. It is established and operated by the corps DS ammunition company. The rear ATP is responsible for providing Class V support to divisional and non-divisional assets located in the division rear. One DAO representative will be located at each ATP. The ATP will be used when forward deliveries are not required. Units that are directed to pickup ammunition from the ATP will follow the normal request procedures outlined above, and will also prepare a DA Form 581 to be sent to the DAO representative at the ATP. The requesting unit will submit the DA Form 581 through the BN/TF S4 who will approve the request and either forward it to the brigade S4, or have the unit hand carry it to the brigade S4 for approval. The

DAO representative will confirm the request through the DAO prior to issue. If the unit has PLS, it will be directed to the appropriate “rack” to be picked up. If the unit requires “break bulk” issue, the ATP section will issue based upon the DA Form 3161 provided by the DAO representative. Coordination on the location, amount, and type of ammunition (MCLs) to be received at the ATP will be made via the FBCB2 free text among the DAO, COSCOM support operations office, and the respective support operations officer based on guidance from the DISCOM commander, division G4, and G3. Ammunition will be delivered on flat racks by corps transportation assets using PLS trucks and trailers. The ATP personnel will interrogate RFID tags of arriving PLS shipments to gain immediate visibility of the shipment and enable it to quickly identify the organization it is to be issued to. Units arrive at the ATP to pick up ammunition, drop off empty or partially empty ammunition flat racks and retrieves fully loaded flat racks. The ATP personnel will interrogate RFID tags of arriving PLS shipments to gain immediate visibility of the shipment and enable it to immediately identify the organization to which it is to be issued. The ATP personnel will assist units PLS in transloading ammunition. The ATP section will reconfigure loads to meet mission requirements on a limited basis only. The flat racks will normally be issued as shipped. If partially empty flat racks are returned and the returned ammunition is required within the brigade, the ATP section may consolidate the ammunition from the partially empty flat racks and make full loads for issue within the brigade. All empty flat racks will be shipped back to the ASP or CSA as soon as possible. The DAO representative will report all issues and turn-ins. The corps transportation assets used to deliver ammunition resupply will pick up the unit turn-ins for immediate retrograde. When time and equipment permits, the DAO representative will attach RFID tags to the retrograde shipments. The MTS will track the ammunition returns as they are retrograded to the rear. The MTS provides the ability to redirect the shipment if needed. The ATP will maintain only those limited ammunition stocks that they can transport.

AMMUNITION SUPPLY POINT OPERATIONS

5-11. The ASP is located in the vicinity of the DSA, but is non-organic to the division and is run by corps assets. The ASP is run by the corps DS ammunition company and provides support to the Taps in the division and also serves as an alternative source of Class V to units not supported by an ATP.

FUELING THE FORCE

5-12. Class III(B) is handled by the corps petroleum distribution system, along with ½ days of supply (DOS) of reinforcing bulk fuel support to the FSBs and DASB handled by the fuel platoon of the QM company in the DSB. The reinforcing fuel in the DSB provides capability for surge or pursuit and exploitation operations and it also is contingency in case the EAD fuel is interdicted. The Class III(B) and water supply branch of the general supply office in the division support operations controls and manages the supply of bulk fuels to division elements. It determines fuel requirements and recommends priorities, allocations, and other controls for bulk fuels.

5-13. The fuel platoon of the QM company (DSB) will provide receipt, limited storage, and issue of Class III(P) to the DSA, and reinforcing support to the FSB's and DASB. The distribution section of the supply and transportation platoon (HDC) is responsible for the receipt, issue, and delivery of Class III(P) to the BSA and FSC's. The distribution section of the supply and transportation platoon (FSC) is responsible for receipt, issue, and delivery of Class III(P) to the BN/TF. The distribution section of the supply platoon of the HSC in the DASB is responsible for receipt, issue and delivery of Class III(B) to the aviation brigade and division cavalry squadron.

5-14. The supply of bulk fuel into the division area is based on a forecast requirement generated by units. The division G4 establishes the frequency and time period of forecasts.

5-15. Fuel status and requests are initiated at the platoon or company level, and reported daily to the 1SG using the LOGSITREP report in FBCB2. Information copies will be furnished to commanders at each echelon. The 1SG consolidates on-hand quantities and submits the fuel status report via FBCB2 to the BN/TF S4, with information copy to the FSC support operations section. The BN/TF S4 consolidates the fuel status report for the CO/TM and submits by company roll-up on hand quantities via FBCB2 to the brigade S4, with information copy to the FSC support operations. The brigade S4 consolidates the BN/TFs and brigade troops fuel status reports and submits the report to the FSB support operations via FBCB2, with information copy to the division G4 via CSSCS. The FSC and HDC using FBCB2, submits their bulk fuel status report to the FSB support operations section. The FSB support operations section consolidates the bulk fuel status reports for the brigade and slice elements, and submits it to the division support operations section using CSSCS. Units supported by the DSB submit their bulk fuel status reports to the DSB support operations using LOGSITREP or LOGSTAT. The DSB support operations consolidates the bulk fuel status report for the division troops and submits it to the division support operations using CSSCS. The DASB support operations consolidates the bulk fuel status report for the aviation brigade and division cavalry squadron and submits it to the division support operations using CSSCS. The division support operations uses the bulk fuel status reports and requirements from the FSBs, DSB and DASB to compute the Class III(B) requirements for the division. The division support operations submits the consolidated division requirements to the COSCOM support operations office using CSSCS, with information copy to the division G4.

5-16. The COSCOM resupplies the division with bulk fuel twice daily. It may be transported into the division by 5,000-gallon tanker, rail, or pipeline. A transportation medium truck company (petroleum) usually makes deliveries directly to the DSB, DASB and FSB units. The division support operations, with guidance from the G4, will coordinate the bulk fuel distribution into the division. Throughput will be maximized down to the lowest level. The preferred method of distribution is via logistics release point (LRP) operations as coordinated by the DSB, DASB, and FSB support operations.

5-17. The QM company of the DSB provides DS to division troops and reinforcing support to the FSBs and DASB. The QM company provides supply point and unit distribution to the division troops, as determined by fuel consumption/distances/METT-TC. Preferred method of resupply is via LRP operations. The DASB HSC provides bulk refueling to the aviation brigade and the division cavalry squadron. Bulk fuel will be issued based on priorities established by the division G4 with guidance from the division commander. The FSB support operations is responsible for coordinating the resupply of bulk fuel to the FSC's and the HDC. The location of the bulk refueling site and the quantity of issued is transmitted using FBCB2 to the receiving unit and the supply and transportation platoon. The HDC provides direct support to the brigade troops and backup/reinforcing support to the FSCs. The FSC support operations and the BN/TF S4 will coordinate the refueling site and quantity of issue for the maneuver companies using FBCB2. Fuel HEMTT tankers located in FSC accomplish the tactical refueling operations for the maneuver companies. Figure 5-4 depicts Class III(B) operations.

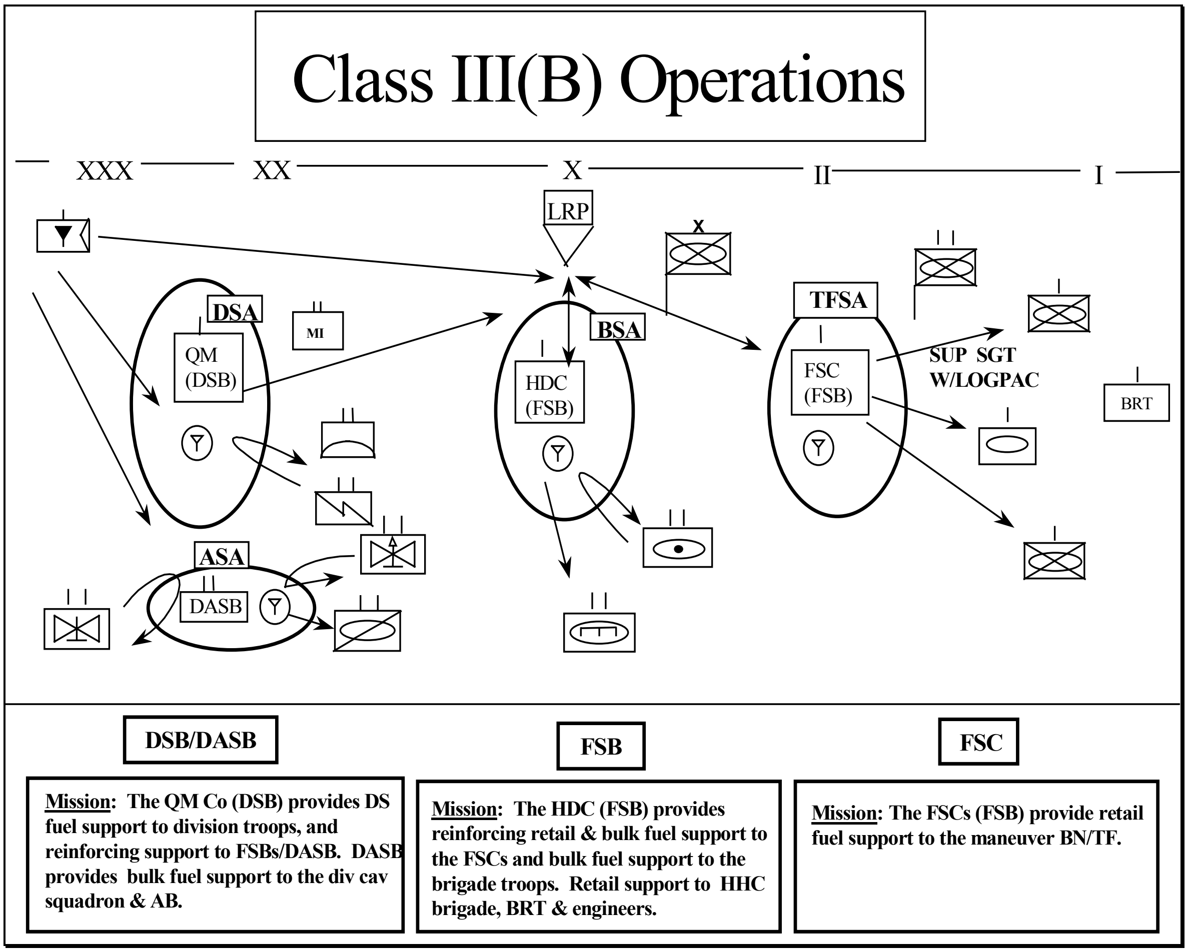


Figure 5-4. Class III(B) Operations

FIXING THE FORCE

5-18. The overarching principle of "replace forward/fix rear" remains unchanged. In the redesigned division some maintenance procedures and doctrinal methods are changed to gain greater effectiveness and efficiencies. Generally speaking, all DS and unit maintenance functions are consolidated in the FSB and are now called field maintenance. This applies to the mechanized and armor maneuver battalions, engineer battalions, brigade headquarters, division headquarters, and brigade reconnaissance troop. The division troops and field artillery retain their unit maintenance sections. Division troops are provided DS maintenance from either the base shop of the area support maintenance company of the DSB or maintenance support teams (MST)s organic to the DSB. The only exception is the artillery battalion supporting a maneuver brigade. The BSC of the FSB provides a DS MST to support the artillery battalion in that scenario.

5-19. On the Force XXI battlefield, mechanized, armor and engineer battalions will still remain responsible for operator and crew level maintenance. Operators/crews may perform BDAR through the use of onboard BDAR kits and will use self-recovery techniques to greatest extent possible. Figure 5-5 depicts how the division will fix the force.

CONTROLLED EXCHANGE

5-20. Controlled exchange is the removal of serviceable parts, components, or assemblies from unserviceable, but economically reparable equipment and their immediate reuse in restoring a like item of equipment to combat operable or serviceable condition. Published guidance for the use of controlled exchange should be in unit SOP.

CANNIBALIZATION

5-21. Cannibalization is the authorized removal of parts, components, or assemblies from economically non-repairable or disposable end items. Cannibalization supplements and supports the supply operation by providing assets not readily available through the normal supply system.

DISCOM MAINTENANCE SECTION

5-22. The maintenance section of the division support operations manages maintenance. It designs and manages the maintenance functions that are generally external to DSB, DASB and FSBs. The section monitors unit maintenance throughout the division. It collects, analyzes, and reports maintenance statistics. It keeps records of the status of division equipment. The section also provides disposition instructions on all unserviceable materiel.

DIVISION SUPPORT BATTALION MAINTENANCE CAPABILITY

5-23. The DSB area support maintenance company (ASMC) provides DS maintenance to division troop units not supported by the FSBs or DASB. Except for medical items, airdrop equipment, light textiles, and munitions, this company provides the following:

- Performs field level maintenance for itself and the DISCOM headquarters company.
- Performs DS maintenance to all authorized divisional troop units' equipment.
- Provides technical assistance to division troop units.
- Provides modular DS maintenance teams forward in support of ADA, MI, signal, and FA (MLRS).
- Provides base shop maintenance for all divisional troops land combat and SHORAD missile/gun systems.
- Performs quality assurance/quality control inspections.

- Conducts technical assistance inspections when requested by user units.
- Provides on-site repair for all missile systems not organic to the brigades.

5-24. All requests for ASMC maintenance support are directed through the division support battalion (DSB) support operations section. The DSB support operations section receives the maintenance calls for support (CFS) then forwards the task orders (TO) to the ASMC MCS. The MCS forwards the task orders to the appropriate section or team who will perform the mission.

5-25. The ASMC manages organizational maintenance using ULLS-G. When unit level parts are required, the ASMC checks its PLL. If not available, ULLS-G forwards the request to the SARSS-1 site in the DSB Quartermaster (QM) company where the request is either filled or passed to the SARSS-2A site at the division support operations section. The SARSS-2A site checks divisional SSAs, and either issues the part or forwards the request to the COSCOM support operations office.

5-26. When DS level maintenance support is required, the supported unit sends a CFS to the DSB support operation section via FBCB2 or SINCGARS radio. The DSB support operations section sends a task order to the ASMC maintenance control section. The MCS dispatches appropriate maintenance personnel and equipment to link up with the supported unit at the predetermined place and time to diagnose/troubleshoot and repair the piece of equipment. If repairs cannot be made on-site, the inoperable piece of equipment is recovered to the ASMC MCP or other designated location.

5-27. The maintenance support team and base maintenance platoon order all required DS level repair parts on a DA Form 2407, maintenance request, which is then inputted into SAMS-1. The MCS issues those shop stock items that are available and orders the remaining parts through the SARSS-1 site in the DSB QM company. The MCS monitors inoperable equipment using its SAMS-1 computer system. In addition, the DSB support operations section and the maintenance section of the DISCOM support operations section use SAMS-2 to assist in both maintenance and readiness management.

DIVISION AVIATION SUPPORT BATTALION MAINTENANCE CAPABILITY

Aircraft Maintenance

5-28. The aviation maintenance company (AMC) is assigned to the DASB in the DISCOM. The company is structured to support the aircraft assigned to the division, specifically the observation, utility, and attack helicopters. The objective of aircraft maintenance is to ensure maximum availability of mission-capable aircraft. Aircraft maintenance provides maximum mission capability of total weapon systems through the accomplishment of maintenance where it can be most effectively and economically performed.

5-29. The AMC provides aviation intermediate maintenance (AVIM), located within the DASB, and performs extensive on-aircraft systems maintenance. This maintenance includes:

- Making structural and airframe repairs.
- Repairing components for immediate reinstallation on aircraft or to support its organic reparable exchange program.
- Performing scheduled AVIM-level inspections.
- Serving as the next-level processing agency for aviation brigade (AB) supply transactions under an automated system. This includes the receipt, storage, and issue of repair parts. It also includes the control and distribution of Army intensively managed items (AIMI).

5-30. The AMC employs mobile; weapon system-oriented forward repair/recovery teams to perform authorized intermediate maintenance in the forward areas.

5-31. The AMC provides limited collection, classification, and recovery of serviceable and unserviceable materiel. It also maintains an aircraft combat maintenance/battle damage repair capability to provide reinforcing support to AVUM.

5-32. The AMC send teams forward to assist crew with on-site aircraft combat maintenance, battle damage repairs, and to recover downed aircraft. The AMC provides support, as required, for all recovery missions. The intent is to return damaged aircraft to the battle as quickly as possible using specialized assessment criteria, repair kits, and trained personnel. The aircraft combat maintenance and battle damage repair team is formed from AVUM/AVIM assets and includes a trained inspector for damage assessment, two or three repairers, and a maintenance test pilot. The composition of the team is dictated by specific mission requirements. Upon notification of a damaged aircraft, the AMC commander will dispatch a recovery crew to conduct and initial on-site inspection. The order of recovery method is as follows:

- Apply temporary repairs to slow return of the aircraft to the battle.
- Apply temporary repairs to allow a one-time flight to a more secure maintenance area.
- Rig for aerial of ground recovery.
- Cannibalize critical components and abandon or destroy the aircraft, if directed.

5-33. When a downed aircraft cannot be flown out under its own power, the recovery team determines the best method of recovery and implements that recovery action.

5-34. Aerial recovery is accomplished by preparing the aircraft for movement, attaching suitable airlift recovery equipment and connecting it to the lifting helicopter, and flying the aircraft to the maintenance area. Planning for aerial recovery entails thorough analysis of the recovery site characteristics and the threat associated with relatively slow air movement over the battlefield. Aerial recovery, when compared to ground recovery, has both advantages and disadvantages. Advantages are the reduction of exposure time for recovery assets, less aircraft preparation requirements, and normally, less security requirements. The disadvantages are the risks associated with additional assets exposed.

5-35. Surface recovery and evacuation use ground equipment and wheeled vehicles to deliver a disabled aircraft to a maintenance facility. The planning of a surface recovery follows logical steps. First is an evaluation of the aircraft to be recovered, the type of equipment and transportation means required for the recovery, and thorough reconnaissance and evaluation of the available ground routes to and from the recovery site. Further considerations include the characteristic of the recovery site and factors concerning the tactical situation. Surface recovery advantages include the difficulty of enemy detection of the movement and the lessened risk associated with the recovery operation. Disadvantages include the amount of time required to conduct a surface recovery and the amount of aircraft preparation required.

Ground Maintenance

5-36. The ground maintenance company provides unit maintenance for all DASB non-air items and direct support maintenance for aviation brigade/division cavalry squadron non-air items, including automotive, engineer, utility, power generation, C-E equipment, and small arms. Its mission is to provide support as far forward as possible to return ground combat systems to the battle rapidly. Repairing equipment forward saves transportation assets and time. Whenever practical, equipment repair should be done on site. The tactical situation, extent of damage, and availability of resources may require recovery and evacuation. The ground maintenance company:

- Performs DS maintenance for the aviation brigade and supported elements, including repair of small arms and of communications, engineer, power generation, automotive, and utility equipment.
- Operates a collocated ASL for ground and air Class IX to support the aviation brigade and division cavalry squadron.

Though collocated, air and ground ASL stocks will not be intermingled.

- Performs consolidated unit maintenance for all DASB units.
- Provides technical assistance to supported unit maintenance operations.
- Provides limited recovery assistance to supported units.
- Provides reparable exchange (RX) and quick supply store (QSS) for selected common hardware and low-cost repair parts.

5-37. The cavalry system support team (CSST) is structured to support the division cavalry squadron. This team normally operates out of the cavalry squadron trains area. It is reinforced with other DISCOM elements as required. The teams repair capabilities include: automotive/tracked vehicles, armament/fire control systems, ground support equipment, and communications-electronics.

FORWARD SUPPORT BATTALION MAINTENANCE CAPABILITY

5-38. The maintenance mission of the BSC is to provide field maintenance to the brigade HHC, the brigade reconnaissance troop, the FSB forward support medical company (FSMC), the headquarters and distribution company (HDC), and itself. It also provides limited back up maintenance to the forward support companies (FSCs) and divisional units in the brigade area. The BSC also provides direct support maintenance to FA units that are part of the brigade. To provide direct and habitual combat service support to a divisional engineer battalion, less class VIII and medical support. These functions include the following:

- Field maintenance (organizational and DS).
- Management of Class IX spares (PLL & shop stock).
- Providing all classes of supply to an engineer battalion.

The BSC depends upon the following:

- Headquarters and distribution company, FSB, for religious support, personnel administration support and food service support.
- FSMC, FSB, for combat health support and patient evacuation.
- The support operations, FSB, for movement, maintenance and distribution management.
- Appropriate elements of the division or corps for legal, finance, personnel, and administrative support.
- Resupply of Class IX from EAB on a daily basis unless otherwise directed by higher headquarters.
- Corps water elements for water point resupply.

- Corps elements for fuel and electrical (F&E), communications and electronic passback teams, allied trade, and mortuary affairs.

BASE MAINTENANCE PLATOON, BRIGADE SUPPORT COMPANY

5-39. The BSC base maintenance platoon provides field maintenance (organizational and direct support) to the HDC FSB, BSC, FSMC, HHC brigade, and brigade reconnaissance troop. It also provides DS maintenance support to other units operating in the brigade support area. The platoon performs and coordinates backup and reinforcing support to the FSC maintenance platoons and the ESE forward engineer repair teams. The goal of the "replace forward" concept is to repair systems forward on the battlefield returning combat systems to battle as rapidly as possible. The base maintenance platoon consists of the maintenance control section, automotive maintenance section, GSE repair section, and armament repair section

FORWARD REPAIR PLATOON, BRIGADE SUPPORT COMPANY

5-40. The forward repair platoon provides field maintenance to brigade and divisional units not supported by FSCs or the DSB on an area basis. The service and recovery section provides welding services and limited recovery/lift support. The missile/electronic maintenance support team provides land combat missile systems (LCMS) and communications/electronic maintenance support either forward on-site, or at the base shop as directed by the MCS. The artillery support section provides on-site DS level maintenance to the artillery battalion in support of the maneuver brigade. The wheel/track section is capable of providing contact (on-site) support to the brigade headquarters, brigade reconnaissance troop, engineer battalion, and reinforcing support to the FSCs as directed and also provides limited reinforcing and back up support to the FSCs.

ENGINEER SUPPORT ELEMENT

5-41. The engineer support element (ESE) is a multi-functional unit that includes a food service section, a distribution section, and maintenance sections organized to provide habitual support to divisional engineer battalion. The new engineer support element is as mobile as the unit it supports. It is modular enough to be broken into three multi-functional engineer support teams (EST)s each capable of providing habitual combat service support to an engineer company. These ESTs can co-locate or be attached to maneuver FSCs that are in support of the battalion task force that the supported engineer company is in support of. The ESE can also consolidate all of the ESTs with the ESE headquarters and form a separate engineer task force support area based on METT-TC.

5-42. The base support company maintenance control section manages limited combat spares consisting of major assemblies and key combat system components. During combat operations, these combat spares are maintained by the engineer CRT, engineer support element and managed by the MCS. When task organized, the BSC MCS sends the accompanying ULLS-G box and an operator with each engineer CRT to facilitate parts requests and maintenance management. The FBCB2 calls for support and logistics task orders follow the same lines of communication as the CRT in the FSC.

FORWARD SUPPORT COMPANY MAINTENANCE

5-43. The FSC commander is the single CSS operator at the maneuver BN/TF level. The FSC provides field maintenance and all classes of supply, minus medical, to its supported BN/TF. The maneuver BN/TF provides level 1 medical support to their supporting FSC. The FSCs accomplish their core functions through centralization of support and new technologies. Centralization of support accomplishes the dual functions of providing the maneuver commander with greater mobility as well as increased efficiency and effectiveness in the flow of support and supplies. Centralized support allows the FSB commander to cross level between FSCs and weight the battle logistically, or surge, as required. Centralization of support is enhanced through employment of maturing technology available to the division logistician. The FBCB2 and its' capability to provide near real time situational understanding to all on the battlefield greatly assist in the support effort.

5-44. The FSC is a multi-functional unit that includes an S&T platoon and a maintenance platoon organized to provide habitual support to a maneuver battalion. This new FSC is as mobile as the unit it supports. This mobility provides greater flexibility for the maneuver commander. The FSCs locate, based on METT-TC, four to twelve kilometers behind their supported maneuver BN/TF in the task force support area (TFSA). The maneuver unit company supply sergeants are located in the TFSA. They assemble their logistics packages (LOGPACS) and then move their vehicles forward to the company logistics release point (LRP). The company first sergeant (1SG) or his representative meets the LOGPAC and guides it to the company resupply point.

5-45. The FSCs co-locate a support operations cell with the maneuver BN/TF S1/S4 at the combat trains' command post (CTCP). The CTCP is located within the FSC forward location, one to four kilometers behind the BN/TF. Based on METT-TC, the FSC has the flexibility to locate the unit maintenance collection point (UMCP), recovery, emergency re-supply of Class III and V, and other assets from the TFSA in this FSC forward location. The maneuver units will normally locate their treatment and ambulance sections within the FSC forward location for force protection and proximity considerations. Combat repair teams (CRTs) from the FSCs are placed forward with each maneuver company under the operational control of the maneuver 1SG. The maneuver 1SG also has under his operational control the combat medic track ambulance crew. Casualties are evacuated by track ambulance to the casualty collection point CCP consolidated and further evacuated back to the battalion aid station. The FSC is emplaced by the maneuver battalion commander and employed by the FSB commander.

AUTOMATION MAINTENANCE

5-46. The digitized division depends on a significant number of automated systems to accomplish its missions in both peacetime and wartime operations. Automation is a critical component of gaining information dominance, shaping the battlespace, conducting decisive combat, and protecting the force.

5-47. A major part of the success in leveraging all this automation involves the development of an integrated maintenance plan for keeping all the associated hardware and software operational and functioning. The maintenance plan must be integrated to maximize operator level, organizational, and direct support maintenance capabilities within the division and the reinforcing direct support and contractor maintenance capabilities at echelons above division.

5-48. Development of a successful automation maintenance plan at the FSB level in support of a maneuver brigade's battlespace involves the following considerations:

- A viable PMCS program for all automated systems that can be executed at operator level (this may entail the local development of automation PMCS kits that consist of compressed air, keyboard covers, lint sheets, and disk drive cleaners for CD ROM disks, magnetic optical disks, and floppy disks). This must be coupled with an established maintenance cycle for automation that focuses on periodic checks and services.
- Clearly defined levels of maintenance responsibility for soldiers (31U/74B/35J) and contractor personnel that define who is authorized to perform certain maintenance related functions as well as identification of any warranty exceptions that may be required.
- Proper positioning on the battlefield of automation related “combat spares”/ASL (cables, T-connectors, keyboards, disk drives, motherboards, UPS, etc…) that supports the replace forward/fix rear maintenance concept.
- Identification of applicable tool sets and kits needed to support automation maintenance and equipping maintainers at appropriate levels with the proper tools to perform their mission.

- A clearly defined division automation evacuation and repair plan that contains procedures and SOPs for contacting "help desks", packaging and preparation of hardware for evacuation to higher echelons, and issuance of spare or "float" automation equipment. The focus of this plan must be on maximum reduction of repair cycle time.

5-49. Other considerations at division level for automation maintenance include:

5-50. A comprehensive training plan for exposing soldiers to automation maintenance at the operator level. This must parallel vehicle maintenance programs to the degree that maintenance of automation becomes a periodic, sustained process. Automation, like vehicles, must be viewed as combat systems and cared for accordingly.

5-51. Increase operator confidence in troubleshooting and repairing automation systems. Reduce operator dependency on contractors and logistics assistance representative (LARs) from AMC electronic systems support center (ESSC) to solve operator and organizational problems. Free ESSC personnel to focus on isolation and repair of maintenance faults that cannot be resolved by division's organic maintenance assets.

5-52. Proper positioning of contractor personnel and LARs from AMC ESSC in the division area. Consider establishment of various "help desks" at different echelons within the division battlespace (i.e. at brigade level).

5-53. Identify duties and responsibilities of various personnel, units, and battle staff sections regarding automation maintenance. Clearly define what tasks and functions that the operators, the CSSAMO, the various S6 sections at different echelons, maintenance units, and contractors are responsible for.

5-54. Rehearse evacuation and replacement procedures for combat critical automation systems such as FBCB2, ABCS (MCS, CSSCS, AFATDS, ASAS, AMDWS) and selected GCSS-A systems.

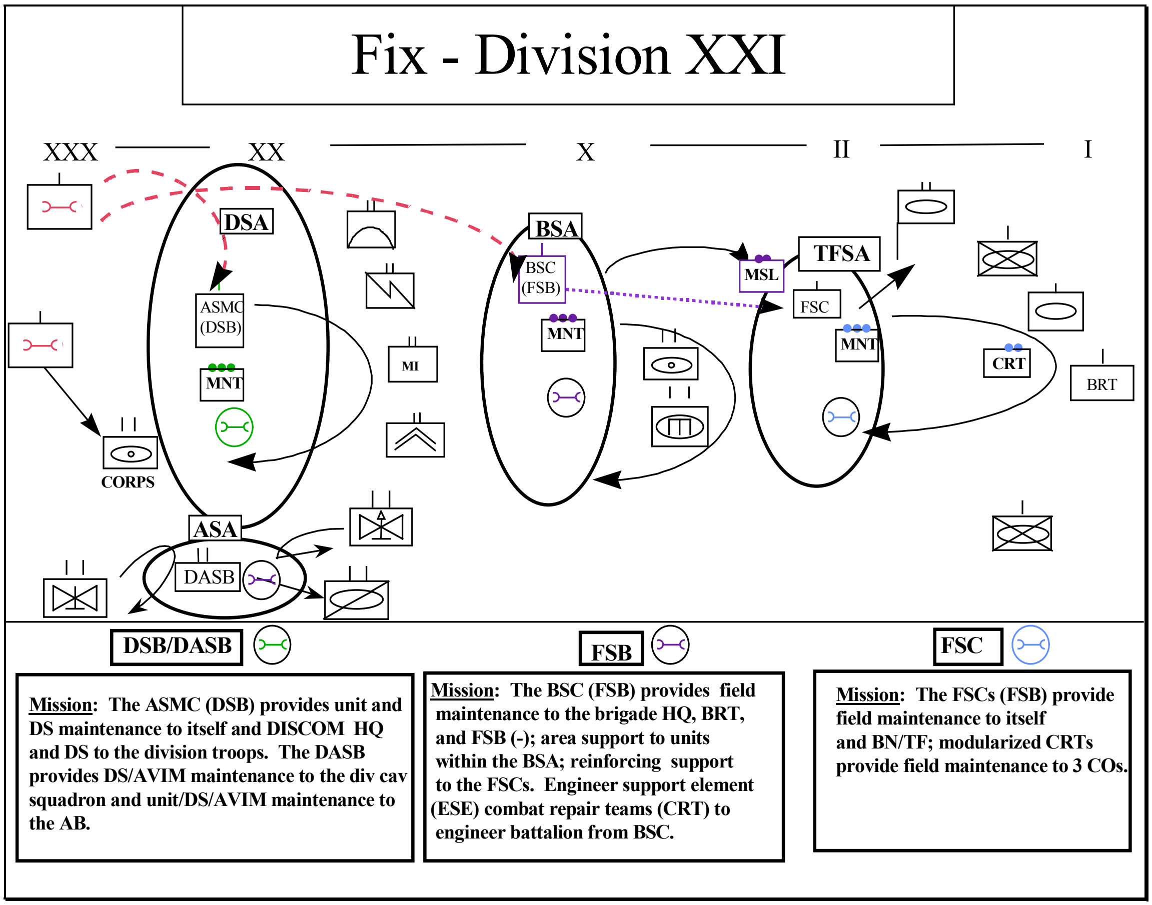


Figure 5-5. Fix Division XXI

MOVING THE FORCE

DIVISION TRANSPORTATION OPERATIONS

5-55. The DISCOM provides direct support CSS to the division. The foundation of this support is a single CSS operator providing unity of command and centralized distribution management at all echelons to meet the maneuver commander's intent. Under Force XXI operations, this doctrinal premise is dependent upon battlefield distribution, throughput to forward areas, and improved situational understanding through the application of enabling technologies.

5-56. Significant changes in division transportation operations under Force XXI operations include: an improved division transportation motor transport company design that replaces the M931 tractors/M871 trailer combinations with palletized load handling systems; merger of movements and materiel management at the DISCOM distribution management center; reliance on corps throughput for sustainment resupply; transportation assets forward in the supply & transportation platoons of the support companies (HDC and FSCs); and movement managers located in the FSB support operations to provide movement control and transportation coordination for the maneuver brigade.

5-57. To maximize division transportation capability, planners and operators must employ the Force XXI CSS integrating imperatives discussed below as the basis for all transportation operations.

Unity Of Command, Centralized Distribution Management

5-58. Synchronizing movement and materiel management and maintaining integrated end-to-end visibility of transportation assets is key to the successful operation of an efficient, fully integrated transportation system at the division level. The DISCOM movement control officer performs this function for the division as a member of the DISCOM commander's staff and is located in the DISCOM's distribution management center. The movement control NCO performs this function for the maneuver brigade and is located in the transportation cell of the FSB support operations section.

Increased Velocity, Throughput To Forward Areas

5-59. Throughput operations bypass one or more echelons in the distribution pipeline to minimize handling of cargo and improve velocity on the battlefield. Direct throughput relies on unity of command and situational understanding to effectively implement the use of transportation assets and to divert, re-route, and ensure continuous movement of supplies into and through the division area. The DISCOM MCO maintains constant in-transit visibility of corps sustainment resupply convoys entering the division rear boundary through MTS and other ATCCS. The movement control NCO in the FSB support operations maintains constant ITV of all corps (or division) sustainment resupply convoys in/out of the BSA through movement tracking system (MTS). The FSB movement control NCO also synchronizes delivery schedules (via Force XXI battle command brigade and below, FBCB2) with customer units to complete throughput to forward areas.

Increased Velocity, Minimize Load Handling

5-60. Minimizing load handling of cargo and reducing material handling equipment requirements are essential to successful throughput to forward areas under Force XXI CSS doctrine. Transportation corps materiel enabling technologies such as the PLS, HEMTT-LHS, and CROP significantly reduce handling requirements over break-bulk methods. These systems extend distribution throughput capability and enhance velocity through flatrack exchange at the division, brigade, and task force support areas. Transportation managers will coordinate efficient flatrack exchange and maximize flatrack load capacity and retrograde operations.

MOTOR TRANSPORT AND MOVEMENT CONTROL OPERATIONS IN THE DIGITIZED DIVISION

5-61. Movement and maneuver of combat forces are normally given priority over other movements, even though CSS traffic is essential to the success of battles. Movements planning and execution in the division are staff responsibilities, rather than being vested in operational units found at corps and above. Transportation mode operators and movement control elements at division level manage the movement of non-committed units in the division area and require close coordination between the division's G3 and G4. The G3 plans and directs maneuver. The G4, through the division transportation officer, DISCOM distribution management center, and DISCOM MCO coordinates and controls division transportation operations. Planning and regulating movement requires close coordination among the division staff and the commanders and staffs of the brigades, separate battalions, and separate companies.

5-62. The division G4 DTO is the primary advisor to the division commander, the coordinating-special-staff for transportation matters, and is the formal link between the division and corps. The DTO plans for movement of the division by all modes based on the division commander's guidance. The DTO develops and coordinates movement control and highway planning with division staff, the corps transportation officer (CTO), and division support movement control team (MCT) habitually supporting from corps. The division G3 prioritizes CSS movement and tactical maneuver missions in support of the division operation and the DTO incorporates these priorities into all movement planning. The DTO participates in the military decision making process as a member of the division planning staff and recommends the allocation of division transportation assets and establishment of MSRs. The DTO will provide the DISCOM MCO with broad policy guidance and basic plans for the division road network written in the highway regulation and traffic circulation plans (movement annex) of the division OPLAN/OPORD.

5-63. The DISCOM MCO supports movement control through planning and controlling the tasking to the TMTC. The TMTC commander provides a current status of fleet availability to the MCO. The FSB, DASB, and DSB support operations sections, as well as separate companies and battalions supported by the DISCOM pass requests for movements to the MCO. The MCO balances the request to the availability of TMTC company assets, then assigns the mission to the TMTC.

5-64. When transportation requirements exceed capabilities, the MCO must decide whether to wait for TMTC assets to become available or forward the mission to corps for support. If forwarded to the corps, the request is submitted through the DTO to the division MCT. The supporting division MCT submits the request to the CSG(F)'s supporting area MCT. The transportation support will come from the supporting corps support group's (CSG) transportation battalion. The MCO is responsible for ensuring that transportation assets are properly employed and promptly released when missions are completed.

5-65. The DISCOM MCO develops the division movement program based on the G4 CSS planner's combat service support annex of the division OPLAN/OPORD and adheres to guidance within the division movement annex. The MCO coordinates with the materiel managers of the DISCOM DMC to determine and plan for transportation of materiel and assists in the development of the CSS synchronization matrix.

5-66. The MCO coordinates with subordinate support operations movement/materiel managers to ensure delivery of sustainment resupplies to the correct location and integrates retrograde movement of equipment, flatracks, and personnel. Throughput distribution is the preferred method of delivering commodities and supplies to requesting supply support activities or to the user. Sustainment materiel delivered to the DSB, DASB, and FSB will normally be scheduled deliveries and synchronized with subordinate support operations sections and customer units. Corps transportation assets contact the movement managers (MCO and DSB/DASB/FSB distribution managers) through MTS when entering the division/brigade rear boundary(s) and delivering to the DSA, ASA, or BSA logistics release points (LRPs), (also referred to as a corps LRP). The movement managers will forward the coordinating information through their supporting area MCTs to the division via MTS. All divisional and non-divisional units operating in the division rear area will submit transportation requests and movement clearance requests to the DISCOM MCO. Figure 5-6 depicts division movement control.

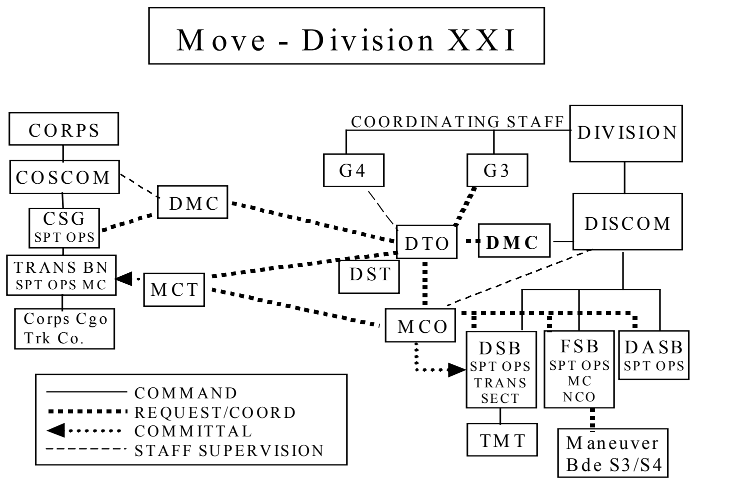


Figure 5-6. Division Movement Control

5-67. Transportation operations and movement control in the maneuver brigade is a CSS staff responsibility. The brigade S4 provides the maneuver brigade commander with overall staff responsibility for highway regulation and MSR/ASR establishment in the brigade area in coordination with the brigade S3's priority of movement and the DTO's highway regulation and traffic circulation plans. Movement control at the brigade level requires close coordination between the brigade S4, DISCOM MCO, FSB support operations and the battalion S4/forward support company (FSC) support operations at the BN/TF level.

5-68. The movement of the maneuver brigade is coordinated and synchronized with the division G3 and G4 through the DTO. Unless the movements are planned concurrently with the tactical plan, the best plans can be thwarted by road congestion. The brigade S3 approves all tactical movements in the brigade's battlespace. The brigade S4 plans, manages and executes all movements with assistance from the FSB support operations transportation cell through CSSCS and maintains visibility through MTS.

5-69. The FSB support operations section assumes the distribution management center's role in providing continuous and responsive sustainment to the maneuver brigade through a variety of STAMIS and ATCCS managed by the section. The FSB's limited distribution capability relies heavily on support from the DISCOM and corps for sustainment throughput. The FSB's distribution manager synchronizes the delivery schedule with customer units and transfers information between the brigade S4 and the battalion S4/FSC support operations office (via MTS) to schedule and synchronize transportation requirements within or in direct support of brigade or battalion operations. For supplemental transportation support and coordination on inbound and outbound shipments the FSB movement control NCO coordinates with the DISCOM MCO through MTS.

5-70. The FSC support operations section assumes the movement and materiel management and maintenance (evacuation) functions of a DMC at the lowest echelon of support to a BN/TF. The FSC support operations coordinates with the BN/TF S4 and synchronizes the delivery of all classes of supply with customer units and transfers requirements and capabilities to the FSB support operations (info copy to FSC commander). The FSC support operations schedules and synchronizes transportation support and the FSC rear CP coordinates inbound and outbound shipments with the FSB movement control NCO through MTS.

FIRST DESTINATION REPORTING POINT

5-71. A first destination reporting point (FDRP) is normally established along a MSR at or near the division rear boundary. The FDRP is a point manned by a movement regulating team, a movement control team, or military police that diverts a driver and cargo to an alternate consignee or destination. Basically, FDRPs are logistical information checkpoints. The FDRPs support velocity management and situational understanding.

5-72. Even though the division is digitized, a FDRP is routinely required since many echelon above division (EAD) supporting units, host nation support, and/or contractors will be non-digitized. Either the division or an EAD unit can operate the FDRP. Optimally, both the division and supporting EAD headquarters have representatives located at the FDRP continuously. Security arrangements, command and control, and communications support must be addressed prior to FDRP establishment. Further amplification of FDRP operations can be included in unit SOPs. Some tasks performed at the FDRP are below:

- Track location of critical supplies.
- Perform movement control functions.
- Provide instructions to convoys.
- Provide and receive latest intelligence.
- Reroute convoys/vehicles.
- Provide information on routes and weather.
- Establish division "light line" for blackout driving.
- Linkup point for armed convoy escort vehicles.

FLATRACK MANAGEMENT OPERATIONS

5-73. Flatracks offer tactical efficiencies that serve an increased pace of logistical operations and significantly alter the speed at which service support is provided to the warfighters. The key to sustaining these efficiencies and maintaining improved throughput velocity is flatrack employment, management, and retrograde procedures at each echelon of support. An increased battlespace depth and a reduction of CSS force structure challenge flatrack management and ultimately sustainment of combat power within the FXXI division area of operations. Flatrack management is a challenge that must be met in order to successfully sustain combat power on the FXXI battlefield.

5-74. Flatrack employment, management, and retrograde operations are the responsibility of distribution managers integrated at each echelon of support throughout the division area. Flatracks will be dispersed throughout the distribution pipeline, particularly from the division rear boundary to the combat trains' command post of a maneuver task force. It is imperative that stringent flatrack management procedures be implemented at the tactical level on an area basis. Figure 5-7 depicts digitized division flatrack management operations.

Task Force Support Area Flatrack Management Operations

5-75. The FSCs operating TFSAs face increased flatrack management challenges because they are mobile units with limited transportation assets to move supplies and retrograde flatracks. Flatrack management responsibilities within the TFSA rest with the FSC support operations officer and the FSC S&T platoon leader. The FSC support operations officer flatrack responsibilities include:

- Identifying a proposed flatrack collection point (FRCP) upon occupation of the TFSA in coordination with the FSC S&T platoon leader.
- Managing all common user flatracks on an area basis.
- Ensuring flatrack exchange (providing a back hauled flatrack for every received) procedures are adhered to as a matter of priority.
- Maximizing the use of FSC S&T LHS for retrograding flatracks from the FRCP back into the distribution pipeline.
- Reporting flatrack on-hand quantity by location, status, and condition to the FSB support operations office movement control (MC) NCO.
- Coordinating with the FSB support operations MC NCO for supplemental transportation support when retrograding flatracks from the TFSA FRCP.
- The FSC S&T platoon leader flatrack responsibilities include:
- Identifying a proposed flatrack collection point (FRCP) upon occupation of the TFSA in coordination with the FSC support operations officer.

- Ensuring flatrack exchange procedures are adhered to as a matter of priority.
- Collecting and consolidating empty flatracks across the BN/TF sector.
- Reporting flatrack on-hand quantity by location, status, and condition to the FSC support operations officer.
- Back hauling/cross leveling items on flatracks such as ammunition residue, trash, remains, unserviceable parts/assemblies, as directed by the FSC support operations officer.

5-76. Flatrack exchange is the preferred method for retrograding flatracks from the TFSA. The FRCPs are designated for flatrack consolidation purposes when required and this proposed location is reported to the FSB support operations officer. Logistics release points (LRPs), supply routes, feeder routes accessing supply routes, other collection points, and force protection measures are considered when selecting these locations. The FRCPs can also be collocated within the existing TFSA FSC perimeter or consolidated with adjacent FSCs to maximize force protection resources.

Brigade Support Area Flatrack Management Operations

5-77. The FSBs operating in the BSA has flatrack management responsibilities for all flatracks throughput to and retrograding from the brigade area. Flatrack management responsibilities within the BSA rest with the FSB support operations office, supply & services movement control (MC) NCO and the HDC S&T platoon leader.

5-78. The FSB support operations MC NCO flatrack responsibilities include:

- Identifying a proposed flatrack collection point (FRCP) upon occupation of the BSA in coordination with the HDC S&T platoon leader.
- Managing all common user flatracks on an area basis.
- Ensuring flatrack exchange procedures are optimized using division and corps throughput assets as a matter of priority.
- Maximizing the use of HDC S&T LHS for retrograding/back hauling flatracks from the FRCP back into the distribution pipeline.
- Reporting flatrack on-hand quantity by location, status, and condition to the movement control office (MCO), DMCand DISCOM.
- Monitoring the status and location of FSC FRCPs.
- Coordinating with the DISCOM MCO for supplemental transportation support when retrograding flatracks from BSA FRCP.

5-79. The HDC S&T platoon leader flatrack responsibilities include:

- Identifying a proposed flatrack collection point (FRCP) upon occupation of the BSA in coordination with the FSB support operations office MC NCO.
- Ensuring flatrack exchange procedures are adhered to as a matter of priority.
- Collecting and consolidating empty flatracks/back haul items across the brigade rear area and at TFSA FRCPs.
- Reporting flatrack on-hand quantity by location, status, and condition to the FSB support operations MC NCO.
- Retrograding unserviceable assemblies/parts, supplies, trash, remains, or any back hauled/cross-leveling item on flatracks as directed by the FSB support operations office MC NCO.

5-80. The preferred method for retrograding flatracks from the BSA is flatrack exchange with the FSCs, division rear support units, and corps sustainment resupply convoys. The FRCPs are designated for flatrack consolidation purposes when required and this proposed location is reported to the DISCOM MCO. When selecting the LRP, supply routes, feeder routes, accessing supply routes, supply support activity, and other collection point locations, require that force protection measures must be considered. The FRCPs can also be collocated within existing logistical nodes to maximize force protection resources.

Division Rear Area Flatrack Management Operations

5-81. The division support operations office has flatrack management responsibilities for all flatracks throughput to and retrograding from the division rear area. Overall flatrack management responsibility within the division rear area rests with the DISCOM MCO. The DISCOM MCO has flatrack management and status reporting responsibility to the supporting area movement control team (MCT) of the supporting corps support group.

5-82. Within the division rear area, flatrack management responsibilities are delegated further on an area support basis. The DSA and the ASA assume flatrack management responsibilities for their respective areas. The DSB support operations office, transportation section (in the DSA) and the DASB support operations office (in the ASA) are charged with collecting empty flatracks within their area of responsibility and providing a daily flatrack status report to the DISCOM MCO.

5-83. The preferred method for retrograding flatracks for the DSB and the DASB is flatrack exchange with corps sustainment resupply convoys. The DISCOM MCO, in coordination with the DSB and DASB, identifies proposed FRCPs upon occupation within the division rear area. The FRCPs are designated for flatrack consolidation purposes when required and this proposed location is reported to the supporting area MCT.

5-84. The DISCOM MCO, DSB, and DASB manage all common user flatracks on an area basis, ensure flatrack exchange procedures are optimized using division and corps assets as a matter of priority, and maximize the use of TMT company PLS for retrograding flatracks from the FRCPs back into the distribution. The DSB and DASB support operations offices coordinate with the DISCOM MCO for supplemental transportation support for flatrack retrograding from their respective areas. The DISCOM MCO submits requests for supplemental transportation support to the supporting area MCT for flatrack retrograding from the division rear support area FRCPs.

Flatrack Reporting Procedures

5-85. Accurate daily reporting of flatracks in a unit's area of responsibility by location, status, and condition is critical to efficient management of this crucial asset within the distribution pipeline. A separate report is not required for reporting flatrack status. Flatrack managers roll flatrack status into existing reports. Requests for supplemental transportation to retrograde flatracks on the battlefield are submitted as routine transportation requests through support operations channels. Flatrack procedures outlined in this appendix will be incorporated into unit tactical standing operating procedures (TACSOPs).

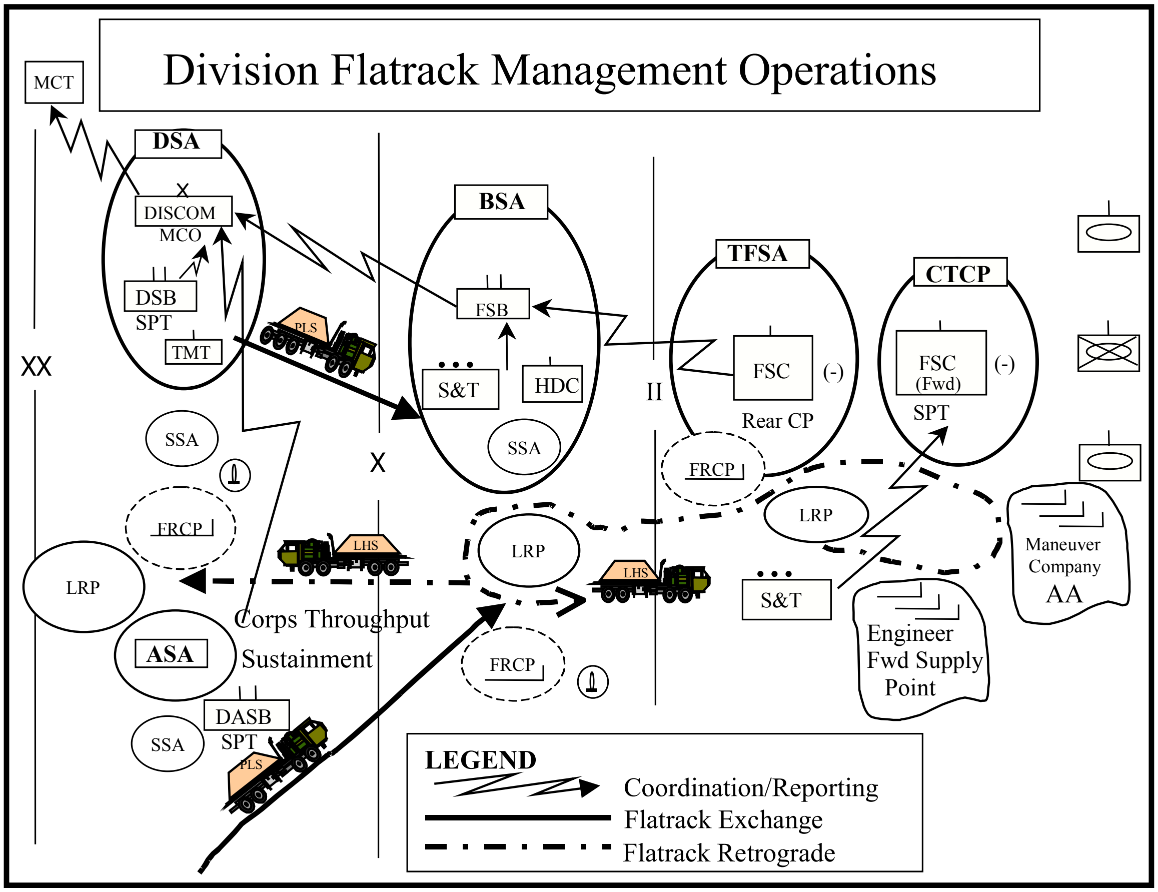


Figure 5-7. Digitized Division Flatrack Management Operations

ARMY AIRCRAFT SUPPORT

5-86. Logistics planners categorize air movements as pre-planned and deliberate. Units submit pre-planned requests to satisfy programmed requirements and non-programmed within 24-hour advance notice. Immediate requests are initiated when there is less than 24-hour notice, support is absolutely essential to the survival of the unit, or when lack of support will result in complete mission failure.

5-87. Units submit requests to the FSB movement control NCO who forwards requests to the MCO at the DISCOM DMC. If the MCO determines use of aviation assets is appropriate, the request is forwarded through the DTO to the division G3 air officer. The G3 air officer allocates helicopter lift support on the basis of all aviation tasks by balancing combat, combat support, and CSS requirements.

5-88. When aviation assets are dedicated to CSS distribution missions for certain periods of time, the aviation brigade sends a liaison officer to the DMC movement control office of the DISCOM support operations. If aviation assets are required for CSS distribution missions, the MCO submits pre-planned requests for these assets from the flight operations/S3 of the aviation brigade through the liaison officer (info copy to DTO). This liaison officer advises the MCO on capabilities and limitations of the aircraft, particularly the lift capability for current environmental conditions.

5-89. The MCO provides movement requirements including size of the load, pickup and delivery times, location of landing zones, and any special handling requirements pertinent to aircraft operations. The MCO also coordinates with the appropriate commodity manager within the DMC for transportation of supplies. If the aviation brigade is unable to support requirements, the MCO contacts the DTO. The DTO coordinates with the G3 air officer for verification and forwards the request to the corps through the division support MCT.

5-90. Units submit immediate requests for resupply and transportation through the same CSS channels as preplanned requests. However, the requests are submitted simultaneously through command channels from the unit to G3. The MCO will submit the request through the DTO, who verifies the request. Once verified the DTO forwards the request to the G3 air via CSSCS. At the same time the G4 coordinates for immediate resupply with the DMC commodity manager to identify the appropriate supply company to prepare the immediate shipment (Reference: FM 55-450-5). Information is passed to both the supporting and supported units as well as the responsible operations center/staff proponent.

GENERAL HELICOPTER CSS MISSION AREAS

Transition To War

- Self-deploy to area of operations.
- Provide early in-theater transport.
- Move priority cargo, weapons, ammo, POL and barrier material forward from ports/staging areas to establish supply points.

Deep Battle

- Move troops, equipment, weapons systems, ammo, POL, priority supplies from rear to forward staging areas to support deep battle operations.
- Deploy reinforcing units; evacuate wounded, recover battle-damaged equipment, and forward repositioning of artillery.

Covering Force And The Main Battle

- Support air assault units with rapid resupply of ammo and POL.
- Augment reaction forces into blocking positions to contain enemy.

Rear Battle

- Move forces and equipment to counter operations in rear.
- Augment reaction forces into blocking positions to contain enemy.

Combat Support

- Emplacement, repositioning, resupply of forward area refueling points (FARPs).
- Rapid repositioning of reinforcement troops, equipment, artillery etceteras.
- Transport barrier materials, mines, bridging equipment for engineering support.

Combat Service Support

- Provide logistical air transport of cargo from rear to as far forward as brigade rear areas meeting time sensitive and surge demands.
- Deliver critical loads to areas not accessible by ground or Air Force airlift.
- Employed to move priority cargo to overcome congestion and enemy inflicted gaps in transportation system.

SUSTAINING THE FORCE

5-91. Class I, water, Class II, III(P), IV, VII, VIII, IX support, field services and welfare items are examples of elements of sustaining the soldier and their systems. Although not all of the above will be available on a regular basis, having them available as soon as the mission permits is critical in CSS planning.

CLASS I

5-92. Food is one of the most important factors affecting a soldier's health, morale, and welfare. However, the acquisition, storage, transportation, distribution, preparation, and serving of food have always been a logistics challenge. The Army field feeding system (AFFS) is based on three basic rations. The MRE is the individual combat ration. The T ration is a group-feeding ration, and the B ration is also a group feeding ration but one that must be prepared. The requirement is to serve "three quality meals per day", with the capability to distribute, prepare, and serve a unitized group ration "A" (UGR-A), a "heat and serve" UGR meal, and a meal, ready to eat (MRE) individual ration" (Chapter 1, FM 4-20.2 (10-23)) after initial entry into the theater.

5-93. As the operational situation permits, efforts are made to distribute, prepare and serve the UGR-A introducing the A ration into the theater. This requires extensive planning and coordination. Some key points planners need to consider with the UGR-A rations are: refrigerated storage, distribution equipment, and the availability of ice for unit storage.

5-94. The FSC provides consolidated food preparation for the FSC and BN/TF. The FSC has the ability to prepare meals forward in each company area based on METT-TC. The food service section cooks A and B rations or heats T rations in their organic mobile kitchen trailer (MKT). Food is packed in insulated food containers and sent with the LOGPAC to CO/TM location where CO/TM personnel serve the meals. The HDC, FSB provides food service support to itself, BSC, and forward support medical company. Food and beverage containers are sent back for reuse. Where practical, small units are fed by unit designated on an area basis.

5-95. The Army field feeding standard for combat is one meal prepared (A or B), group feeding ration, and an MRE each day. The wartime feeding policy assumes theater-wide use of MREs for the first several days of combat with the eventual transition to the prepare T and B rations.

5-96. The DISCOM receives headcount data for Class I from the FSB, DSB, and DASB support operations sections from CSSCS, and in turn sends it to COSCOM support operations office. Corps or EAC will configure rations in BN/TF sets and push them forward to the FSB, DSB, and DASB field ration issue point IAW the ration cycle. The FSB, DSB, and DASB support operations sections coordinate with supported units for the location of ration issue point and pick-up schedule. Figure 5-8, shows Class I resupply.

5-97. The DISCOM support operations Class I supply branch fills the supply pipeline using the push system. Rations are pushed forward to the FSB, DSB, and DASB field ration issue point based on personnel strength reports, planned operations, and anticipated task organization. The support operations Class I section converts this data to line requisitions that are sent to the COSCOM support operations office.

5-98. The Class I field ration issue point verifies shipping documentation with the shipment received. They also inspect shipments of rations for type, number, and condition or items received.

5-99. When the division is engaged in combat, the ration supplement health care package (HCP) is usually issued with the rations. Issue is to division troops and those attached troops operating in the division area. These supplemental HCPs should not be confused with Class VI supplies. The HCP is composed of items essential to the health and comfort of troops. These items include toilet articles and confections. Pending establishment of adequate service facilities, this packet is made available in theaters of operations for issue.

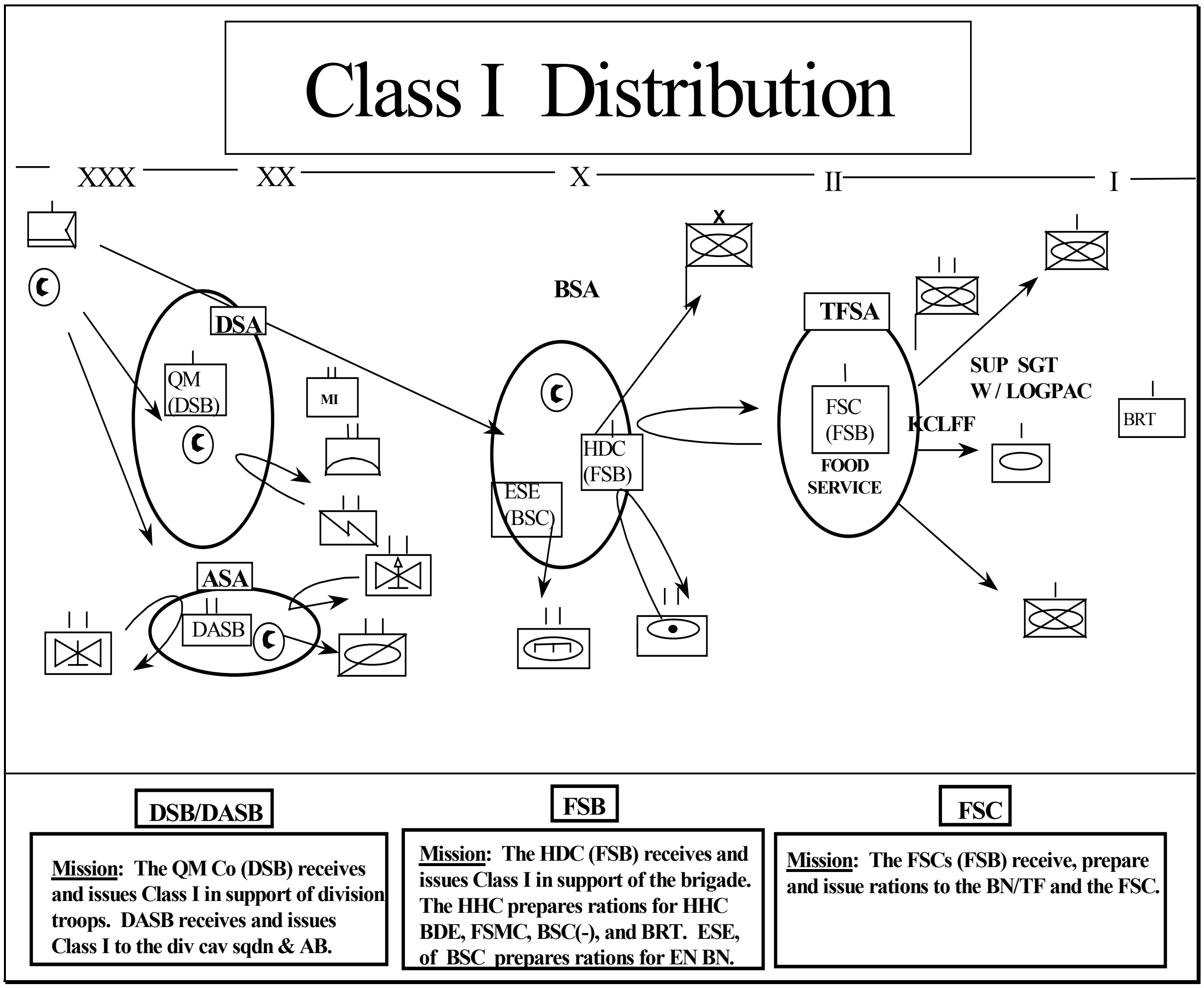


Figure 5-8. Class I Distribution

WATER

5-100. The Class III and water supply branch of the division support operations will manage water distribution within the division. Figure 5-9 shows the DISCOM water distribution organization. Water production and storage is provided to the division by an augmentation team from the modular water unit within the COSCOM. This water augmentation team is capable of establishing water points that produce, store and issue potable water. The augmentation team will establish water points in the DSB, DASB and each FSB. The team is dependent on the division for life support and force protection.

5-101. Water augmentation teams may produce, store, and issue or (without the availability of a suitable water source) simply store and issue potable water. In an arid environment, water points will receive additional storage capacity from the COSCOM. Within an arid environment or where there is no suitable water source, the COSCOM will deliver water as part of normal sustainment pushes. An adequate water source should be a consideration when selecting the division, aviation, and brigade support areas. Limited water sources may require massing production assets from the augmentation team and transporting the water to support area water points.

5-102. Water distribution within the DSA, ASA and BSA will be through supply point distribution at the water points. The HDC's hard-wall tankers will be used to distribute water to maneuver battalions. Maneuver company supply sergeants fill their water trailers at the TFSA according to an established schedule.

5-103. Bottled water may be locally procured or shipped from outside of the theater of operations. Bottled or packaged water is particularly well suited for RSOI and initial operation, however (situational dependent) may be routinely issued throughout an operation or conflict. It is normally distributed along with Class I. The Army Medical Command has the responsibility for quality surveillance and quality assurance for bottled water.

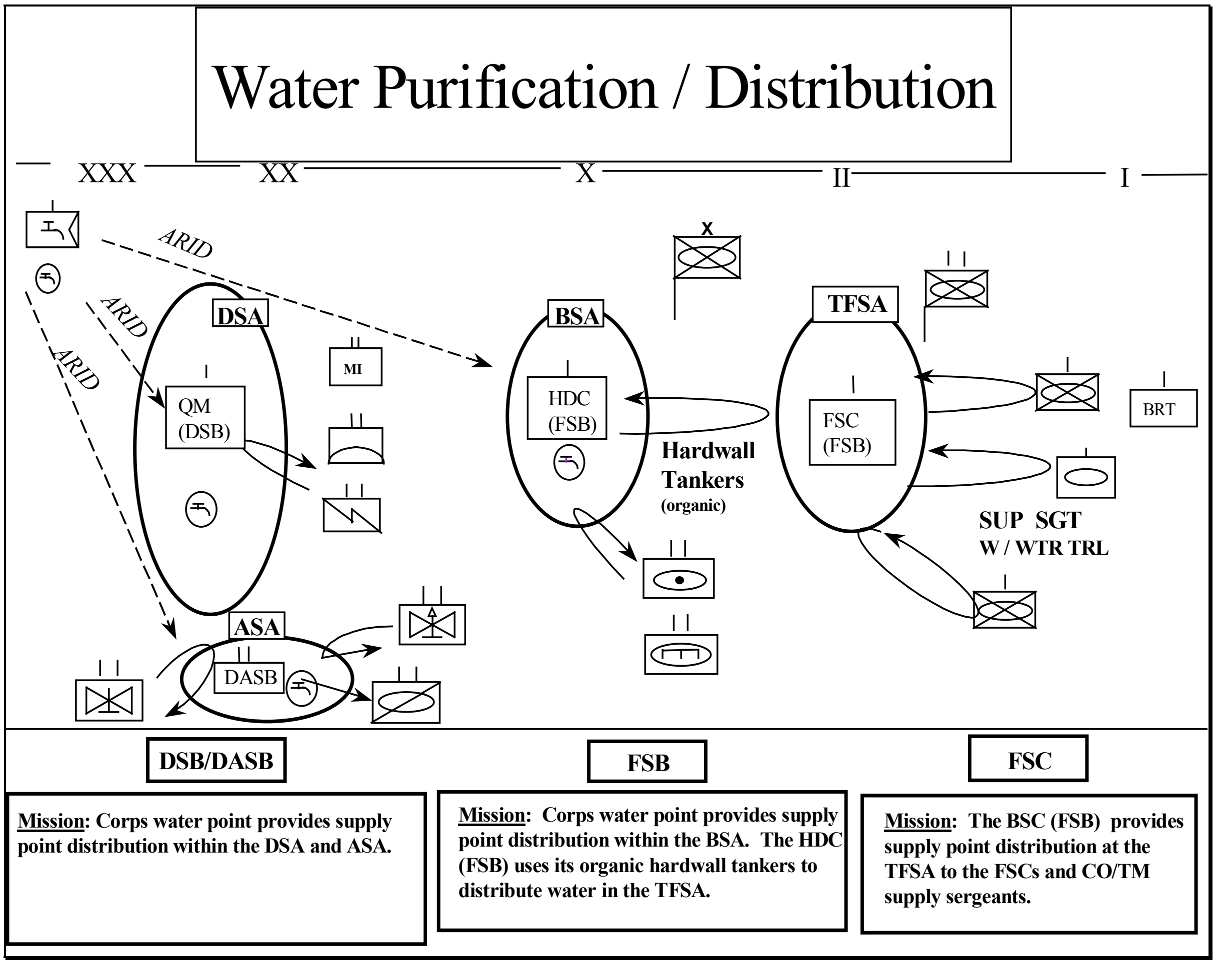


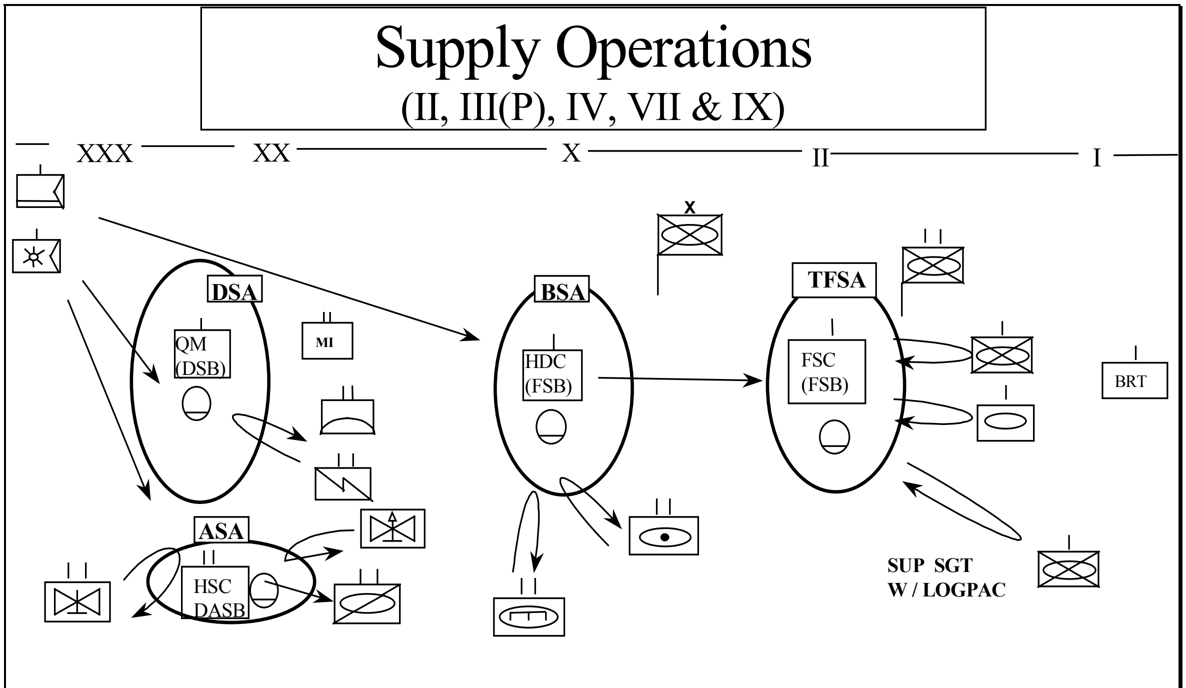
Figure 5-9. Water Purification/Distribution

CLASSES II, III(P), AND IV

5-104. Class II, III(P), and IV includes a wide variety of supplies and equipment from clothing to tools, to packaged petroleum products, to barrier materials. The FSC of the FSB issues Class II, III(P), and IV to units in the BN/TF. The HDC of the FSB will maintain limited stockage for support of the brigade supply point distribution to brigade troops. The QM company out of the DSB will issue Class II, III(P), and IV to division troops. Stockage for the support of division troops is kept in the supply platoon of the QM company. The HSC of the DASB will maintain stockage for support of the aviation brigade and division cavalry squadron.

5-105. Unclassified maps follow the same requisition flow as Classes II, III(P), and IV supplies. They are stored in the receipt, storage, and issue section of the units that store unclassified maps. Maps are issued through supply point distribution to supported units according to established tables of allowances or to fill special requirements. Classified maps are handled through S2 channels.

5-106. Units in the brigade area submit their requests for Class II, III(P), and IV items through ULLS-S4, to their supporting FSC. The S&T platoon issues the item to the customer. Notification is then sent to the division support operations of the issue. If supplies are not on hand at the FSC, the request is sent to division support operations (SARSS-2A). Personnel in the Class II, III(P), and IV supply branch of division support operations check within SARSS2A. If they find the items are on hand in the SSAs, they will release it or forward the request to the corps SARSS-2A. The division support operations can also direct cross leveling of items within support battalions. The supporting COSCOM activity delivers the supplies to the respective SSA according to the DODAAC. Units in the division rear submit their Class II, III(P), and IV request through the ULLS S4 to their supporting QM company in the DSB. Units in the aviation brigade and division cavalry squadron submit their Class II, III(P), and IV request through the ULLS S4 to their supporting HSC in the DASB. Figure 5-10 shows the DISCOM supply operations for Class II, III(P), and IV operations as well as Class VII and IX supply operations and Figure 5-11 shows the requisition flow for Classes II, III(P) and IV.



DSB/DASB

Mission: The QM Co (DSB) requests, receives, stores and issues Class II, IIIP, IV, VII & IX in support of the division trps. The DASB supports the AB/div cav sqdn

FSB

Mission: The HDC (FSB) distributes Class II, IIIP, IV,VII and IX items in support of the maneuver brigade.

FSB

Mission: The FSCs (FSB) distributes Class II, IIIP, IV, VII & IX in support of the BN/TF.

Figure 5-10. Classes II, III(P), IV, VII, IX Resupply

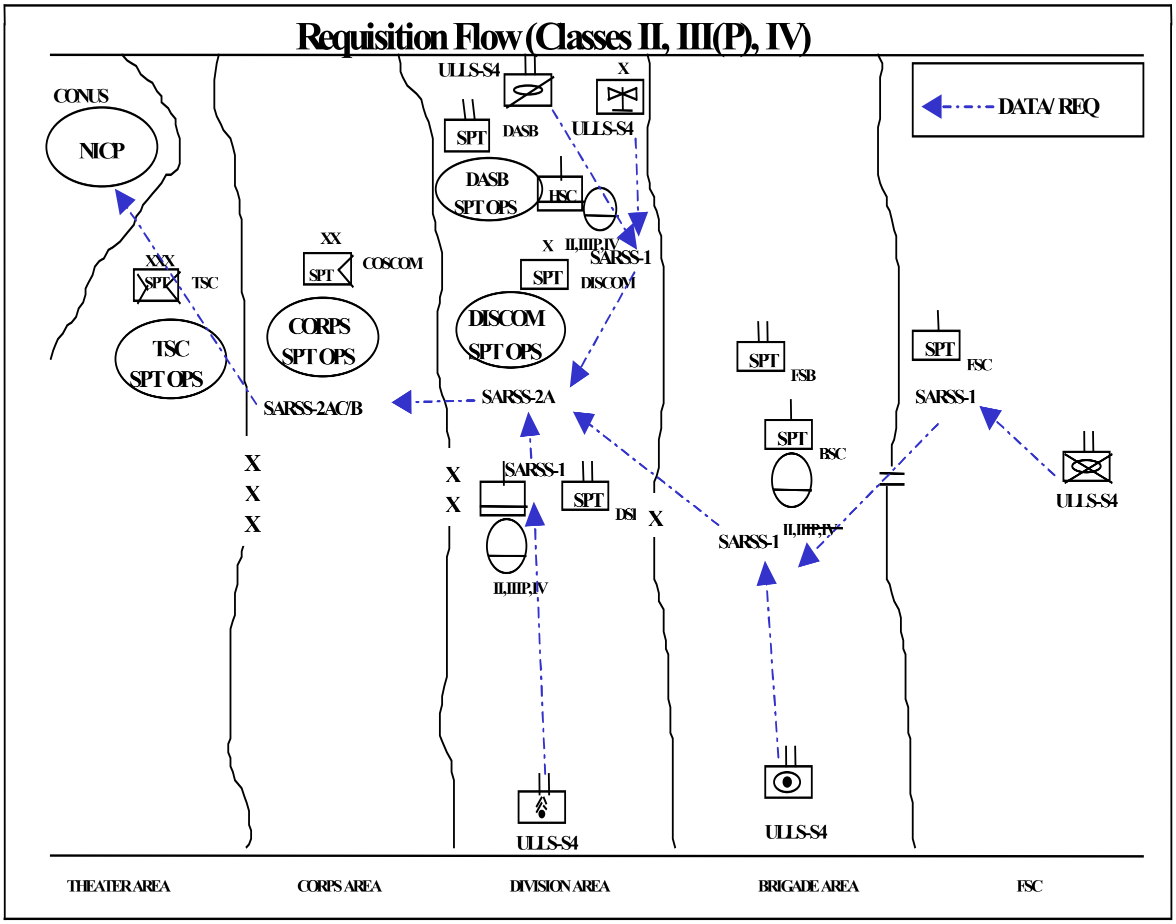


Figure 5-11 Classes II, III(P), IV Requisition Flow

5-107. The limited stockage of Class II items may include MOPP gear, environmental protection items (boots, overshoes, parkas, and helmets), and mechanics' tools. Distribution plans for protective clothing and equipment must consider the threat and the service life of protective over-garments and filters. Unit priorities for issue must be established.

5-108. The QM company or, if appropriate, the gaining unit's supply element, re-equip soldiers returning to duty from medical treatment facilities (MTFs) in the division rear area. The FSB may re-equip return to duties (RTDs) in the brigade area. If the gaining unit has support elements operating in the vicinity of the MTF, SOP may require that the unit bring personal equipment when it picks up personnel returning to duty. If the gaining unit does not have elements operating near the MTF, SOP may require medical personnel to pick up clothing and essential protective gear at the supply point to provide minimum protection before the soldier returns to duty. The MTF cannot issue individual weapons.

5-109. The brigade engineer officer is the one who determines and requests Class IV for upcoming counter-mobility operations. He passes the request to the brigade S4 and FSB support operations section, which in turn, passes it to HDC to be inputted into the SARSS-1 which is in the S&T platoon. The request is then sent to division support operations from the SARSS-1 to the SARSS-2A, and subsequently to the COSCOM support operations office SARSS-2A. If available in the corps, the Class IV package is then released and delivered as close to the emplacement site as possible, METT-TC dependent. Once released from the corps, electronic means of the amount and composition of the PCL available for delivery notify the requesting unit. Coordination is made for the delivery location.

CLASS VI

5-110. Class VI supplies are those items used for personal hygiene, comfort, and welfare. They include such things as candy, gum, dental care products, soap, and stationery. Initially the soldier carries these personal items with him. As the supply system adjusts to demand, resupply is by HCP where personal demand items are issued gratuitously. The HCP, as already mentioned, are issued with Class I items. When the situation permits, tactical field exchanges provide services to specified unit troop concentrations.

CLASS VII

5-111. Class VII items are intensively managed and are normally command controlled. Class VII replacement is based on combat losses reported through command channels to the division G3 and G4 via MCS & CSSCS. This permits the commander to remain apprised of the operational status of subordinate commands and to direct the distribution of items to those units having the most critical need. Weapon systems such as tanks are intensively managed by weapons system replacement operations (WSRO). If the item is a WSRO weapon system, the primary linkup points of the item with its crew may occur in the DSA, ASA, BSA, or in designated assembly areas.

5-112. Class VII requests will be accomplished by using the FBCB2 to submit combat loss reports from company level to the BN/TF S4. The CO/TM rollups will be consolidated by the BN/TF S4 and submitted to the brigade S4, with information copy provided to the FSC support operations. The brigade S4 will consolidate and submit battalion combat loss reports to the division support operations via CSSCS, with information copies provided to the division G4 and FSB support operations. The Class VII/PBO representative from the division support operations will enter the requests into the appropriate STAMIS (SPBS-R to SARSS-1). The DSB support operations will consolidate and submit division troops battle loss reports for Class VII to the division support operations, with copy provided to the G4. The DASB support operations will consolidate and submit aviation brigade and division cavalry squadron requests for Class VII to the division support operations, with a copy provided to the G4.

5-113. A predetermined amount of Class VII may be maintained and issued to division organizations upon division support operations approval, based on guidance from the division G4. Upon corps approval of division support operations Class VII requisitions, COSCOM units transport Class VII supplies to the supporting SSA (QM company, HSC, HDC, or FSC) or directly to the requesting unit when possible. Class VII supply operations are shown in Figure 5-10.

CLASS VIII

5-114. Typically, there are four Class VIII DSUs within the division (DSMC, 3-FSMCs). These DSUs will forward their requisitions to the DISCOM medical material management branch (MMMB). The MMMB will have asset visibility of on-hand quantities of Class VIII supplies. The MMMB can authorize and direct one DSU to fill another DSUs supported unit requisition. If the MMMB elects not to cross-level from one DSU to another DSU, then it forwards requisitions from the division to the supporting medical logistics company. Class VIII management in the Army's Force XXI division will be accomplished by medical units/elements using the combat health logistics (CHL) functional module of theater medical information program (TMIP)/medical communications for combat casualty care (MC4) system, when fielded. Currently the functional business system for Class VIII wholesale/retail management at echelons above division (EAD) is the theater Army medical management information system (TAMMIS) which is a legacy system. This system will be replaced in the future by the MC4/TMIP system. This system provides brigade medical elements a direct link with the FSMCs and division rear medical elements a direct link with the DSMC. Also, this system provides corps medical units/elements a direct link with the supporting MEDLOG battalion's units. The health service materiel officer (HSMO) of the division surgeon's section (DSS) and the DISCOM medical materiel management branch (MMMB) in the division support operations section, coordinates Class VIII resupply for division medical units/elements. Each medical unit maintains its own basic load of 3 to 5 days of medical supplies. The MEDLOG battalion assigns one MEDLOG company in direct support of each division. Once established, it provides Class VIII resupply for the division and corps medical elements operating in the division AO.

5-115. During deployment, lodgment, and early buildup phases, medical units operate from planned, prescribed loads and from existing pre-positioned war reserve stockpiles identified in applicable contingency plans.

5-116. During the initial employment phase, each FSMC will receive a preconfigured medical resupply push-package every 48 hours as required from pre-positioned stock or the continental United States (CONUS) base. Preconfigured medical resupply push-packages will continue until appropriate units of the corps MEDLOG battalion are established.

5-117. Initial resupply efforts may consist of preconfigured medical supply packages tailored to meet specific mission requirements. Preconfigured push-packages will normally be shipped directly to the division support medical company (DSMC) and FSMCs until replenishment line item requisitioning is established with the supporting MEDLOG company. During this time, medical company treatment and ambulance teams deployed with maneuver or other division elements are re-supplied from their medical company. Maneuver battalion medical platoons/battalion aid stations (BASs) will receive standard push-packages every 12-24 hours as required. Contents of push-packages can be adjusted as the battle changes. Line item requisitioning will be by exception only during this time. While resupply by preconfigured packages is intended to provide support during the initial phase, continuation on an exception basis may be dictated by operational needs. Planning for such a contingency must be directly coordinated with the DSS HSMO who coordinates further Class VIII resupply requirements with the supporting MEDLOG battalion. Other than line item requisitioning from the FSMCs and DSMC, the HSMO of the DSS and the DISCOM MMMB will coordinate all Class VIII requirements for the division with the supporting MEDLOG battalion and/or MEDLOG company as appropriate.

5-118. Divisional medical elements will use TMIP/MC4 system when fielded to requisition Class VIII. Users of this system in the division include maneuver battalion medical platoons, FSMCs, the DSMC, and the DISCOM MMMB. The MC4 system is the primary source for Class VIII line item requisitions from the FSMCs and DSMC. Forward support medical companies and the DSMC request Class VIII resupply from the supporting MEDLOG company.

Routine Requisitions

5-119. Routine requisitions from maneuver battalion medical platoons for Class VIII resupply from their supporting FSMC will be via a digital request. An information copy of all requisitions within the brigade will be forwarded by the FSMC on-line to the DISCOM MMMB and also an information copy to the brigade surgeon's section (BSS). Routine requisitions submitted by FSMCs, division or corps medical elements operating in the BSAs are forwarded directly to the supporting MEDLOG company. An information copy goes to the DISCOM MMMB. The MMMB coordinates shortfalls in throughput distribution with the DSS and divisions support operations branch. The MMMB may update priorities with the

MEDLOG company to correct deficiencies in the delivery system. If the requested items are available for issue, a materiel release order is printed and the requested supplies are prepared for shipment. For items not available for issue, the requests are passed to the MEDLOG battalion's logistics support company. Using TAMMIS, the MEDLOG company forwards information to the unit on items shipped and on those requests, which were not filled. An information copy is forwarded to the MMMB.

Immediate Requisitions

5-120. Immediate requisitions from maneuver battalion medical platoons are submitted to the supporting FSMC. When the supporting FSMC is unable to fill the request, the requisition is forwarded to the DISCOM MMMB. The DISCOM MMMB will expedite handling of this request to ensure tracking of critical Class VIII items and timely delivery. Cross-leveling in the division may be accomplished if it is the most expedient method of obtaining and shipping required items to the requesting unit/element. If the DISCOM MMMB is unable to locate requested item(s) in the division, the request is forwarded to the supporting MEDLOG company. Immediate requisitions from FSMCs are sent through the DISCOM MMMB for management and to ensure visibility of the requisitions. The DISCOM MMMB maintains a record of the requisition until it is filled. All immediate requests received by the MEDLOG company are processed for shipment by the most expedient transportation available. The MEDLOG company forwards all immediate requests not filled, to the MEDLOG battalion's logistics support company located in the corps rear. The DISCOM MMMB has the responsibility of monitoring all immediate requisitions not filled by the MEDLOG company. The DISCOM MMMB reports all immediate Class VIII requests to the DSS/CHS cell.

Delivery Of Class VIII

5-121. Delivery of throughput Class VIII to the requesting medical units in the division is accomplished by logistical packages (LOGPACs) and non-medical transports. Shipment of these Class VIII LOGPACs from the MEDLOG company is coordinated with the corps support battalion and the corps movement control officer (MCO). The management and in-transit visibility of Class VIII delivery is accomplished through document number and transportation number tracking. The systems that work together to provide this management and coordination are TAMMIS, transportation coordinator's automates information for movement system (TC-AIMS), MTS, and global traffic network (GTN). These systems are located in the MEDLOG company and the DISCOM MMMB. In some cases, delivery of medical materiel into the division AO may also be achieved through use of the directed Class VIII resupply using medical evacuation resources that are returning to the division medical units. From the FSMCs, delivery of Class

VIII to maneuver battalion medical platoons via LOGPAC or non-medical transports is coordinated by the FSMC with the FSB support operations section. For directed Class VIII resupply, medical transports may be used. Immediate Class VIII resupply will be processed for shipment by the most expedient means available. Based on casualty estimates, medical push-packages may be pre-positioned with maneuver battalion medical platoons or with the FSMC. Figure 5-12 provides an overview of Class VIII requisitions and resupply flow at echelon I. Figure 5-13 provides an overview of Class VIII requisitions and resupply flow at echelon II.

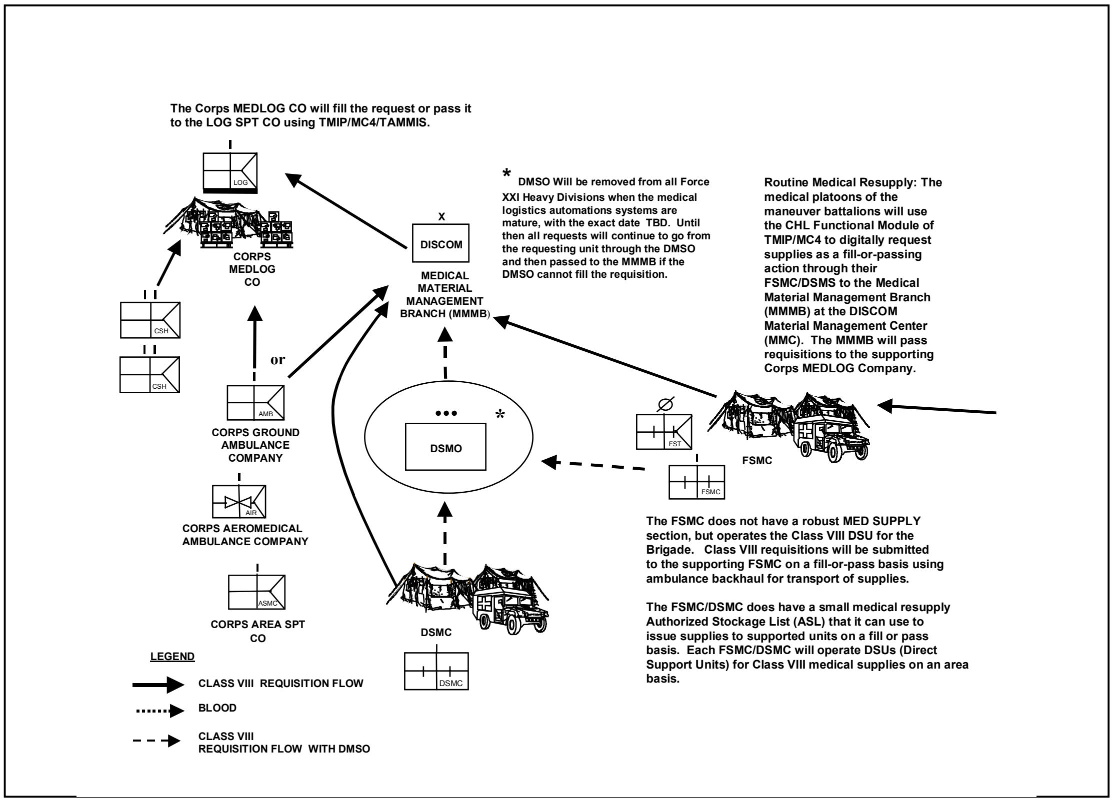


Figure 5-12. Overview of Class VIII resupply at Echelon I

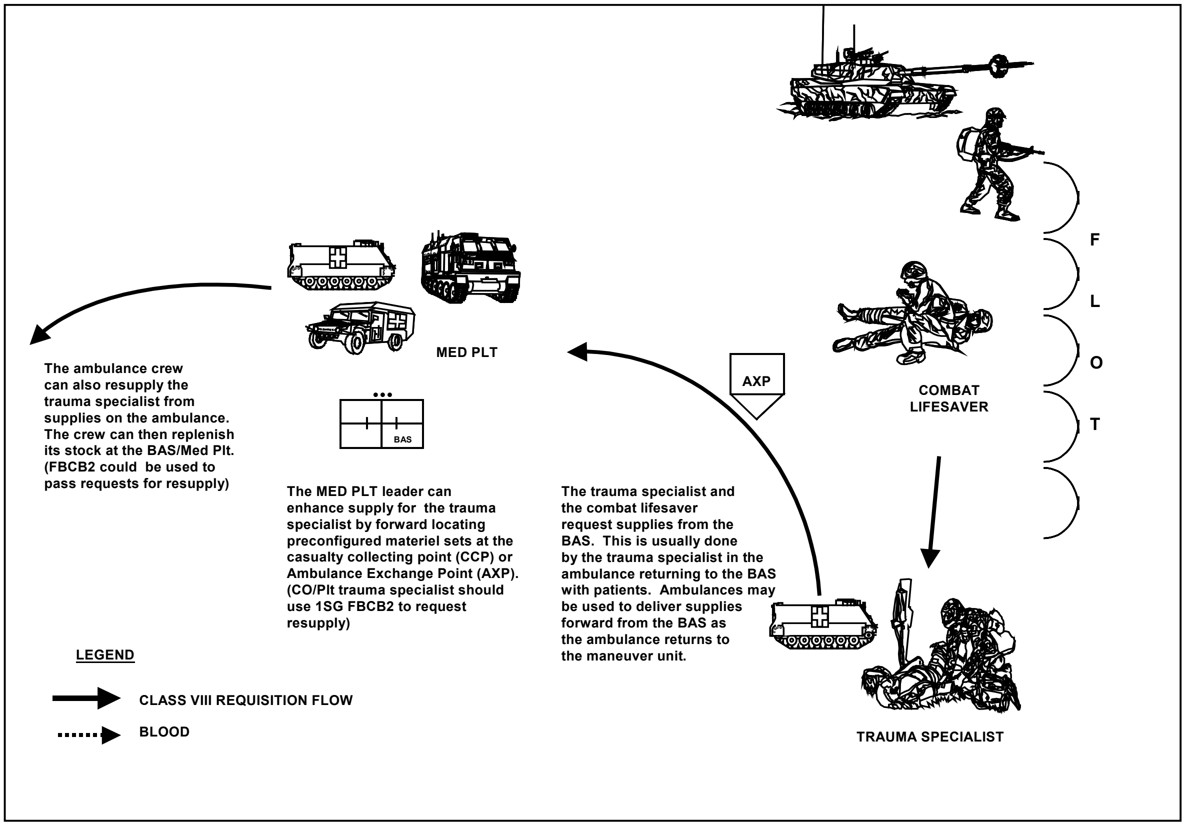


Figure 5-13. Overview of Class VIII resupply at Echelon II

Assemblage Management Reporting Under USR

5-122. Unit status reporting (USR) of medical equipment sets (MESs) in the division will be created using the TMIP/MC4 USR feeder report. This is not a classified report. It calculates percent fill of sets according to AR 220-1 and AR 40-61 and does not create a roll-up of equipment on hand calculations. Minus the potency or dated items while units are not deployed, 70 percent fill of the combined expendable, durable, and non-expendable items within a set constitute an on-hand set for accountability purposes. Medical equipment must be maintained at an acceptable degree of readiness above 70 percent as determined by the division surgeon and unit commander.

5-123. Division medical units/elements will prepare a requisition plan to immediately replenish all potency, dated, and other items that are not being maintained and missing items from sets. Units will coordinate with the supporting MEDLOG company prior to implementation of the plan.

5-124. Transmission of Class VIII requisitions and status reports data will be accomplished by one of a number of ways. The baseline method will always be by disk and hard copy. The preferred method will be by radio or MSE transmission if signal capabilities allow. At the battalion level, units will attempt to transmit requisition and report data using SINCGARS systems improvement program (SIP) or enhanced position location reporting system (EPLRS) linked to the hyperlink or modem capability of MC4. Given the line of site limitations of FM radio, this attempt is best accomplished in synchronization with previously coordinated retransmission. Within the BSA and higher, transmission of data will be by either MSE or amplitude modulation (AM) radio if allowed. Note that if MSE is used, the unit must accomplish prior coordination with the division G6 to obtain a net encryption system or other encryption hardware system in order to send data.

Division Blood Management

5-125. Blood requirements for the division are determined by the division surgeon. Only packed liquid red blood cells are expected to be available to the division. Blood products are shipped to Army MTFs in the division by the blood support detachment of the MEDLOG battalion. The DSS (HSMO) coordinates with the blood support detachment for division blood requirements. Shipment of blood from the corps to the division is coordinated by the blood support detachment with the COSCOM support operations office. It is then transported to the requesting MTF by dedicated medical vehicles (air and ground). The blood support detachment notifies the DISCOM MMMB when blood is shipped. Emergency resupply can be accomplished by air ambulances from the medical battalion, evacuation or by medical personnel on nonstandard medical transports.

5-126. Blood support is a combination of four systems (medical, technical, operational, and logistical). Blood support must be considered separate from laboratory support. In the long term, theater blood management is based on resupply from the CONUS donor bases (armed services whole blood processing laboratories [ASWBPL]). At the corps level, storage and transportation refrigerators allow the blood support detachment to provide blood as far forward as the FSMCs of the division. See FM 4-02 (8-10), FM 4-02.1 (8-10-9), FM 4-02.55 (8-55), and TM 8-227-12 for definitive information on blood management. Also refer to TM 8-227-12, Armed Services Blood Program Joint Blood Program Handbook, January 1998

CLASS IX

5-127. As a result of the implementation of field maintenance (organizational and DS level maintenance) in FXXI, the maintenance control section (MCS) is now responsible for maintaining what we know as prescribed load lists (PLL) and shop supply items. For this reason we have designated the new term for these consolidated inventories as "combat spares." Both of these inventories have very different requirements for adding and maintaining parts on inventory. The MCS will manage the PLL using the ULLS-G and the shop stock using the SAMS-1. With the fielding of GCSS-Army, the maintenance module's consolidated ULLS-G and SAMS-1 functionality will have the ability to manage the combat spares. Combat spares are not meant to bring back the "iron mountains". Combat spares consist of a broad but shallow inventory of high use, combat essential parts that support a replace forward maintenance philosophy. Combat spares provide a buffer for the lead-time it takes the distribution system to deliver a required part and also acts as insurance against interruptions in the distribution pipeline. In FXXI parts can be stocked in several different ways. If there is a high use, combat essential part the support units believe needs to be stocked to support combat operations they can do it several different ways. If the part does not meet the stockage criteria for PLL it may be able to be carried on the shop stock. If an essential item fails to meet the criteria for both it may still be stocked at the MCS but will be centrally managed as ASL in the HDC . The SARSS1 box has the ability to just change the location of where the part is physically stored.

5-128. Combat spares for the CO/TM are received, stored, and issued by the maintenance control section of the FSC. An operator identifies a fault and requests assistance from the CRT via FBCB2 (free text) or FM radio. The CRT will diagnose the fault and identify the required Class IX supplies. The DSU supporting the brigade troops is the HDC. The ASL for the brigade is maintained by the Class IX section in the HDC. The PLL for the HDC of the FSB, FSMC of the FSB, HHC brigade, engineer battalion, and the brigade reconnaissance troop may be managed by the MCS of the BSC. The Class IX supply section of the QM company, DSB, provides direct support to division troops. This section receives, stores, and issues Class IX (ground and missile) supplies. The section also maintains the division troop’s ASL, and operates the reparable exchange service. The Class IX supply section of the HSC, DASB provides direct support to aviation brigade units and the division cavalry squadron. The section also maintains the aviation brigade/division cavalry’s ground ASL, and operates the reparable exchange for ground equipment.

Class IX Request

5-129. An operator identifies a fault, annotates the fault and notifies the CRT. The CRT will diagnose the fault, identify the repair part required and forward the request to the maintenance control section (MCS) of the FSC. The MCS will either issue the part if it is on hand or it will pass the requisition on to the Class IX section supply platoon of the HDC via ULLS-G or SAMS, and if the part is on hand in the Class IX section of the HDC it is released. If the requested repair part is not on hand, the Class IX section will process the requests via SARSS-1 and forwards to the DISCOM support operations SARSS-2AD. The FSB's HDC maintains the brigade's ASL. The MCS in the BSC and the FSCs maintain the brigade's combat spares. The supply & transportation platoon, HDC will process the ULLS-G and SAMS Class IX requisitions via SARSS-1 for brigade troops and the MCSs. The QM company of the DSB will process the ULLS-G and SAMS Class IX requisitions via SARSS-1 for division troops. The HSC of the DASB will process the ULLS-G request data via SARSS-1 for the aviation brigade and division cavalry squadron. Figure 5-14 shows the requisition flow of Class IX within the division.

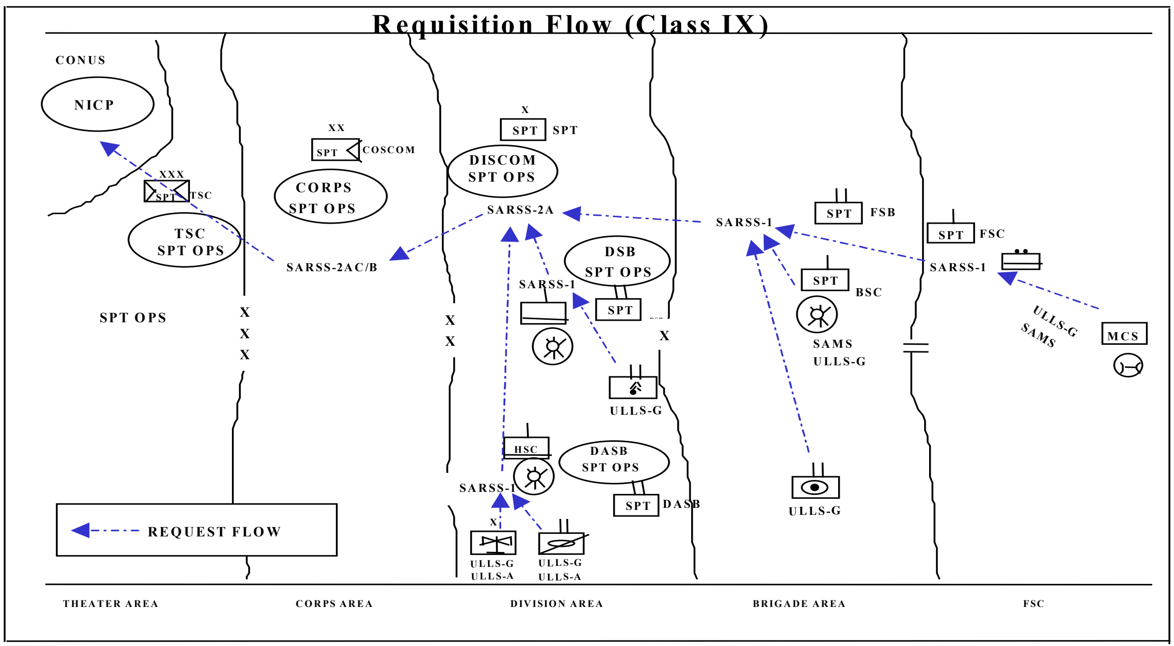


Figure 5-14, Requisition Flow (Class IX)

Class IX Resupply

5-130. Upon receipt of a requisition, the DISCOM/COSCOM SARSS-2A will conduct a subordinate search of all SSAs to locate the requested repair part. Once SARSS-2A identifies the location of the repair part, a MRO is processed to the lowest level SSA. The COSCOM's CSG units will throughput Class IX supplies to the QM company of the DSB, the HSC of the DASB, the S&T platoon of the HDC and when possible the supply section of the FSC. The QM company and S&T platoon will conduct supply point distribution for division and brigade troops. The HSC of the DASB will conduct supply point distribution for AB and the division cavalry squadron. The S&T platoon of the HDC provides unit distribution to the FSC in support of the maneuver companies. The COSCOM units will transport Class IX (A) supplies to the supply platoon of the AMC in the DASB. Class IX supply operations is shown in Figure 5-10.

FIELD SERVICES

5-131. The field services normally provided by division personnel include water purification and mortuary affairs (MA). Other field services, such as showers, laundry and textile renovation, are provided by the corps field services companies. The unit makes request for laundry and shower to the DSB, DASB and FSB support operations section. The requesting support operations section will make the appropriate coordination with DISCOM.

5-132. Field service support requires close coordination with those within and outside the division. The division support operations, DSB support operations, FSB support operations, DASB support operations, and commanders of the supply and services (S&S) and field services companies of the corps are all involved in providing field services to the division.

MORTUARY AFFAIRS

5-133. All commanders are responsible for unit level search, recovery, and evacuation of remains to a mortuary affairs collection point (MACP). A well-organized mortuary affairs program in the division helps to ensure the following:

- Prompt and effective recovery of all remains from the division area of responsibility.
- Prompt and accurate identification of the remains.
- Prompt recovery, inventory, and security of personal effects found on remains.
- Evacuation of remains, with their personal effects secured to them out of the division area to the corps MACP.
- Prompt, accurate, and complete administrative recording and reporting.
- Prompt and adequate care for deceased allied and threat personnel IAW current United Nations (UN) agreements.
- Reverent handling of remains and adequate ceremonies and services for deceased.
- Temporary interment of remains (when required and authorized).

5-134. All commanders are responsible for unit level search, recovery, and evacuation of remains to a MACP. Digital FBCB2, or per the TSOP, will be used to transmit the initial findings of the unit search and recovery teams to the MA team.

5-135. Upon deployment and transition to the concurrent return program, an MA forward collection platoon is detached from the corps' QM collection company and attached to the division. The

MA forward collection platoon consists of a platoon headquarters and four forward collection teams. The MA forward collection platoon functions include:

- Conduct limited search and recovery missions, as required.
- Set up and operate collection points with refrigeration capability in the maneuver brigade area.
- Set up and operate a division main collection point with refrigeration capability.
- Conduct temporary interments and disinterments when directed by the geographic combatant commander. (Note: This mission is not resourced by the TOE and may require augmentation from the FSB Commander).
- Maintain essential records and reports.
- Maintain security over collection points.

5-136. Once the forward collection platoon is attached to the division, the platoon leader and platoon sergeant works with the division support operations or G4 as liaison officer and NCO technical representative. Forward collection teams establish MACPs at key locations within the division. Each forward collection section has seven personnel and can receive, process, and coordinate evacuation of about 20 remains and associated personal effects per day. The division commander has the flexibility to employ collection teams as the mission dictates, consolidating or shifting assets as needed. Normally one forward collection team is attached to the DSB (division collection point) and each FSB. These forward collection teams setup and operate MACPs.

5-137. Temporary interment of remains OCONUS is permitted as a last resort. Every effort should be made to return remains to CONUS as soon as possible. The geographic combatant commander may authorize temporary interments only when operational constraints prevent the evacuation of remains out of the AOR. The expedient and respectful evacuation of deceased personnel is a top priority. However, during extreme situations when the tactical and logistical situations leave no alternatives, a program of temporary interment may be implemented. Temporary interments are a last resort used for health, safety, sanitation, and morale reasons at unit levels and are conducted IAW joint publication 4-06 and FM 4-20.64 (10-64). These burials are fully documented and promptly reported through MA channels.

5-138. In extreme circumstances, when a unit is cut off and has no means to communicate with higher headquarters, the senior commander is responsible for deciding whether temporary interment will be utilized after all known support options have failed.

MANNING THE FORCE

5-139. Manning is the process of recording, reporting, verifying and processing personnel strength and casualty information at the unit level.

5-140. Proper and effective manning is essential to the operational success of any military mission. Manning the force involves the uninterrupted flow of soldiers from mobilization and deployment through redeployment and demobilization. The manning process includes the tasks of predicting personnel requirements, resourcing units with personnel assets in accordance with the commander's guidance, monitoring the personnel strength posture, assessing unit combat power, and adjusting personnel resources to provide the optimum combination of manpower and equipment to maximize combat power. Manning the force impacts force ratio evaluations and all logistical requirements. To optimize and sustain the commander's lethality, survivability, and high OPTEMPO requirements, the personnel operator must place the right soldier, at the right place and time. This process combines anticipation, movement and skillful positioning of personnel assets. The Force XXI commander must integrate manning information with other combat power factors in near real-time to execute combat operations successfully.

5-141. The DISCOM S1 is responsible to the commander for all matters concerning human resources. Manning in the DISCOM remains the process of getting the right soldier at the right place and time with the right capabilities. Manning the force encompasses the tasks that current doctrine associates with personnel readiness management, replacement management, and casualty management. In information age operations the commander must also, have digitized manning information integrated with other decision support data to execute combat operations successfully. Enabling Force XXI technologies include the tactical personnel system (TPS),personnel module of CSSCS, and FBCB2/PERSITREP. The systems described in the manning the force automation architecture (including SIDPERS3, ACIPS, and Army component information system (ARCIS) also provide information to man the force.

5-142. The lethality and digitization capabilities associated with the DISCOM and the 21st century battlefield requires that manning be divided into discrete tasks. These tasks are iterative and do not follow a prescribed order or sequence. The PSS organizations are provided the minimum assets necessary to conduct the tasks required at their echelon.

5-143. Predicting is the process of anticipating the number, grade, and skill of personnel resources required to sustain the BOS of the DISCOM as they execute the operational patterns that destroy the enemy's will to fight. The S1 must complete a loss estimate based on threat and friendly force capabilities. This estimate provides planning parameters for replacements, medical facility/support requirements and MA assets. In the DISCOM the personnel operator will use the digitized capabilities within CSSCS to anticipate casualties. Resourcing is the process of bringing units to their required strength according to the commander's priorities. Although it occurs at every echelon of command, resourcing is the primary focus of the national provider. The Department of the Army deputy chief of staff for personnel (DA DCSPER) executes the task at the national level to structure, acquire, train, distribute, and separate the force. Individual replacements move to the central receiving center (CRC) under the direction of the DCSPER and CONUS major commands (MACOM)s to resource the force projection theater. At all levels personnel operators provide commanders combat power visibility by properly identifying the status of available personnel resources. The S1 then recommends the allocation of available resources to meet current and future requirements. The DISCOM cannot resource itself and must be provided assets from division to accomplish this task.

5-144. Monitoring is the process of gathering unit strength data on a real-time basis through digitized systems and communications. With digitization, we eliminate the requirement for unique personnel reporting systems by having the capability to absorb personnel information from tactical communications. The task of digitized strength monitoring begins with establishing the strength baseline. The S1s, under the direction of the G1, manifest all deploying personnel using TPS. Inbound or pre-positioned asset information is available through information systems of the manning the force automation architecture. It is transmitted to personnel operators performing manning tasks at the strategic and/or operational level and provided to the division. The deployed personnel database and personnel asset visibility establishes the strength baseline. The DISCOM S1 maintains unit status by getting updates through ABCS.

5-145. Assessing is the process of comparing current and projected unit strength data to personnel capabilities required to maintain OPTEMPO and achieve operational success. It starts by determining the personnel required to maintain BOS combat power IAW the commander's priorities and intent. The S1 matches current assets with projected losses and replacements and recommends the method to properly resource units.

5-146. Adjusting is the process of packaging, positioning and dispatching replacements to deliver them when and where needed. The G1 notifies the DMC of movement requirements as commanders direct the proper adjustment of personnel assets to accomplish pending missions. Personnel operators both in the division and at EAD, in coordination with logisticians match personnel and equipment during the adjustment process by providing unit, squad, crew, team, or individual replacements according to the commander's operational requirements and the needs of the BOS. Movement time and distance factors influence the positioning of personnel replacement units which hold and process replacements until they are dispatched to the gaining unit. The Force XXI division G1 does not have the resources to accomplish the adjustment task and may direct the dispatch of replacements directly from EAD to the gaining unit. In this case he synchronizes the adjustment task by sending teams from his operations cell to the EAD PSS unit where replacements are positioned as well as to the gaining units. If the commander desires to provide replacements indirectly to the gaining unit by holding them at the division level, the personnel group or personnel command must attach a replacement unit to the division. The G1 then uses his operations cell to directly manage the packaging, positioning, and dispatching of replacements.

5-147. When soldiers deploy to an area of operations, the battalion S1 manifests soldiers using identification (ID) card bar-codes and the TPS to create the deployed database. After the S1 establishes that baseline, unit leadership (FBCB2 platform level) report changes to the baseline through FBCB2s PERSITREP. As the S1 updates the duty status changes in TPS, all subsequent reports and queries reflect the changes. This reduces the need for the 1SG to send up reoccurring personnel status reports.

5-148. Upon receipt of a mission, the S1 completes a loss estimate based on the various courses of action proposed to the S3. When the commander selects a course of action, the S1 completes a loss estimate using the appropriate casualty estimator (which resides on the TPS hardware). This prediction allows the S1 to requisition replacements to preposition on the battlefield as operations commence. The S1 can reinforce the main effort units using the pre-positioned replacements.

5-149. Personnel service support is the management and execution of personnel services, chaplain activities, command information services, and legal service support. In the DISCOM, the S1 is responsible for coordinating and managing PSS. At the commander's discretion, the S1 may be delegated responsibility to serve as the organization public affairs officer. The S1 develops the administration SOP for the battalion. The S1 with the S4, prepares the administration and CSS portion of the battalion tactical SOP. The S1 participates in the OPORD process and develops administrative annex materials. The S1 ensures personnel service support is fully coordinated with other staff elements. The S1 pays particular attention to the areas where close coordination is vital to the S1 section mission. These areas include MA, transportation, and combat health support. The S1 directs the activities of the battalion S1 section.

5-150. The S1 manages personnel services in the DISCOM. Personnel services, that include family and community support may also be provided by the installation directorate of personnel and community support at the division home station. Personnel services on the force projection battlefield provide postal operations; personnel information (records) management; morale, welfare recreation; and essential services including identification, awards, evaluations, promotions, transfers, discharges, reenlistment, leaves, line-of-duty investigations, and band operations. Other personnel services include voting and safety.

Chapter 6

Rear Area Defensive Operations

Rear area defensive operations are actions taken by all units to secure and sustain the force. These actions are taken in a concerted effort. They include those actions necessary to neutralize or defeat enemy operations in the rear area. They also ensure freedom of action in deep and close operations and include area damage control.

The division commander is responsible for rear operations within his boundaries. The ADC(S) through the rear operations center is responsible for the rear area defensive operations in the division rear. Within the maneuver brigade area, the brigade commander is responsible for rear operations. Threat activity may exceed the capability of a commander's assets. When this happens, the division commander may assume responsibility for defeating a Level III threat in the brigade rear area by restructuring the boundaries and providing additional forces.

The objectives of rear area defensive operations are:

- Secure the rear areas.
- Prevent or minimize enemy interference with command, control, and communications.
- Prevent or minimize disruption of combat support and CSS forward.
- Provide unimpeded movement of friendly units throughout the rear area.
- Provide continuous, unimpeded support to deep, close, and rear operations.
- Provide area damage control before, during, and after an attack or incident.

REAR AREA DEFENSIVE OPERATION CONSIDERATIONS

6-1. The key considerations to rear area defensive operations are sound planning, early warning, continuous OPSEC, and the rapid deployment of sufficient forces and resources to counter the threat. Rear area defensive operations are a command responsibility. The division commander ensures battle planning includes consideration for deep, close, and rear operations. Rear operations are a vital part of the division's overall operations. They are part of the mission analysis, the threat assessment, and intelligence preparation of the battlefield (IPB). They are also part of resource allocation, and the base assessment process.

6-2. The DISCOM units must defend themselves against attempts to disrupt their operations. They must be able to minimize destruction and to reinforce their units. The DISCOM units must also be able to gain time until response forces arrive. As discussed below, units form base defense perimeters to defend against the threat. If enemy forces exceed base and base cluster defense capabilities, response forces are used. These forces will provide the initial force to close with and to destroy the enemy. If an enemy incursion exceeds the capability of response forces, tactical combat forces must be committed to neutralize the threat.

6-3. Responsiveness is a key to defeating enemy incursions in the rear area. Responsiveness requires the immediate reaction and rapid deployment of sufficient combat power and area damage control resources. These two forces destroy the enemy and ensure minimal damage to the area. Responsiveness is achieved through:

- Effective command relationships and supervision.
- Reliable communications.
- Accurate intelligence.
- Centralized planning and decentralized execution.
- Organic mobility of response force.
- Training and rehearsals.
- Prior assessment of the capabilities of bases and facilities to withstand enemy attack. This assessment is based on a unit's degree of exposure and that unit's importance to the division's ability to sustain operations. This mission-essential vulnerability analysis assists the DISCOM commander to allocate resources, to protect personnel, supplies, and facilities in consonance with their importance to the mission.

SECURITY

6-4. Logistics traffic is a high priority interdiction target for threat aircraft, artillery, and unconventional warfare elements. In the offense, bypassed enemy forces will attempt to get supplies by force. Single vehicles, especially ones moving fuel and ammunition, may be ambushed by unconventional forces.

6-5. After assessing threat capabilities and intentions, the rear operations commander may decide to assign escorts to critical convoys such as those moving fuel and ammunition. Escort possibilities include ground escorts of military police (MP)s, combat engineers, or tactical forces. Also considered are aerial escorts or ADA systems such as Avengers and Stingers. When resources are scarce, dedicated escorts may not be practical or possible. In such cases, response forces, air defense, or fire support assets may be positioned along the MSR to provide general support.

ORGANIZATION FOR SECURITY

6-6. To enhance sustainment operations, DISCOM elements are often grouped together. Elements may be grouped into bases and base clusters for mutual support. The ROC is ultimately responsible for the composition of bases and base clusters in the division rear. In addition, the ROC must ensure units selected for collocation complement each other. A mix of weapon systems, planning and supervisory personnel, and varied communications assets are required to form a viable base.

6-7. The DISCOM S2/S3 and DSB S2/S3 sections coordinate with the ROC on grouping of DISCOM units in the division rear. In the maneuver brigade area, the FSB commander is responsible for BSA security. Through his S2/S3, he coordinates with the brigade rear CP for planning security operations.

6-8. Certain bases or base clusters are designated as critical by the ROC. This is done in coordination with the DISCOM staff. These critical bases may contain a majority of a class of supply or service. An example of a critical base might be ammunition or fuel storage sites. All command and control headquarters are considered critical, as are critical communications nodes. In addition to its criticality, each base is assessed for its vulnerability. Vulnerability is based on the base's location, composition, and relative target value. Since forces cannot be strong everywhere, resources must be used to protect the most critical and vulnerable assets first.

EARLY WARNING SECURITY

6-9. Receiving early warning of pending enemy actions gives the base commander time to react to any threat. Security measures vary with enemy threat, forces available, and other factors; all-around security is essential. Any of the following could warn of pending enemy actions:

- Outposts.
- Patrols.
- Military police.
- Ground surveillance and counter-fire radar’s.
- The local populace.
- Host nation intelligence.
- Military working dogs.
- Air reconnaissance and surveillance.
- Civilian informants.
- Actions of indigenous personnel near the base.

THREAT EVALUATION AND INTEGRATION

6-10. Threat evaluation is a detailed study of the enemy forces. It considers threat organization, tactical doctrine, equipment, and support systems. The DISCOM passes any information it has on the threat to the ROC to assist in its evaluation. Supply vehicle drivers and customers coming into the division area are valuable sources of information.

6-11. Once the threat evaluation is complete, this information is integrated with weather and terrain factors. This determines how the threat is likely to operate in our rear area. Relevant information developed by the ROC is passed to the DISCOM. Base clusters must ensure that all base commanders understand the different threat levels and the associated actions. The ROC must also be aware that DISCOM units are neither staffed nor equipped to continue support operations at normal levels while responding to increases in threat activity. Support will be degraded. How much support is degraded is dependent upon responses to threat activity.

6-12. Level I threats are those which can be defeated by base or base cluster self-defense measures. They normally involve the activities of agents, saboteurs, and terrorists.

6-13. Level II threats are those beyond base or base cluster self-defense capabilities. Response forces, typically MPs with supporting fires, can defeat this threat. This threat normally involves sabotage, raid, ambush, and reconnaissance operations. Special purpose or unconventional forces and tactical reconnaissance units normally conduct these operations.

6-14. A tactical combat force is required to defeat a Level III threat. Level III threats normally involve:

- Heliborne operations.
- Airborne operations.
- Penetration by enemy forces from the main battle area.
- Ground force deliberate operations (for example, operational maneuver groups with linkup of smaller airborne and assault units).
- Infiltration operations

BASE AND BASE CLUSTERS

BASE

6-15. A base is a unit or multi-unit position with a definite perimeter. For rear area units, the DISCOM commander determines the position of the base in conjunction with the ROC. Frequently, a DISCOM company constitutes a base. Normally, the base commander is the senior unit commander present. Selection of the base commander should take into consideration not only rank, but also branch and experience.

BASE CLUSTERS

6-16. Base clusters contain several bases grouped together to enhance security and mission accomplishment. A base cluster normally does not have a defined perimeter or established access points. Base clusters rely on mutual support among bases for protection. Mutual support is achieved through interlocking fires, integrated patrol and surveillance plans, and use of reaction forces. A base cluster reaction force also aids in mutual support. The base cluster commander must designate the personnel in the reaction force and ensure they have sufficient weapons, mobility, and communications. They must be trained to react quickly and appropriately.

6-17. Typically, the DSB commander is a base cluster commander. His base cluster will normally include units located in the DSA. Corps logistics units, such as ammunition supply points, may be located at isolated locations within the division rear. They either operate as separate bases or are assigned to a base cluster by the ADC(S). The FSB commander is normally the base cluster commander for units in the BSA. The base cluster commander establishes a base cluster operations center (BCOC) with assets primarily from the S2/S3 section. The BCOC provides the command and control to plan, coordinate, and supervise base cluster operations. It interfaces with the ROC on terrain management, movement's requirements, and security operations. The BCOC positions units assigned to the cluster into bases and designates the base commanders. The ROC assigns divisional and non-divisional units in the division rear to base clusters or independent bases. The base cluster commander is responsible for integrating base defense plans into a base cluster defense plan.

REAR AREA DEFENSE

6-18. An effective base defense system must accomplish the following four tasks:

- **Security of the base**. The base and base cluster commanders must establish the necessary defensive measures to ensure the security of their units. Each commander must apply METT-TC analysis to determine requirements.
- **Detection**. Detection is the early warning of enemy infiltration attempts. Detection devices include day and night observation devices as well as communications, intelligence, radar, and sensor equipment. Chemical and radiological monitoring must also be used. Warning systems and procedures must be established and understood by all personnel. If an attack is unlikely, few people are involved in defensive operations. However, personnel will always man observation posts (OP)s, and access points. If a threat is probable, defensive requirements will disrupt support operations. Alarms should

be used to notify all personnel of alert postures. Warning devices includes sirens, pyrotechnics and horns. The MPs may provide the base and base cluster commander's link for detection, early warning, and deployment against enemy attacks in the rear. Information gathered by MP elements dispersed throughout the rear area helps apprise commanders of enemy activity near bases. When the ROC determines the need, MPs respond to bases under attack.

- **Delay**. The defense system must be able to hinder the threat's progress to permit defense forces to react. Obstacles covered by direct or indirect fires slow or canalize movement. The ROC can, with G3 approval, authorize mine emplacement in the division rear. However, he must ensure a proposed minefield is coordinated with adjacent, higher, and subordinate units. He must also ensure limitations to friendly maneuver units are minimized and all requirements for reporting, marking, and recording are met.
- **Destruction**. DISCOM units should place machine guns and lightweight anti-armor weapons to cover obstacles and avenues of approach. Grenade launchers mounted on vehicles are effective fire suppression systems that can be quickly dispatched to threatened areas. Weapons systems evacuated to the DSA and BSA for repair should be used to prevent a breach of the perimeter. Weapon systems awaiting repair should be integrated into the defense plan.

APPENDIX A

Warfighter Information Network-Tactical

This appendix provides an overview of the primary equipment systems and information exchange processes found at various echelons corps and below (ECB) and is not intended as an all-inclusive description or identification of each. Refer to the appropriate systems' technical manuals for detailed information.

The warfighter information network-tactical (WIN-T) is the integration of emerging and existing command, control, communications, computer and intelligence (C4I) technologies and concepts designed to increase the security, capacity, and velocity of information distribution throughout the battlespace in order to gain information dominance. The maximization of secure information services will provide the warfighter with key enablers for each element of the Force XXI pattern of operations: project, protect, gain information dominance, shape the battlespace, decisive operations, and sustain operations.

The WIN-T serves to enhance maneuver force mobility by providing network security and interoperability support to the ABCS and its battlefield functional areas (BFAs). This concept of communication/information services will provide a force multiplier to the warfighter as current and future operations make greater demands on tactical voice, data, and multimedia signal support systems.

To provide warfighters with key decision-making information, the various information systems must be integrated into one homogeneous “system-of-systems” that encompasses the strategic, operational, and tactical levels as well as support of joint operations. Currently, the WIN-T information systems available to the ECB warfighter are global command and control system-Army (GCCS-A), standard Army management information systems (STAMIS), defense message system (DMS), and ABCS.

The GCCS-A supports joint and strategic planners of all the services with a common system to manage and execute crisis and contingency operations and provide a means to interface to Commanders-in-Chief (CINC), services/agencies C4I systems for peacetime deliberate

Appendix B

Logistics Estimate

This appendix provides a template of a logistics estimate for use by the DISCOM battle staff. It is provided as a sample and not intended as an all-inclusive document. Refer to the appropriate tactical standard operating procedures for detailed information.

LOGISTICS ESTIMATE TEMPLATE

LOGISTICS ESTIMATE

Headquarters
Place
Date, time and zone

LOGISTICS ESTIMATE NO___

Reference: Maps, charts, and other documents.

MISSION

The restated mission determined by the commander.

____
____
____
____
____
____

THE SITUATION AND CONSIDERATIONS

- Intelligence Situation. From the intelligence officer. When the details are appropriate and the estimate is written, a document, or an annex of the estimate, may be used.
  - Characteristics of the area of operations. Describe the general characteristics of the area of operations emphasizing specific aspects that may affect the logistics effort.
  - Enemy strength and dispositions.
  - Enemy capabilities.
- Affecting the mission. Information should be general in nature.

- Affecting logistics activities. Information should be detailed and oriented toward possible impact on logistics operations, to include what is known about enemy air assault and airborne capabilities, guerilla operations, and stay-behind or by-passed enemy forces.
- Tactical Situation. From the commander's planning guidance and from the operations office or annex. Subparagraph should be general in nature with concise statement of tactical intentions.
- Present dispositions of major tactical elements. Include on overlay annex if appropriate.
- Possible courses of action. List all given courses of action. (These courses of action are carried forward through the remainder of the estimate.)
- Projected operations. If known, list projected operations (branches and sequels) and other planning factors required for coordination and integration of staff estimates.
- Personnel Situation. From the personnel officer. Include information on total strength, strength of units, factors for casualties, replacements, hospital returnees, etc.
- Present dispositions of personnel and administration. Units and installations that have an effect on the logistics situation.
- Projected developments within the personnel field likely to influence logistics operations.
- Civil Military Operation (CMO) situation. From the CMO officer.
- Present disposition of CMO units and installations that have an effect on the logistics situation.
- Projected developments within the CMO field likely to influence logistic operations.
- Logistics Situation. Summaries included, overlays, reference to annex, automation systems status, current and proposed locations of CSS activities, expected/available host nation support, and command/support relationships.
  - Maintenance (current).
- Capability (ground/air/naval).
- Repair time factors.
- Posture of maintenance units.
- Critical maintenance systems impact.
- Equipment maintenance priorities.
- Calibration suppor.t
- COMSEC/CCI.
- Automation maintenance.
- Contractor maintenance.

- Other.
  - Supply. Provide current overall status of controlled items and POL, comments on resupply availability and use terms such as days of supply, total line items, or total equipment shortages by unit.
- Class I, water, ice, sundry packs.
- Class II.
- Class III.
- Class III (packages products).
- Class III (bulk products).
- Industrial gases.
- Class IV.
- Class V.
- Class VI.
- Class VII.
- Class VIII.
- Class IX.
- Class X.
- Maps (unclassified).
- COMSEC/CCO supply.
  - Services. Provide current status, both capabilities and problems.
- Laundry.
- Shower support.
- Clothing exchange and renovation.
- Parachute rigging.
- Mortuary affairs.
- Trash disposal.
- Decontamination.
- Contracting.
  - Transportation (current).
- Present status.
- Current capabilities.
- Problems.
- Unusual transport distances.
- Highway and trafficability conditions.
- Truck terminal operations.
- Air terminal operations.
- Port operations.

- Logistics-over-the-shore (LOTS) operations.
- Intra-theater airlift.
- Intra-theater sealift.
  - Labor. Provide present situation, status, and restrictions on use of civilians.
- Host nation.
- U.S. contractors(s).
  - Facilities and construction. Provide present situation, status, and restrictions.
- Priority of effort.
- Standards.
- Approval authority.
  - Other.
- Real estate management (CREST).
- Fire protection, fire fighting, and area damage control.
- Food service.
- Assumptions. Until specific planning guidance becomes available, assumptions may be required as a basis for initiating planning or preparing the estimate. These assumptions are then modified, as factual data becomes available. NOTE: Before proceeding any further in the estimate process, a logistics concept intended to support the mission should be in mind. This is the final opportunity to decide upon a logistics concept before an analysis of ability to support is conducted.

ANALYSIS OF COURSES OF ACTION

B-1. Analyze all logistics factors for each subheading in paragraph 2e for each course of action indicating problems and deficiencies. Mathematical calculations performed to assess status of any class of supply, maintenance attrition rates, tonnage lift capacity, etc., are solely a means to obtain information for a full analysis. This paragraph and any subparagraphs should contain narrative analysis statements derived from mathematical calculations and applied logic. The result of analysis for subheadings for each course of action should provide both logistic and tactical impact.

- Sufficiency of area (proposed).
  - Adequacy of CSS operations.
  - Proximity to enemy forces.
  - Other friendly forces in AO.
  - Boundary shifts.
- Materiel and services (proposed).
  - Maintenance.

- Supply.
- Services.
- Transportation.
- Labor.
  Facilities
- Other.

COMPARISON OF COURSES OF ACTION

- Evaluate logistics deficiencies and list the advantages and disadvantages with respect to the accomplishment of the mission.
- Discuss the advantages and disadvantages of each course of action under consideration. Include methods of overcoming deficiencies or modifications required in each course of action.

CONCLUSIONS

- Indicate whether the mission stated in paragraph 1 above can be logistically supported.
- Indicate which course(s) of action can best be logistically supported.
- List the major logistics deficiencies that must be brought to the commander's attention. Include specific recommendations concerning the methods of elimination or reducing the effect of these deficiencies.

/s/________________________________

(Designation of staff officer)

Annexes (as required)

planning as well as crisis planning and execution. The GCCS-A is the realization of "C4I for the warrior" concept. The concept builds upon lessons learned from previous conflicts, operational requirements, and the effects of rapidly changing technology.

The warfighter requires a seamless information system, where boundaries between functions and sources are erased. The GCCS-A provides the seamless, integrated information to the warfighter when, where, and how it is needed. This enhances warfighter effectiveness by driving interoperability through the elimination of duplicated functionality and the convergence of joint warfighter doctrine via GCCS-A's encapsulation of common command, control and intelligence (C2I) methods. The GCCS-A uses the secret internet protocol network (SIPRNET) as its communications backbone.

The goals of the GCCS-A are:

- For all CINCs, provide one system that integrates across services and functions to provide the warfighter with a single picture of the battlespace.
- To migrate legacy applications to modern computing principles and technologies through the use of a COE.

To support these goals, the GCCS-A includes applications that provide efficient monitoring, planning, deployment, employment, and sustainment of military operations from the national command authority (NCA) to the commander, joint task force level.

The STAMIS is composed of separate logistical, medical, and personnel information management systems that provide a continuos flow of information from sustaining base through the tactical level. These systems are currently not seamlessly integrated but rather are sub-systems residing on separate computer platforms. To bridge this gap, the GCSS-Army initiative is proposed to fulfill the role of an integrated client/server system for all manning, arming, fixing, fueling, transporting, and sustaining support to the warfighter.

The DMS will be the single electronic messaging system for all DOD fixed, mobile, strategic, and tactical environments. The DMS will replace the automatic digital network (AUTODIN) and e-mail messaging systems used today to provide greater services and eliminate interoperability problems currently experienced.

The ABCS will be the ECB warfighters primary integrated information system to functionally link strategic, operational, and tactical headquarters and a more detailed discussion of its structure follows.

ARMY BATTLE COMMAND SYSTEMS (ABCS)

A-1. The ABCS supports leaders and planners at tactical to strategic level through an integrated digital information network designed to provide automated C2 and SA information through a seamless data architecture of existing and planned C2 systems. The ABCS includes the global command and control system-Army (GCCS-A), the Army tactical command and control system (ATCCS), and the Force XXI battle command-brigade and below (FBCB2) systems.

A-2. The GCCS-A supports Army strategic planners in the allocation, logistics support, and deployment of operational/tactical forces to the combatant commands in response to strategic planning and policy guidance provided by the NCA during crisis situations and operations from conventional conflict to stability and support operations (SASO).

A-3. The ATCCS integrates the five battlefield functional area disciplines: maneuver; fire support (FS); air defense (AD); combat service support (CSS); and intelligence. Each of these functional areas is supported by a control system designed to provide leaders and planners with information to effectively plan, coordinate, control, and direct the battle. These BFA control systems (BFACS) are oriented toward combat operations and provide the commanders and staffs at corps and below with situational information and decision support in executing operational/tactical battle.

A-4. The FBCB2 is a battlefield, battle command information support system supported by existing and emerging communications, sensors, and electrical power sources. The FBCB2 is both a system and a concept to be used by combat, combat support (CS), and CSS units across all BFA disciplines while performing operations at the tactical level. The FBCB2 includes both embedded battle command (EBC) software and Appliqué tactical computers. The EBC software is designed to run on the five BFACS workstations to provide a capability to share FBCB2 lower echelon SA with those BFACS. Messages are exchanged through message formatting and conversion capabilities of the COE common message processor (CMP).

ARMY TACTICAL COMMAND AND CONTROL SYSTEM

A-5. At echelons above company level, ATCCS provides additional C2 and SA information by providing commanders and staff synchronization tools in the exchange of information during operations. The BFACS are linked through four communications systems: combat net radio (CNR), area common-user system (ACUS), Army data distribution system (ADDS), and broadcast systems (BDCST).

- **CNR.** Provides users with similar command or functional interests the ability to communicate using short-range, line-of-sight (LOS) radios (i.e., SINCGARS SIP); long-range, beyond-LOS radios such as improved high frequency radios (IHFR); and single-channel tactical satellite (TACSAT) transceivers. This communication means may be voice or data depending on the operational need.
- **ACUS.** Provides telephone, facsimile, and data transmission services from maneuver battalion through echelons-above-corps (EAC) to the sustaining base through gateways. At ECB, mobile subscriber equipment (MSE) transmits both circuit switched and packet switched data. At EAC, tri-service tactical communications (TRI-TAC) provides this same service. Currently, efforts are underway to modernize the ACUS to commercial, standards-based information system architecture to support the WIN-T. This effort is known as the ACUS modernization plan and the product will be the WIN-terrestrial transport wide area communications network that replaces the ACUS.
- **ADDS.** Includes the EPLRS VHSIC and joint tactical information distribution system (JTIDS)/multi-functional information distribution system (MIDS). Both systems optimize the use of data transmission and have no voice capability. It provides near real-time data between automated systems.
- **BDCST**. Provides technology similar to commercial television and radio stations, where transmit-only stations send information to many receive-only stations. The joint surveillance target attack radar system (JSTARS), tactical information broadcast service (TIBS), and global broadcast services (GBS) are examples.

Battlefield Functional Area

A-6. Within each BFA are C2 component systems tailored to support information flow, processing, and storage capabilities managed according to the needs of the BFA. The flow, processing, and storage of information among BFACS are then managed according to the needs of the force level commander. The combined arms team's commander and staff exercise force level control (FLC) by integrating and synchronizing the efforts of the BFAs to support the mission. This is accomplished by managing information from the BFAs and development of tactical plans and orders based on that information. The FLC functions by providing ATCCS support to the force commander and staff in their employment of the combined arms team.

A-7. The BFACS employed at ECB are maneuver control system (MCS), advanced field artillery tactical data system (AFATDS), all source analysis system-remote work station (ASAS-RWS), air and missile defense planning control system (ADPCMS), and combat service support control system (CSSCS). Command and control systems included in the ABCS configuration are FBCB2, aviation mission planning system (AMPS), combat terrain information systems (CTIS), integrated meteorological system (IMETS), and grenadier blue force reporting and tracking (BRAT) system.

Maneuver Control System

A-8. The MCS is the maneuver component of ATCCS. It is the primary information system supporting the commander and staff. The MCS provides the principal operational interface with necessary applications to access and manipulate the force level database to realize the FLC concept. There are a wide array of capabilities available, which make planning and executing a battle plan more efficient. Capabilities range from modifying UTOs to creating overlays. Commanders and staffs update the MCS database by entering readiness data, battle plans, and battle plan changes as they occur at each echelon.

A-9. The MCS consists of window and menu-based software allowing system operators to process, retrieve, store, and send information in textual or graphical form. Reports, OPORDs, overlays, UTOs, and messages are available to the user.

Advanced Field Artillery Tactical Data System

A-10. The AFATDS is an integrated fire support C2 system capable of processing fire missions and related information to coordinate and maximize all FS assets to include field artillery, mortars, attack helicopters, air support, naval gunfire, and offensive electronic warfare.

A-11. Fire missions are processed through the FS chain to the weapon system at the lowest echelon that can bring most effective fire upon the target after target attack criteria is satisfied. This distributed processing capability allows the maneuver commander to influence the battle by placing the right mix of firing platform and munitions on enemy targets based on the commander’s guidance and priorities.

A-12. The integration of all FS systems through the distributed processing capabilities of AFATDS provides greater flexibility and mobility to FS units and allows greater management of critical resources. It provides current battlefield information, target analysis, unit status, and coordinates target damage assessment coordination and sensor operations.

Air and Missile Defense Planning and Control Systems (AMDPCS)

A-13. The AMDPCS system is an integrated system of weapons, sensors, and C2. It protects maneuver forces, critical CPs, CS and CSS elements from low-altitude air attack. It controls and integrates AD engagement operations and combined arms force operations for AD elements. To support engagement operations, the AMDPCS engagement operations (EO) system responds to air threats by integrating targeting functions, including sensor operations and AD weapons C2 functions. It acquires and tracks incoming air threats, identifies friendly and enemy aircraft, and automatically alerts forward AD weapons. The air and missile defense workstation (AMDWS) assists battle managers in planning, coordinating, synchronizing, directing, and controlling the counter-air fight. The AMDWS assists in developing and disseminating timely target data to all forward area air defense (FAAD) components. To support force operations, the AMDPCS system provides force level commanders with the information needed to integrate AD into the overall tactical plan.

All Source Analysis System-Remote Work Station (ASAS-RWS)

A-14. The ASAS-RWS is a functionally integrated intelligence support system. It manages sensors and other resources; collects, processes, and fuses intelligence data; stores, manipulates, and displays this data; and quickly disseminates information to the commander by providing a common picture of enemy activity.

A-15. The ASAS-RWS supports the commander's decision-making process 24 hours a day whether on the battlefield or in rear support areas. It prioritizes and manages collection assets; processes, receives, and correlates data from strategic and tactical sensors and other sources to produce ground battle situation displays. The system then disseminates intelligence information to assist the commander in refining that guidance, aids in target development, and provides recommendations.

Combat Service Support Control System

A-16. The CSSCS is the logistics component of ATCCS and provides critical, timely, integrated, and accurate automated logistical information. This system provides information on all classes of supply, maintenance, medical services, personnel, and movements to commanders and staffs. This information is consolidated and collated into situation reports and planning estimates for current and future operations.

A-17. The CSSCS provides a concise picture of unit requirements and support capabilities by collecting, processing, and displaying information on key items of supplies, and personnel that the commanders deem crucial to the success of an operation. Items tracked in CSSCS represent a small portion of the items managed by standard Army management information systems (STAMIS).

A-18. The CSSCS also supports the decision-making process with course of action (COA) analysis. Staffs can analyze up to three COAs for a 4-day period. Variables include combat intensity, combat posture, unit task organization, and miles traveled and geographical region.

A-19. The CSSCS maintains a database of unit personnel and equipment authorizations by source requirements code (SRC, similar to TOE) and unit and equipment planning factors. The CSSCS includes a database of equipment and personnel called a baseline resource item list (BRIL). The items that a commander identifies as critical to the operation can be selected from the BRIL to establish the commander's tracked item list (CTIL).

A-20. The commander will identify a CSSCS plans and operations officer who is responsible for developing and coordinating the plan to establish the CSSCS nodes and network. The CSSCS plans and operations officer functions are critical to the success of the CSSCS network and require substantial planning and preparation. The CSSCS plans and operations officer should be of sufficient rank and experience to influence subordinate and adjacent CSSCS nodes. The CSSCS plans and operations officer responsibilities include:

- Ensure that each echelon is resourced properly to operate CSSCS. This includes ensuring the unit has adequate communications to support CSSCS, trained operators, adequate power supply, and ancillary supplies such as paper and magnetic/optical media.
- Coordinates collection of information to build the CSSCS database. Quantities of supplies for units and supply points, personnel strengths numbers, task organization, support relationships, proposed data flow, and required and controlled supply rates.
- Ensures that CSSCS operations are integrated into all OPLANs, OPORDs, and annexes. This integration is critical to successful operations. The CSSCS operations must be included in logistics rehearsals. Continuity operations (CONOPS) must be outlined in applicable orders.
- Ensure that TSOPs contain current CSSCS operations information. The CSSCS operational aspects that are standardized across an organization must be included in unit SOPs. This facilitates hasty establishment of CSSCS operations in a combat environment.
- Coordinates training, maintenance, and troubleshooting of CSSCS.

A-21. Seven critical steps in establishing the CSSCS network and database are:

- Configure the unit task organization IAW the current OPORD.

- Develop data flow diagrams and build message handling tables IAW the diagrams.
- Develop the commander's tracked item list (CTIL).
- Establish status threshold percentages.
- Determine and set support to supported relationships.
- Establish reporting procedures and schedules for the command.
- Establish continuity operations pairing.

Army Airborne Command And Control System (A2C2S)

A-22. This is an UH-60 helicopter equipped with common networked computers, CNRs, HAVE QUICK UHF radios, SATCOM, HF radios, and a digital map flat panel display to provide commanders from corps to maneuver level a mobile C2 node for coordinating aviation support. It has the capability to communicate and exchange information with aviation, maneuver, intelligence, FS, close air support, and any other elements similarly equipped.

Aviation Mission Planning System

A-23. The AMPS is an automated aviation mission planning, rehearsal, and synchronization tool designed specifically for the aviation commander. There are two levels of AMPS; brigade/battalion and company. Each level provides the automated capability to conduct aviation missions. The brigade/battalion AMPS is hosted on the common hardware/software II (CHSII) platform. This consists of a tactical computer unit (TCU) with a removable hard disk drive, a CD-ROM drive, a magneto optical (MO) drive, a color monitor, and a character graphics printer. All of these components are ruggedized for field use. Additionally the AMPS has an internal -baud modem. Embedded within AMPS software is a modem applet allowing two AMPS to transfer data files over telephone lines. Longbow Apache and OH-58D Kiowa Warrior AMPS have a data transfer receptacle and data cartridge for loading/downloading mission data in the aircraft. The AMPS will be found in the maneuver brigade's aviation cell.

Improved Data Modem (IDM)

A-24. The IDM is a modem that passes targeting or SA information to and from airborne or ground platforms (digital and analog). The IDM replaces the airborne target handover system (ATHS) but retains backward compatibility with ATHS. It supports four links and one generic interface processor used for LINK/MESSAGE processing (link formats include TACFIRE and air force applications program development [AFAPD]). The IDM provides digital connectivity between Army, Air Force, and Marines providing C4I data exchange for attack and reconnaissance helicopters, TOCs, CAS aircraft, and near real-time intelligence assets. It is designed to be hardware and software expandable and flexible. The IDM is used on the A2C2S, AH-64D, OH-58D Kiowa Warrior and in the aviation TOC (AVTOC). The Longbow Apache uses a software version that includes INC functions allowing for data exchange with other INCs. Variable message format (VMF) messages are not currently capable of being interchanged between the two versions. Limited radio assets on airborne platforms require operators to switch to a maneuver support net when providing CAS.

Integrated Meteorological System (IMETS)

A-25. The IMETS provides a tactical automated weather data system for receiving, processing, and disseminating information to provide timely weather environment effects, forecasts, and decision aids. The IMETS produces, displays, and disseminates weather forecasts and tactical decision aids that compare the impact of current, projected, or hypothesized weather conditions on friendly and enemy capabilities. The IMETS workstations are ATCCS common hardware and are interoperable with ASAS-RWS, DTSS, and other ATCCS BFAs over tactical and area communications.

Digital Topographic Support System/Quick Response Multicolor Printer (DTSS/QRMP)

A-26. The DTSS/QRMP is a mobile automated terrain analysis system supporting battlefield operations at division to echelons above corps. This system is located at the supporting engineer battalion TOC to provide digitized and hard copy maps, terrain studies, photography, climatic summaries, weather forecasts and reports, and other data sources. It provides a geographic information system to answer questions regarding terrain, mobility, bridges, and other geographic features using tables, maps, image files, and other products.

Battlefield Video Teleconferencing (BVTC)

A-27. The BVTC is a state-of-the-art, near full-motion interactive video teleconferencing system. The BVTC enhances coordination and provides an additional combat multiplier to the warfighter. Two areas that will see great enhancements by the use of BVTC are warfighter C2 and telemedicine.

A-28. The BVTC enhances C2 by allowing the warfighter to effectively disseminate orders, clearly stating his intent. He can conduct collaborative planning and whiteboard functions with subordinate commanders and key staff elements.

A-29. Medical units are supported by telemedicine from remote deployment areas, where deployed medical forces receive assistance from specialists at sustaining-base hospitals. Other applications exist at several regional medical centers (Tripler, Walter Reed and Landstuhl) to provide specialized diagnosis and care to remote medical facilities. Telemedicine will project the valuable expertise and skills of rear-based specialists to forward-deployed medics.

A-30. The BVTC components (cameras, monitors, computers, microphones, etc.) are user-owned and operated. The features and capabilities employed at each echelon or activity will be based on the requirements of that specific echelon or activity. The WIN-T architecture will provide the bandwidth and throughput required to support BVTC for both point-to-point and multi-point conferencing. The BVTC capability will be provided to users of the WIN-T with nominal impact on the remainder of the network.

A-31. Whiteboard application allows commanders and staffs to share and annotate documents, presentations, and graphics during a BVTC conference. Documents can be captured and graphics imported in the whiteboard and superimpose edit marks on the page. Editing is accomplished using markup tools in the whiteboard application.

ABCS COMMUNICATIONS AND NETWORKING

A-32. The physical configuration of command posts, the communications equipment available to support them, and the ABCS LAN infrastructure varies with the information flow requirements at each echelon. While these diversities exist, the foundation for communications and networking within all Force XXI tactical operations centers (TOC) remain relatively the same. The integration of C2 functions are achieved through the ATCCS that attempt to provide a set of shared common services. To fulfill this shared setting, a client-server architectural environment exists to integrate and allow interactive information processing. The client computer and associated software requests the service and the server and its associated software provide the service. This data information media exchange process is accomplished over a LAN or wide area network (WAN).

Distributed Computing Environment (DCE)

A-33. The DCE provides the means to maximize software components found on different workstations across the network. No one computer with all applicable software could effectively run all required operations at a speed usable by operators. A remote procedure call (RPC) allows a client and server to exchange information and the DCE environment provides security and synchronization services.

A-34. All workstations host a variety of client applications because each computer uses these to perform necessary services. Servers perform the dual role of ATCCS BFACS workstation and ATCCS server. A machine may thus act as a client in accomplishing one function but as a server in accomplishing another. The client applications are available to each workstation within a TOC with the majority of common services provided by a single workstation designated as the TOC server. Larger TOCs may have multiple TOC servers to ensure redundancy, even distribution of the server workload, and a capability to execute split/jump TOC operations.

A-35. The server database is automatically updated from its clients. This database is known as the joint common database (JCDB) or sometimes as the ABCS common database (ACDB) and contains all CSS, intelligence, air defense, fire support, maneuver, and network management information contained by each BFACS. When a BFACS receives information or performs some analysis, it stores that data in its resident JCDB. The servers then update other servers throughout the chain of command with any changes to the JCDB. This ensures that all unit databases remain current.

A-36. In an ATCCS client-server configuration, each server can have multiple clients connected to it in a LAN. When a user on a client machine executes a specific application, the client requests the data from the server to which it is connected (an RPC). The software operates exactly the same on either machine, and the user cannot tell on which machine the software is resident. The disadvantage in this configuration is that if the server fails or if the LAN is broken, the cell will only be able to perform the functions resident on the client until reconfigurations or repairs to the LAN are completed.

A-37. Through a process known as beaconing, the DCE, network, and system administration workloads can be minimized allowing greater automation of DCE and network configurations. This process also allows for unique cell set up and identification of DCE and network problems. Beacon provides reconnection of client BFACS temporarily disconnected from the cell LAN without having them reboot.

A-38. In addition to the TOC server, each TOC has a map server to provide digitized map products and data. Also found down to battalion level will be a global broadcast service (GBS) receive terminal and associated receive broadcast manager (RBM) that is a server that manages the receipt and distribution of data received over GBS.

A-39. The workstation designated as the TOC server provides several services. These include:

- EBC server - Identifies, parses, and makes available FBCB2 SA information to BFACS in a TOC.
- Communications server - Responsible for receiving, sending, storing, deleting, and forwarding messages. This server services e-mail messages using standard commercial messages and C2 messages in USMTF and JVMF formats.
- FTP server - Provides a means to transfer files in the TOC environment using standard networking protocol that allows point-to-point file transfers over the LAN or WAN, transfer of MS Word documents between and among BFACS, and SITMAP files between BFACS.

- Mail server - Manages mail message traffic and provides for translating and converting messages to allow exchange between systems.
- Network server - Provides various services to the BFACS to allow them to function as members of the network. Also, the network server is host to network management protocol services such as dynamic host configuration protocol (DHCP), lightweight directory access protocol (LDAP), domain name server (DNS), and command and control registry (C2R) services.

Local Area Network

A-40. A LAN is a group of computers and related equipment connected together using data cables for the purpose of sharing files and other resources between several users. The capability to have a wireless LAN exists in certain maneuver TOCs, however the majority of digitized TOCs will be the physical cable plant type. The type of data cable used is a coaxial cable or fiber optic cable providing connectivity for inter-LAN connections. Unshielded twisted pair cable with is used for intra-LAN connections. Fiber optic cable is used to connect a LAN when distances between LAN vehicles are such that the total LAN cable length will be greater than 600 feet, or if greater durability and data capacity is required.

A-41. An ABCS LAN consists of multiple BFACS sharing the same LAN at a CP. The tactical packet network (TPN) also known as the MSE packet switch network, or MPN serves as the communication link for the WAN which connects the various ABCS LANs across the battlefield (See Figure A-1). The primary assets used for TPN communications include the node center (NC), small extension nodes (SEN), large extension nodes (LEN), and the system control center (SCC). These assets form the backbone of the tactical network linking the ATCCS LANs. Introduction of technologies such as asynchronous transfer mode (ATM) switching, high speed multiplexer circuit card (HSMUX), high capacity line-of-sight (HCLOS) radios, high capacity trunk radios (HCTR), near-term data radio (NTDR), satellites, and range extension terminals all assist in bandwidth management and improved quality of service. A more thorough explanation of these can be found in FM 11-55, MSE Operations.

A-42. While the CSSCS, AFATDS, AMDPCS, and ASAS-RWS BFACS may also operate their own internal LANs for stovepipe communications, the ABCS LAN is the primary communications path for passing digital information horizontally between BFAs. Each ABCS LAN is a high-speed, short distance network for computer-to-computer communications. It has an effective transfer rate of approximately 10 Mbs per second and is implemented with the Institute of Electrical and Electronics Engineers (IEEE) base LAN standards and a bus topology. Channel access is through carrier sense, multiple access/collision detection (CSMA/CD).

Packet protocol is transmission control protocol/internet protocol (TCP/IP). The system is similar to the commercial ethernet standard and the terms ethernet, thin LAN, and IEEE base2 are often used interchangeably.

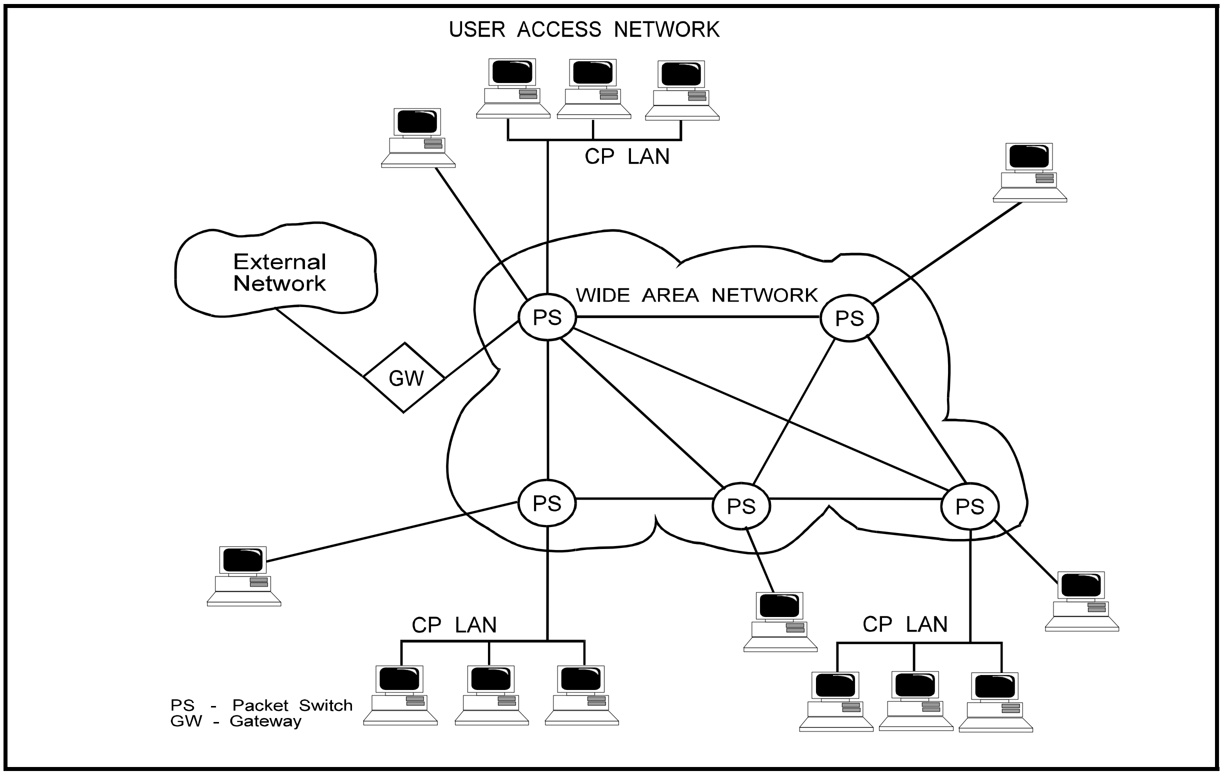


Figure A-1. Simplified TPN Architecture

A-43. A TOC LAN will generally consist of two segments, as depicted by Figure A-2, called LAN-A (edge component or intra-vehicle LAN) and LAN-B (core component or inter-vehicle LAN). A third LAN-C exists for the FSE to extend the AFATDS workstation into the TOC SICPS. The LAN-A connects all peripherals (workstations, printers, etc.) that are found within a single vehicle, tent or standardized integrated command post system. The LAN-B allows for interconnection among all TOC LAN-A segments to provide information exchange across the TOC.

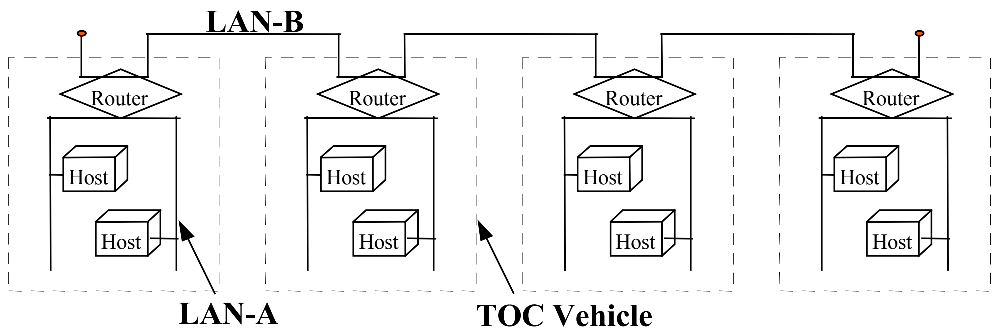


Figure A-2. Example TOC LAN Connectivity

A-44. The LAN-A is implemented by using a standard twisted pair connection, ethernet hubs, or routers/switches. Where LAN-A components access LAN-B, a router is used to simplify IP address management and internet work forwarding decisions. This also enhances efficient use of available bandwidth within a LAN. A router determines if a message is delivered to the local TOC or forwarded to another TOC (see Figure A-3).

A-45. The LAN-A exists within the larger core TOC LAN (LAN-B). There may be multiple LAN-A components within a LAN-B network and the connections will vary according to the echelon involved and the complexity and bandwidth requirements of the overall TOC.

A-46. The LAN-B is the connectivity among all ABCS TOC components normally part of one of the LAN-A components such as a single vehicle or SCIPS. To maximize available bandwidth LAN-B networks use routers and Ethernet switches.

A-47. An ABCS BN TOC contains a stand-alone router or a router embedded in an Ethernet switch (a router-switch) in each vehicle. At brigade and division TOCs, an Ethernet switch or a router-switch is found in each vehicle. The router-switch combines both functions of a router and a switch. Ethernet switches make local forwarding decisions to devices within the LAN (see Figures A-4, & A-5).

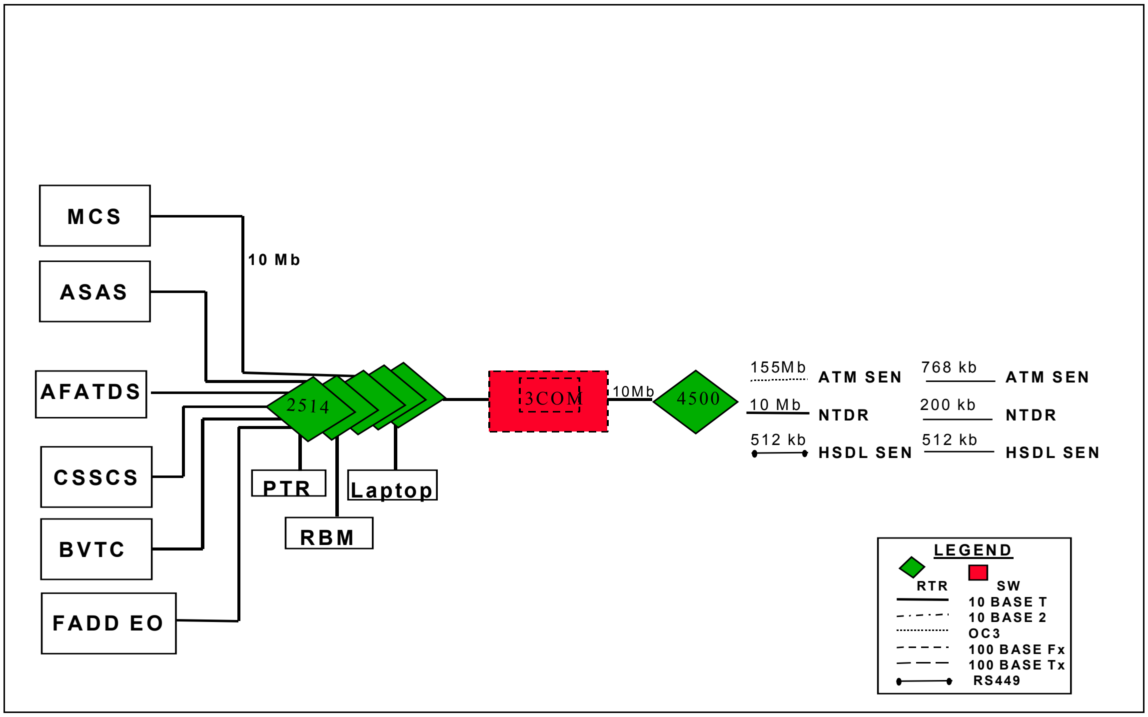


Figure A-3. Router-based TOC Architecture

A-48. Digitized TOCs use a minimum of two core routers embedded in a central ethernet switch connected in a star configuration to one of the core routers to create a multi-star network configuration. This configuration reduces initial configuration complexity due to less router usage, and therefore, it improves performance.

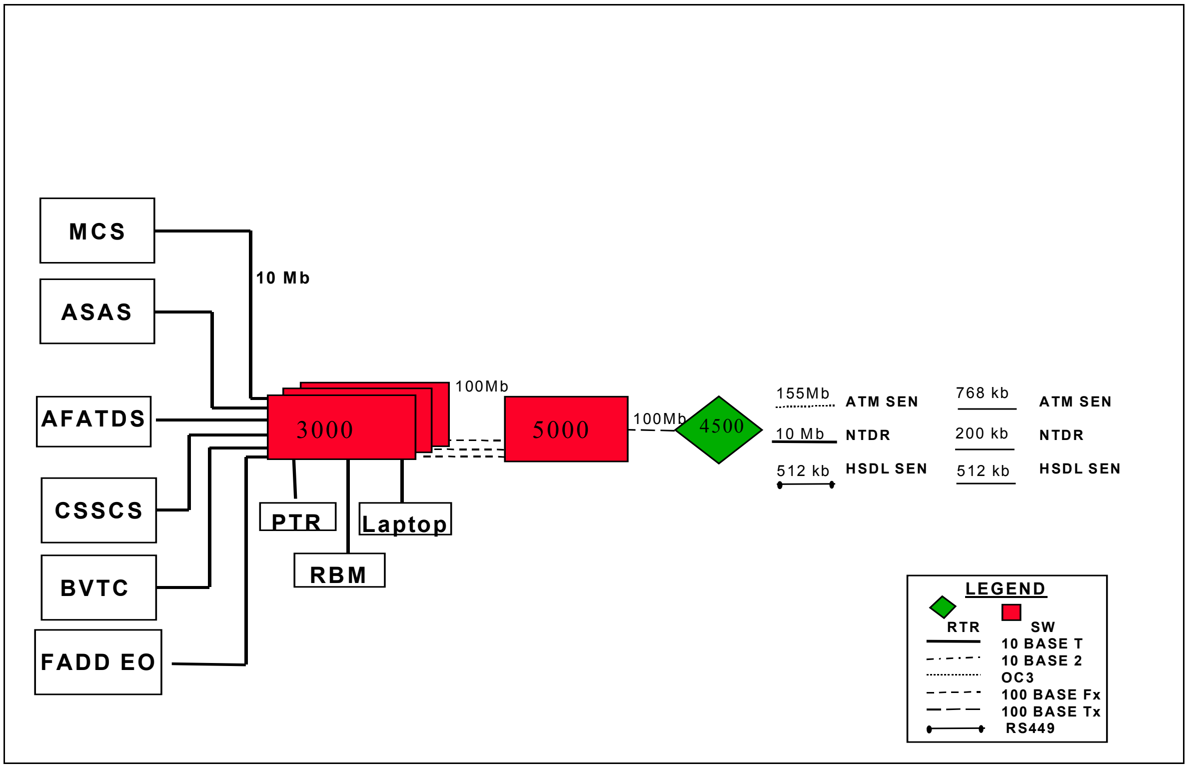


Figure A-4. Switched-based TOC Architecture

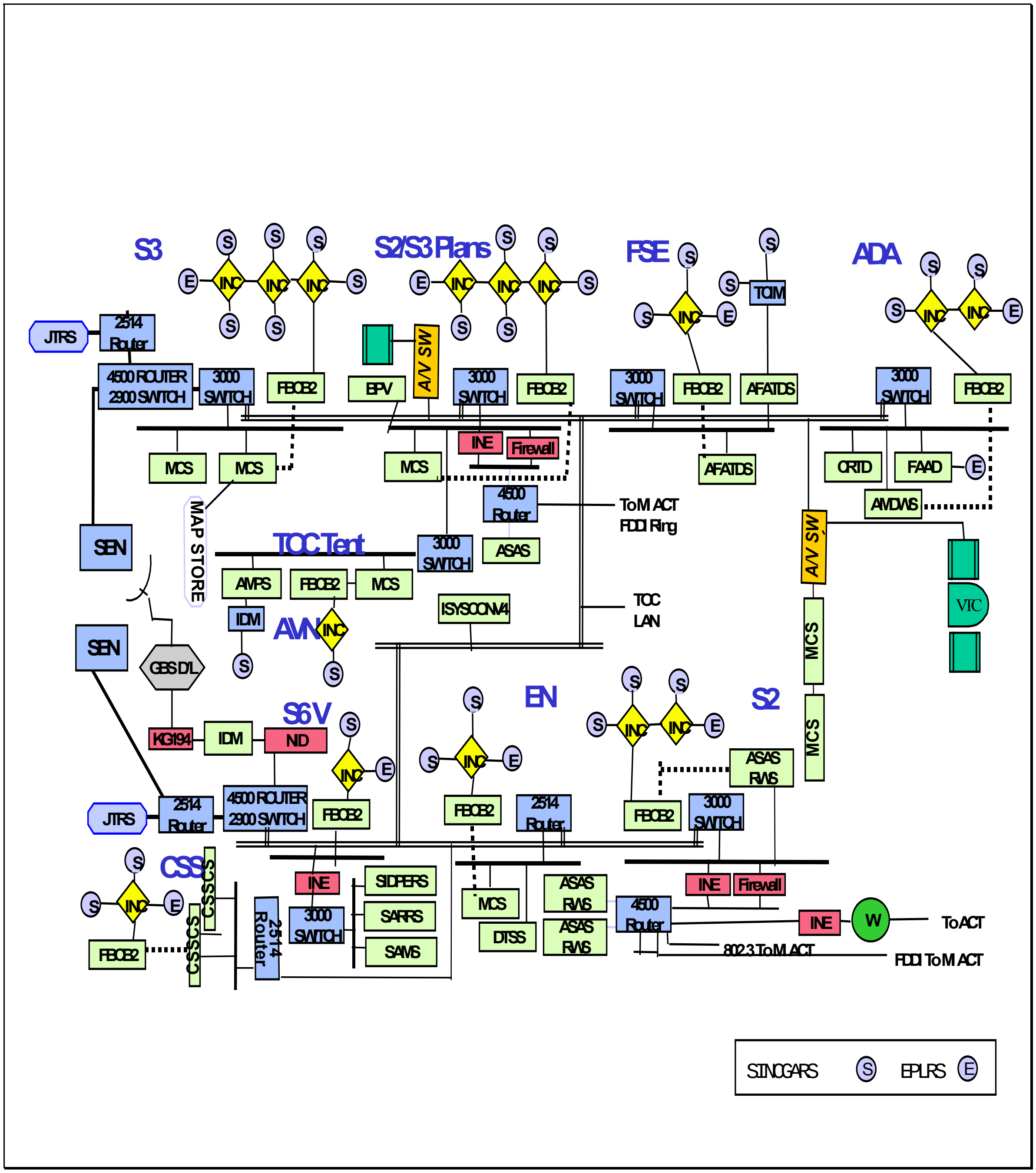


Figure A-5. Example Brigade TOC LAN

Wide Area Network

A-49. A WAN is similar to the LAN but covers a larger distance and allows LANs to communicate to higher, lower, and adjacent units. It is a network of networks that is constructed from a number of LANs connected to each other and to radio networks such as CNR or MSE. Because of the limitations of a network constructed with coaxial cable, a WAN uses a combination of the MPN and radio networks to distribute the data where necessary through the system.

A-50. The gateway switch at the supporting signal brigade/battalion is responsible for managing the WAN. The WAN consists of several networks designed to allow wider access to C2 information. These networks are MSE, GBS, and NTDR.

A-51. The MSE network is a common-user, switched communications system of linked-switched nodes that form a grid of voice and data communications on an automatic, fixed-directory basis using flood search routing techniques. Flood search techniques initiate each call over multiple routes and establishes the connection over the optimum route based on current traffic within the network. A thorough explanation of MSE can be found in FM 11-55, MSE Operations.

A-52. The GBS network is a joint program that features commercial, direct broadcast technology to deliver high volume, bandwidth intensive products such as video, data, imagery, weather, maps and theater and national level intelligence to joint forces. The GBS system consists of three major segments: broadcast, terminal and space.

A-53. The broadcast segments are composed of the satellite broadcast manager (SBM) and receive broadcast manager (RBM). The terminal segment is comprised of the primary injection points (PIPs), theater injection point (TIP), fixed and mobile ground receive terminals (GRTs), shipboard receive terminals (SRTs), and airborne receive terminals (ARTs). The PIP is a fixed earth station that sends data streams from the SBM to a specific satellite where it is relayed to GRTs in Theater. The TIP is a smaller, transportable version of the SBM and PIP. The TIP can be found at a designated tactical TOC such as division or corps main. The TIP can allow large theater generated information products such as UAV and satellite imagery, operation orders, and overlays to be transmitted to theater users. The space segment is composed of satellites in geosynchronous orbit.

A-54. The NTDR network consists of brigade and below mobile packet radios that provide a high data rate capability for increased throughput. The NTDR is an interim program to create a data backbone for platoon to brigade for Force XXI. It is the TOC-to-TOC radio for maneuver echelons transmitting data files greater in size than what EPLRS can handle or when MSE is not available.

There are two NTDRs per multiple vehicle ABCS TOCs, and one NTDR for single vehicle ABCS TOCs. MSE and other WIN-T assets provide WAN trunking for higher echelon TOCs not equipped with NTDRs.

TACTICAL INTERNET (TI) OVERVIEW AND CONCEPT

A-55. The tactical internet (TI) is the term for both the physical communications network that provides the general-purpose data backbone and also the overall concept of an integrated battlespace automated infrastructure. The "tactical internet" is named as such because of the wide and intentional similarities to the commercial internet.

A-56. The TI forms two distinct information exchange layers depicted in Figure A-6 called the upper and lower TI. The upper TI layer is composed of MSE, multi-channel satellite systems, and other WIN-T systems. The lower TI is the communications support system for units found at brigade and below and is composed of the FBCB2 computers and software, EPLRS, and SINCGARS SIP radios networked together using routers and commercial and military protocols.

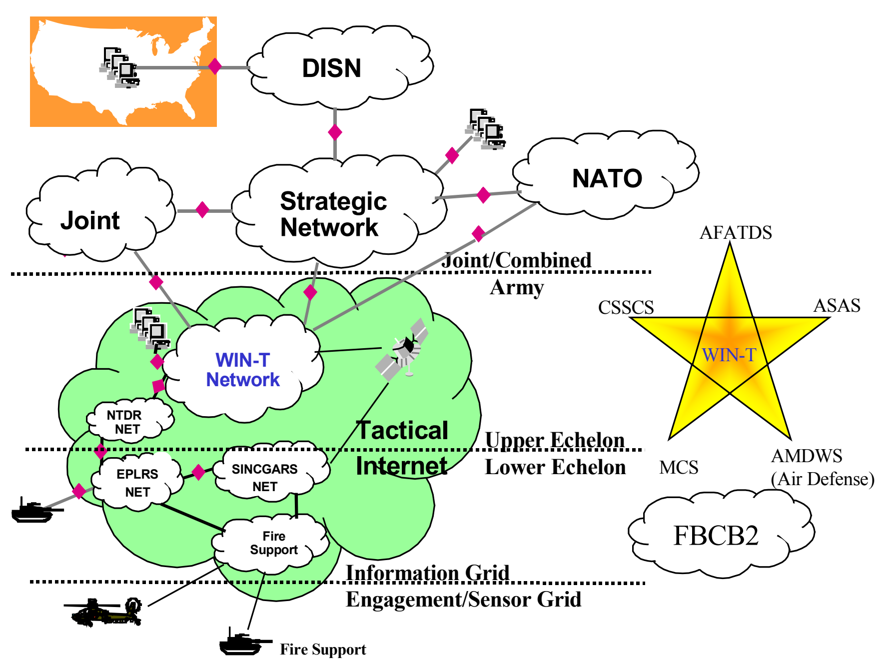


Figure A-6. WIN-T Conceptualization

A-57. The upper TI constitutes all available in-theater communications assets that allow corps, division, brigade, and separate maneuver battalions to exchange information. Components of the upper TI or WIN-T consist of improved MSE TPN assemblages containing ATM technologies, HCLOS, HCTR, NTDR, and multi-channel satellite systems such as secure mobile anti-jam reliable tactical terminal (SMART-T) and SHF Tri-band advanced range extension terminal (STAR-T). These satellite terminals help extend the MSE range between node centers and ECB command posts and provide split-based operations capabilities.

A-58. The lower TI layer key communication systems being employed are the:

- The FBCB2 host computers (includes Appliqué and in selected platforms embedded battle command [EBC] software).
- Enhanced position location reporting system (EPLRS) very high speed integrated circuit (VHSIC).
- Near-term digital radio (NTDR).
- Single-channel ground and airborne radio system (SINCGARS) System improvement program (SIP) with internet controller (INC).
- The MSE TPN.

A-59. The lower TI architecture consists of two substructures that support command and control (C2) data and voice, and provide situational understanding information (friendly and enemy locations). These substructures operate simultaneously, are transparent to the user, and are governed by the types of service requested by the host (See Figures A-7 & A-8, C2 & SA architectures).

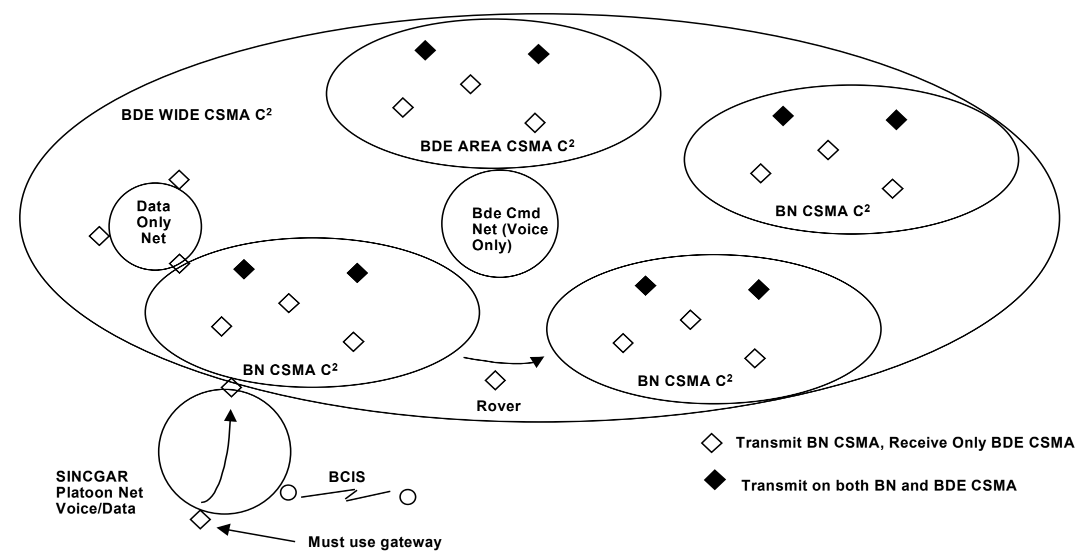


Figure A-7. Example TI C2 Architecture

A-60. Designed as the primary communications architecture supporting the warfighter at brigade and below, the network allows sharing of C2 data by users which results in near real-time SA and thereby improves force C2 for enhanced lethality, OPTEMPO, and survivability.

A-61. The TI is designed to electronically link all users so critical C2 and SA information is available to make tactical decisions. Planners and operators communicating within the TI must understand their particular role and that of their operational platform. Turning off radios, FBCB2, or improper initialization of equipment will impact the overall functionality of the TI. Operating within the TI carries with it an increased operator responsibility to ensure proper start-up and sustainment procedures are accomplished and a fundamental understanding of how the TI functions.

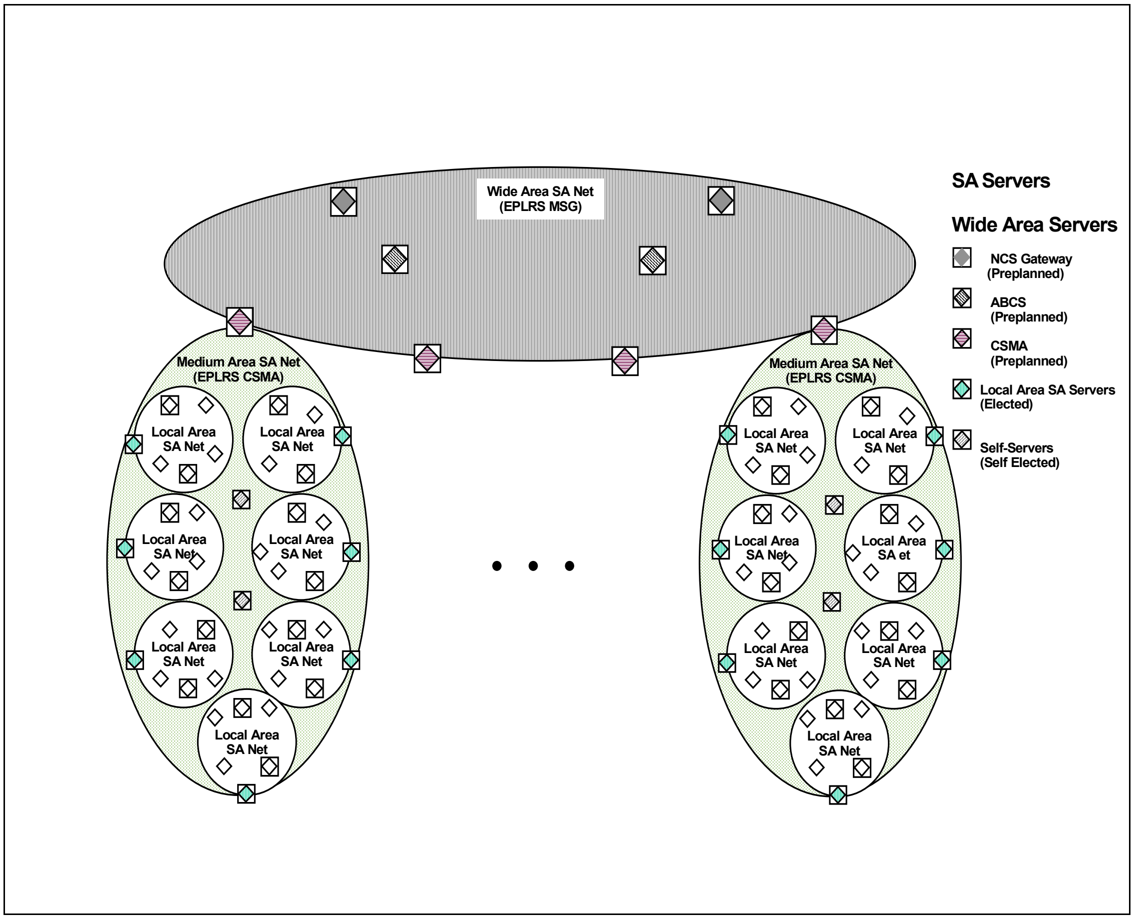


Figure A-8. Example TI SA Architecture

A-62. The C2 sub-architecture employs the use of EPLRS VHSIC full-duplex need lines for primary transmission of data; secondary means is SINCGARS SIP. Command and control data is defined as anything not classified as SA data. This data includes operational overlays, orders, reports, and free text messages formatted in FBCB2 to allow operators to send C2 information in the form of joint variable message format (JVMF) messages through an interface connection of FBCB2, SINCGARS SIP with INC, EPLRS VHSIC, and PLGR. Two types of delivery messaging methods are employed within the lower TI. These methods are uni-cast and multi-cast messaging.

A-63. Uni-cast messages are transmitted to a single destination using transmission control protocol/internet protocol (TCP/IP). The TCP/IP provides more reliability by using sequence numbers to coordinate which data has been transmitted and received. This type of transmission is more reliable, however it requires greater bandwidth overhead because it sends out a separate message to each addressee. The uni-cast method of transmission is used for C2 messages that exceed 576 bytes in size. Multi-cast messages are used to deliver data to multiple destinations simultaneously. It is used for messages less than 576 bytes and is transmitted using user datagram protocol/internet protocol (UDP/IP). The UDP/IP is less reliable than TCP/IP, however it uses less bandwidth overhead than TCP/IP.

A-64. Multi-cast transmission conserves network bandwidth since a single message is sent and delivered to multiple addresses. If a multi-cast message is greater than 576 bytes, the user is sent a warning message and an option to send the message uni-cast. Mandating a maximum message size is to limit the chance of lost messages. Hosts are generally members of multi-cast groups that are identified as a dynamically determined group of IP hosts, such as a platoon or battalion, identified by a single IP multicast address. Any host or member may join or leave a multi-cast group at any time and may be participants of more than one group. One does not have to be part of a multi-cast group in order to send messages to members in the group.

A-65. Operators can set their FBCB2 to specified settings relative to time, motion, and battlespace as well as set their send settings to include precedence, retries, acknowledgment, and addressee display. Command and control information is transmitted, transparently to the operator, in accordance with available transmission capacity and was not designed for speed of service due to this unpredictable time required to send traffic. Therefore, it has no guaranteed speed of service as SA information has precedence within the TI as it travels through the routers and gateways.

A-66. The INC router determines which transmission means to send the messages based upon these priority filters, the transmission device available, and the RFC-1256+ protocol found in SINCGARS SIP only equipped units. The RFC-1256+ protocol allows each INC to select its own exit gateway. The gateway will be selected based on the highest preference level. Each INC router will periodically advertise its preference level along with its IP address. An EPLRS INC has the highest ranking preference values.

A-67. Additional routing protocols found within the lower TI include internet group management protocol (IGMP) used for IP hosts and IGMP+, which is used for both IP hosts and IP routers like those associated with SINCGARS SIP only equipped platforms. Additionally, internet control message protocol (ICMP) and address resolution protocol (ARP) are used. The IGMP/IGMP+ protocols are used by host computers and gateway routers to communicate to their routers about their interest in participating in a specific multi-cast group. The ICMP Network layer internet protocol reports errors and provides other information relevant to IP packet processing. The ARP is a protocol that translates an IP address to a physical machine address (MAC) that is recognized in the local network. For uni-cast messages, an ARP request message is broadcast over the media by the interested host or router and is received by all stations. Stations recognize the IP address and reply by sending an ARP response. The local router for the host being requested responds or acts as a "proxy" for that host with the MAC address and a switched virtual circuit is created to transmit the information. Once the information is sent and a designated inactive period occurs, the circuit is deactivated.

A-68. The SA information primarily enables friendly forces to identify other friendly units and avoid fratricide. Situational understanding provided includes all friendly unit positions and known enemy positions from all relevant sources. Each FBCB2 reports its position over the TI to a designated SA server that disseminates the information based on filter settings and the SA sub-architecture. This process occurs automatically with minimal operator intervention once settings are established. Friendly locations are built from individual platform reports. Enemy locations are added from intelligence sources at brigade level and broadcast back down. The TI provides an intra-ABCS interoperability path at brigade and below. The FBCB2 system exchanges information with the higher level components of the ABCS in selected platforms such as the BCV, C2V, and A2C2S. This path allows the sharing of digitized data by commanders, staffs, units, and soldiers/weapon platforms resulting in near real-time SA and improved C2.

A-69. Because of the size of the TI to be deployed, it is necessary to split it into multiple autonomous systems (AS). These AS are a grouping of equipment that comprise a single net management domain (i.e., brigade/battalion areas).

A-70. Situational understanding is disseminated throughout the TI by a combination of SA servers broadcasting position reports. These SA servers may be local area, medium area, or wide area SA servers and are pre-defined according to the unit task organization (UTO), dynamic server selection process, client registration, and are usually equipped with EPLRS VHSIC. Local SA net servers process external SA data and local FBCB2 generated SA data onto local SINCGARS nets and send local FBCB2 data onto EPLRS CSMA need lines. Local area net (SINCGARS) members participate in automatically and dynamically selecting the most capable local SA server based upon an eligibility ranking scheme which includes equipment rank – platform communications equipment and their status; platform rank – vehicle type; and role code – hierarchical position within the unit. The best or most capable or highest-ranking FBCB2 platform selects itself as the local area SA server based upon each platform’s assessment of its condition using the eligibility criteria. If unable to register onto the SINCGARS SA net after a designated time and if the next hierarchy net is an EPLRS CSMA, the platform becomes a self-server. Only EPLRS VHSIC equipped platforms may be self-servers. This ensures flexibility of any platform, with the exception of SINCGARS only ones, to become the local SA server. This also prevents lone platforms from becoming isolated from SA updates. The SA software in each FBCB2 host continually ensures a SA server is identified by continually updating each host's communication status, automatic sever selection, client registration and maintaining the active client list (ACL).

A-71. The ACL (a list of the clients who have access to the server's functions) is adjusted as clients de-register and/or areas-of-responsibility change due to battle-rhythm and attrition. If the local area SA server does not hear from the client over a period of 20 minutes or 3 client report times, whichever is greater, the client is dropped from the ACL. Clients consider themselves de-registered if not on an ACL or if they do not hear from the local area SA server over 3 report times but not to exceed 2 minutes. A local area SA server will relinquish local area SA net support to higher-ranking FBCB2 platforms. Clients will de-register from lower ranking local area SA server(s) if they appear on two or more ACLs.

A-72. Local area SA servers equipped with EPLRS VHSIC are best for allowing position reports to gain access to CSMA need lines. There is a CSMA need line established for each battalion and brigade area. All EPLRS VHSIC equipped platforms within a battalion or brigade area will listen on the CSMA need line. Each EPLRS VHSIC SA server will transmit the positions of all units for which it is responsible via the CSMA need lines to all other EPLRS VHSIC equipped platforms within the CSMA need line area-of-responsibility.

A-73. To disseminate SA data between CSMA areas, a multiple source group (MSG) need line is used. All EPLRS VHSIC radios in the battlefield can listen on the MSG. A few EPLRS VHSIC radios are designated as MSG transmitters in pre-operational planning. A primary and secondary wide area SA server is designated and the secondary takes over when it no longer hears SA data from the primary. It relinquishes its role when the primary returns.

A-74. The SINCGARS SIP radio is responsible for sending and receiving voice, SA, and C2 data for those platforms not equipped with EPLRS VHSIC radios. Interfacing with a PLGR and FBCB2 computer, SA information is broadcast to all SINCGARS SIP net members and the SA data is displayed on FBCB2 screens. The INC interprets the information from the FBCB2 and SINCGARS SIP and sends new position data to the nearest EPLRS VHSIC local area SA server and then to the CSMA need line thereby updating all members of a particular net.

A-75. SINCGARS SIP radios use SA agents that are activated by the FBCB2 computer when it sends its local INC a message to a special UDP port. With SA agents, the source INC strips off the UDP/IP headers of the SA messages before sending them to the EPLRS VHSIC CSMA or MSG. The destination INC replaces the header with a "dummy" header prior to forwarding it to the FBCB2 computer. The SA agents are applied to SA data transmitted over

SIP networks. Separate queues for SA and C2 data are established (known as "SA Up" "SA down", or "SA other"). This improves completion rates of C2 data over SIP networks.

TACTICAL INTERNET NETWORK PLANNING AND MANAGEMENT

RESPONSIBILITIES

A-76. The signal officer (G/S6) is the coordinating staff officer responsible for planning, coordinating, and managing the communications assets of the maneuver force including the TI. To accomplish this mission, the G/S6 and his staff must understand all phases of the mission, the commander's intent and the scheme of maneuver. The G/S6 is responsible for coordinating with the maneuver force G/S3 to determine the location of signal support nodes and C2 platforms during each phase of the operation and for coordinating additional communication support from the next higher supporting signal echelon. This support may include MSE and EPLRS systems, FM and HF frequencies, tactical satellite assets, and COMSEC keys and hardware. The S6 exercises operational control of all communications assets OPCON to the brigade.

PLANNING AND MANAGEMENT FUNCTIONS

A-77. The TI requires thorough planning and network management. The integrated system control (ISYSCON) suite of hardware and software, when fully functional, is the FBCB2 equipped task force's interface and management platform to the TI. Additionally, the brigade task force uses other systems to plan and manage the TI; they are network control station-EPLRS (NCS-E), FBCB2 or commercial computers configured for network management to plan and manage the TI. Network management requires four basic activities:

- **Planning.** The TI must be carefully planned to support specific mission requirements. The two most important steps in the planning phase are to:
  - Fully understand the mission, commander's intent, and scheme of maneuver.
  - Fully understand the characteristics, capabilities, and mission of the individual components of the TI.
- **Initialization.** The components of the TI must be initialized to a known state before the network can be used to pass SA data. Each system's technical manual contains procedures to place the individual equipment into operation. The TI quick reference guide (QRG) contains equipment initialization requirements and procedures demonstrated to work best.
- **Monitoring**. Once the network is operational, it must be monitored so problems within the network can be identified and corrective action taken.
- **Reconfiguration**: Elements of the TI may move or change status. The network manager has the ability to change the current configuration to support continuous, seamless communications.

PLANNING AND MANAGEMENT CONSIDERATIONS

A-78. Planning and management considerations the G/S6 needs to account for and operational users and planners at all levels should be aware of are:

- **Understanding the operational intent.** The G/S6 must understand the mission and operational intent. He must take an active part in developing the scheme of maneuver and the synchronization matrix for the FBCB2 equipped task force during all phases of the operation. This will ensure he plans for all contingencies and positions communications assets to support current and future operations.
- **MSE connectivity.** The digitized task force has the same level of connectivity to the MSE ACUS network as the non-digitized task force. The CSG S6 must coordinate with the G6/corps signal brigade to plan for the positioning of LOS systems and SENs to provide continuous access to the voice and TPN capabilities provided by MSE. See FM 11-43, The Signal Leaders Guide, for detailed information on planning and controlling MSE networks.
- **EPLRS networks and need lines.** The EPLRS network is the primary, general-purpose data traffic backbone from brigade to lower echelons. The basis for EPLRS radio connectivity is the EPLRS need line. Each need line defines the operational relationship between the source and destination EPLRS units, without specifying which additional EPLRS units are part of the connection. The type of transmitted data, the mode of operation, and the data rate effects the planning distance between individual EPLRS units and the number of "hops" or relays that can be included in an EPLRS link. Accurate planning and network configuration is critical to provide proper area coverage within the battlespace. See FM 24-41, TTP for EPLRS, for planning and controlling EPLRS networks.
- **NTDR networks**. The NTDR networks provide a wideband data path between major C2 nodes at CSG and battalion level. Accurate network configuration is essential to provide reliable vertical and horizontal data links between these nodes.
- **SINCGARS SIP networks.** The SINCGARS SIP is used in both the data and voice communications modes. However, when the net is used for voice traffic, data traffic is delayed. Radio net discipline is critical for effective use of this information media. Unit SOPs must define the triggers that cause a user or unit to switch from data to voice communications modes of operation.
- **IP Addresses and Plain Language Naming Conventions.** To have an effective Tactical Internet three functions must

occur in the planning process; addressing, naming, and routing schemes must be developed.

A-79. Additional information on network planning and management can be found in FM 24-32, Tactics, Techniques, and Procedures For The Tactical Internet at Brigade and Below, chapters 11, 12, and 13, the tactical internet naming convention document, and in appropriate technical manuals.

ADDRESSING AND NAMING CONVENTIONS

A-80. A standard Class B IP addressing scheme is used for hosts of the TI. Eventually, the goal is a classless inter-domain routing (CIDR) schema of addressing. Address assignments are determined for each device associated with the host's system. That is the INC, SINCGARS SIP, ELPRS, and FBCB2 will each have an address for routing of information. Essentially, each active data port will be assigned a unique IP address. Assignment of IP addresses will be based upon the network to which they communicate. Each IP network address may be formatted as network, sub-network, and host fields so that multiple hosts and sub-networks can be aggregated and advertised in routing updates.

A-81. Each of the individual addresses will form a unique identification for the given platform. This unique identification includes its IP address and an established FBCB2 host name or functional designator (e.g., "user role@hostname"). These are designated by the role of the user of the system and not by individuals. The host file contains the name and address of all the hosts within its organization. Reconstitution/reorganization of a unit requires re-initialization to load new host files containing the changes to UTO.

A-82. As individuals or users change due to battlefield or scheduled attrition, the role remains the same on the platform FBCB2 host without having to change configurations due to personnel change. It is only when the user changes FBCB2 host that changes are required to ensure accurate message routing. An example would be the commander having to use an FBCB2 other than his to send and receive messages. The commander would have to re-initialize that FBCB2 as performing the role of commander in order to obtain messages.

A-83. Name services conform to architecture that:

- Assigns entire CSG as single domain.
- Assigns a hostname.
- Assigns IP address of each host present in host file.
- Domains correspond to a specific numeric. (e.g., PL-3OF66.TFXXI.C3.ARMY.MIL)

A-84. See FM 24-32, Appendix B, and Tactical Internet Naming Convention, for additional details on the TI naming convention.

Crew Assignment Sheet

A-85. Each platform in the unit has a crew assignment sheet that graphically depicts all TI components, cabling, NET IDs and EPLRS need lines corresponding to the platform. The operator uses the crew assignment sheet, in combination with the QRG, to verify proper SINCGARS SIP NET IDs, EPLRS logical channel numbers (LCN) for need lines and unique EPLRS radio set identifier (RSID), and role names. Using the crew assignment sheet helps ensure each platform is correctly configured to communicate within the TI (See Figure A-9).

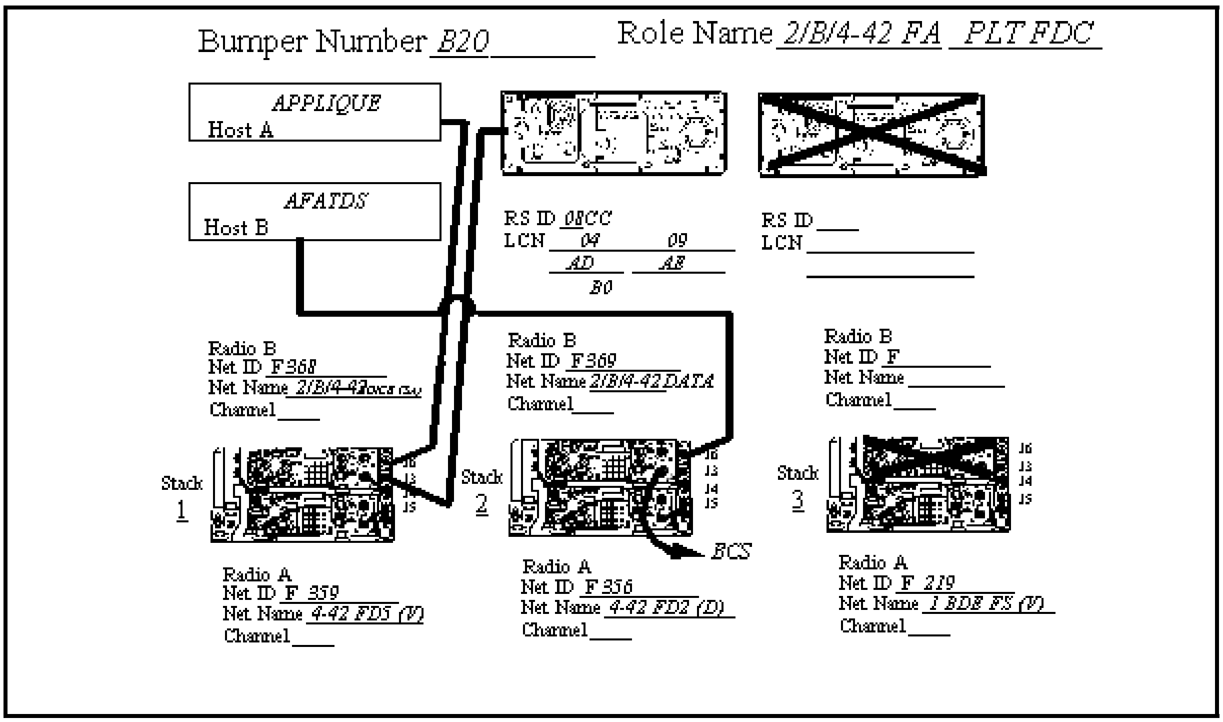


Figure A-9. Example Crew Assignment Sheet

Tactical Internet Quick Reference Guide

A-86. This document establishes the procedures to correctly initialize the primary components of the TI at the maneuver level based on approved techniques. It contains step-by-step instructions for operators to place the FBCB2, BCIS, EPLRS VHSIC, PLGR, PND, and SINCGARS SIP components into operation either separately or in multiple configurations, specific troubleshooting guides, crew assignment sheet, wiring and cabling diagrams, and significant lessons learned as pointers to successfully operate within the TI.

TACTICAL INTERNET SYSTEMS

A-87. Within the TI are an assortment of digital systems designed to provide the commander and soldiers of all units of the brigade task force and below C2 and SA information. Each echelon of the task force will be comprised of that digital equipment essential for effective C2 and battlefield SA tailored to the operational requirement and particular role of platforms belonging to the unit.

SINGLE CHANNEL GROUND/AIRBORNE RADIO SYSTEM-SYSTEM IMPROVEMENT PROGRAM (SINCGARS SIP), RT-1523C/D

A-88. The SINCGARS SIP communications system replaces the RT-1523 through RT-1523B manpack radio and AM-7239 through AM-7239B vehicular adapter. The planning range of the SINCGARS SIP with AM-7239C/D and AM-7238 RF power amplifier is dependent upon the configuration, power out put, and data mode. Information regarding this can be found in FM 6-24.32 (24-32), Chapter 5 and TM 11-5820-890-10-8, Appendix F.

A-89. The SINCGARS SIP features, with a GPS device interface, embedded GPS position reporting in all voice and enhanced data mode (EDM) data messages to provide reporting of friendly force position in support of SA. The SINCGARS SIP uses the internet controller (INC) to provide packet radio relay nodes across the battlefield for horizontal and vertical integration of C2 data. It is designed to provide voice and data communications capability at all levels. It is the primary path for data transmission at the company, platoon, and squad/team level. The SINCGARS SIP with INC consists of the following major components:

- **Receiver-Transmitter, Radio RT-1523C/D**. The RT-1523C/D is common to all of the SINCGARS radio configurations. User controls and displays are on the radio front panel. Electrical connectors permit interfacing to audio and data devices, and to the other components of the radio configuration. This radio supports digital data communications with data rates of 600, 1200, 2400, 4800, 9600 and 1600 bits per second.
- **Amplifier-Adapter, Vehicular AM-7239C/D**. The AM-7239C/D vehicular amplifier-adapter (VAA) is used in conjunction with the MT-6352 mounting base for vehicular radio installations. The VAA fits on top of the mounting base and is secured by thumbscrews. The VAA contains mechanical and electrical provisions for mounting one or two SINCGARS SIP radios and one AM-7238 RF power amplifier. Provides packet communications through the internet controller card (INC). Routes signal through the mounting base for the vehicular intercom system and provide

connectors for user data terminal (UDT) interfaces to the INC. Provides an internet access point that connects VHF radio nets with ATCCS/FBCB2 external data systems and the MSE/ACUS voice/data backbone switching network. Provides an interface and distribution of external GPS signals to as many as four RTs. Provides asynchronous RS-232 and MIL-STD-188-114 interfaces.

- **Internet Controller**. The INC is the forward area Internet router responsible for routing data between two or more communications networks. The INC is mounted within the AM-7239C/D and provides a programmable interface for protocol conversion between BFAs to support a seamless architecture between BFAs. The INC provides the interface point with VHF radios, EPLRS, user data terminal (UDT) devices, MSE circuit switch or packet switch, and other INCs.

A-90. The SINCGARS SIP is employed in C2 and combat platforms at all levels. See Chapter 5, FM 6-24.32 (24-32) and TM 11-5820-890-10-8 for additional details on the SINCGARS SIP.

Enhanced Position Locating and Reporting System Very High Speed Integrated Circuit (EPLRS VHSIC), AN/VSQ-2 (V)

A-91. The EPLRS VHSIC radio set (AN/VSQ-2 (V)) is a state-of-the-art line-of-site (LOS) radio operating in the 420 - 450 MHz UHF frequency band. It provides secure, jam-resistant digital communications and accurate position location capabilities for the user. The EPLRS VHSIC uses time division multiplexing access (TMDA). Its use of frequency hopping (512 times per second), spread spectrum technology (eight frequencies between 420 Mhz and 450 Mhz), embedded COMSEC module (KIV-14), and adjustable power output provides secure communications with a low probability of intercept and detection. It has built-in-test (BIT) functions that are activated at power turn on. The EPLRS VHSIC uses an omni-directional dipole antenna capable of covering the 420-450 Mhz frequency ranges. The average distance between radios is 3 KM to 10 KM depending on power out settings and terrain. The EPLRS VHSIC provides retransmission functions that are transparent to the user. The maximum distance the EPLRS VHSIC can cover is based on 3 KM to 10-KM distance between each radio and the maximum number of relays in the link. Each radio can handle up to 30 Need lines. The maximum number of need lines available is dependent on bits per second required for each need line.

A-92. The EPLRS VHSIC is employed in the C2V, BCV, A2C2S, and TOC/TAC platforms at the CSG and battalion level. It is employed in the combat platforms of the commander, executive officer, first sergeant, platoon leaders, and platoon sergeants at the company and platoon level. The EPLRS VHSIC is used as alternate data communications link (host-to-host) between C2 platforms at the brigade and battalion level. It is the primary data communications link between battalion C2 platforms and company/platoon combat platforms. The EPLRS VHSIC can be employed in RETRANS platforms and configured to provide retransmission capability.

A-93. The EPLRS VHSIC network is planned and configured using the net control station-EPLRS (NCS-E). The NCS-E is organic to the division signal battalion, and OPCON to the brigade. Network planners need the following information from the user to plan the network and radio configuration:

- Required speed of service.
- Maximum number messages the user will be transmitting during the users peak hours.
- Average message size (bits per message).
- Required bits-per-second (if known).

A-94. The S6, in coordination with the ADSO/G6 and signal battalion SYSCON, will plan the EPLRS VHSIC network using the NCS-E. The NCS-E sends network configuration data to each individual radio using remote file transfer procedures.

A-95. See FM 6-24.32 (24-32), Chapter 3, FM 6-02.41 (24-41), and TM 11-5825-283-10 for further details on the EPLRS VHSIC.

FBCB2 SUITE OF COMPUTERS

A-96. FBCB2 computing hardware are a mix of commercial, ruggedized, and militarized computers, system software, installation kits, application software, and integrated CSS support installed in vehicles and issued to individual soldiers. FBCB2 provides SA and C2 capabilities to all echelons of the task force through several input devices such as GPS, BCIS, SINCGARS SIP, and EPLRS VHSIC. The FBCB2 software users manual (SUM) contains additional information on and use of FBCB2 in the TI.

FBCB2 V1

A-97. This is a commercial off-the-shelf Intel 80486 DX4, 75 Mhz processor with an 80487 numeric co-processor. It has 16 Mbs expandable to 24 Mbs of RAM and an internal hard disk with 500 Mbs of storage and an internal diskette drive. It has an internal display on a flip-up lid of the note book computer. It has a 256-color liquid crystal display (LCD) and a diagonal measurement of 9.5 inches.

FBCB2 V2

A-98. This is a ruggedized version of an Intel Pentium P54C, 90 Mhz processor. It has a minimum of 16 Mbs expandable to 128 Mbs of RAM, an internal hard disk with a minimum of 500 Mbs of storage. It interfaces to external VGA, serial input/output (I/O) ports, parallel I/O, Ethernet, small computer system interface-2 (SCSI-2), and external diskette drive. It has an external video monitor with a diagonal measurement of 10.4 inches.

FBCB2 V3

A-99. This is a militarized version of an Intel 486 DX4, 100 Mhz processor. It has a minimum of 16 Mbs expandable to 64 Mbs of RAM, a removable hard disk drive with a minimum of 1.05 Gbs of storage. It has serial interfaces to external VGA monitor, serial I/O ports, parallel I/O, Ethernet, SCSI-2, and external diskette drive. It has an external color monitor with a diagonal measurement of 10.4 inches.

POSITION/NAVIGATION DEVICE (PND)

A-100. The position/navigation device is a computer that features an Intel 80486 DX33 processor. It has a minimum of 16 Mbs of RAM and an internal hard disk with a minimum of 170 Mbs of storage on a rotating hard disk unit. The PND interfaces to serial I/O RS-232 port (COM 1) dual-channel modem port, PCMCIA card, a GPS receiver antenna; dual-channel tactical modem and external power access port. The PND is designed to support vehicles not equipped with one of the other FBCB2 devices. The PND has a functional GPS card internal to the computer rather than relying on an external PLGR GPS receiver. The PND has a colorized LCD with internal display measuring 7 inches diagonally. It has a touch screen capability allowing the soldier to select “soft push buttons” from the FBCB2 display screen with a finger or with a stylus.

PRECISION LIGHTWEIGHT GLOBAL POSITION RECEIVER (PLGR), AN/PSN-11

A-101. This is a hand held, self-contained, multi-channel receiver capable of receiving the precise positioning signal (PPS) and tracking up to 5 satellites. It operates on battery or external power. It provides position coordinate, time, and velocity information. It can be operated hand held or vehicular, aircraft, or facility mounted.

A-102. The PLGR receives spread spectrum radio frequency (RF) signals from satellites orbiting the earth. These signals contain a unique code sequence and a navigational data message the PLGR uses to calculate a 3-D position by measuring the time the signal takes to travel from the satellite to the PLGR. This travel time is multiplied by the speed of light to determine the distance to the satellite. Repeating this calculation to four satellites provides the PLGR operator a 3-D position. Velocity is determined by measuring the rate of change of the signals. Time data is part of the navigational message component of the RF signal, derived from an atomic clock onboard each satellite.

A-103. Up to 99 data way points may be entered, stored and selected as a destination. A route may consist of up to 9 legs (10 way points) linked together, start to end or end to start. Fifty-one map datum sets are available. Maps have two associated datum, horizontal and vertical (altitude). See TM 11-5825-291-13, Operations and Maintenance Manual for Satellite Signals Navigation Set, AN/PSN-11 for additional details on the PLGR.

COMMERCIAL OFF-THE-SHELF (COTS) ROUTERS & SWITCHES

TACTICAL MULTINET GATEWAY (TMG)

A-104. The TMG is a commercial-off-the-shelf (COTS) modular access router (CISCO 4000 series) with the primary function of routing data between two or more communications networks. The TMG uses the TCP/IP protocol suite to provide routing based on IP addressing. The TMG supports interconnection between tactical packet network (TPN), SINCGARS SIP w/INC, ATCCS LAN, EPLRS VHSIC and the LAN Router. The TMG has the following features:

- Four Ethernet (IEEE 802.3) ports.
- Four serial ports.
- 40 MHz Motorola 68EC030 processor.
- 4MB flash EPROM memory and 4M DRAM allowing fast, reliable software updates.
- CISCO internetwork operating system (IOS) supporting TCP/IP, Novell IPX, and AppleTalk routing for bandwidth control and security.
- Data compression ratio of 4:1 for WAN speeds up to 128 Kbps.

A-105. The network planner using CISCO point and click configuration software generates the mission-specific configuration database. This software is resident on the network management tool (NMT [B2]) found in the ISYSCON (V) 4 and NTDR. The configuration database is generated at the NMT (B2) prior to deployment and downloaded to a 486-laptop computer belonging to the unit's organizational maintenance personnel (31U). Changes to the mission-specific database will be generated using the NMT (B2) and distributed using the procedures described below.

A-106. The using unit's 31U personnel are equipped with 486 laptop computers. They will receive (download) the mission-specific configuration database generated by the network planner using NMT (B2). The 31U will then upload the mission database into each TMG prior to deployment. Changes to the mission-specific database will be provided to the unit using the same procedures (NMT [B2] generated and downloaded to the 31U on his 486 laptop. The 31U then up-loads the database to each TMG).

LOCAL AREA NETWORK ROUTER

A-107. The LAN Router is a commercial-off-the-shelf fixed configuration router (CISCO 2500 series) with the primary function of linking Ethernet LANs to wide-area networks and is employed in the BCV and C2 platforms at all echelons. The LAN Router uses the TCP/IP protocol suite to provide routing based on IP addressing. The LAN Router supports interconnection between TPN, SINCGARS SIP w/INC, ATCCS LAN, and EPLRS VHSIC. The LAN Router has the following features:

- Two ethernet (IEEE 802.3) ports.
- Two serial ports.
- 20 MHz Motorola 68030 processor.
- 4MB flash EPROM memory and 4M DRAM allowing fast, reliable software updates.
- CISCO internetwork operating system (IOS) supporting TCP/IP, Novell IPX, and AppleTalk routing for bandwidth control and security.
- Data compression ratio of 4:1 for WAN speeds up to 128 Kbps.

A-108. The LAN Router mission-specific configuration database is generated and distributed in a like manner as mentioned with the TMG. See FM 24-32, Chapter 1, 9, and 10 for additional information on the TMG and LAN Router.

COMMERCIAL ETHERNET SWITCHES

A-109. Several series versions of CISCO ethernet switches can be found within various echelons of Force XXI CPs. Among these are the CISCO 3000, 4000, and 5000 series of high-performance, stackable switching platforms. The stackable architecture of these switches allows for greater flexibility and easier network and configuration management.

A-110. Switches are data-link layer devices that enable multiple physical LAN segments to be interconnected into a single larger network. Switches forward and flood traffic based on MAC addresses. Because switching is performed in hardware instead of in software, as a bridge would, it is significantly faster. Switches use either store-and-forward switching or cut-through switching when forwarding traffic. Many types of switches exist, including ATM switches, LAN switches, and various types of WAN switches.

A-111. The LAN switches are used to interconnect multiple LAN segments. LAN switching provides dedicated, collision-free communication between network devices, with support for multiple simultaneous conversations. LAN switches are designed to switch data frames at high speeds.

NETWORK MANAGEMENT TOOL (BRIGADE AND BELOW (NMT [B2])

A-112. The NMT (B2) is network management software hosted inside the ISYSCON (V4) and NTDR on a SunSPARC20 workstation. The NMT (B2) in the brigade is designed, when it becomes fully functional, to provide the primary means of supporting the TI with planning, initialization, and network monitoring and control. Network data can be viewed as network log, tree, or diagram menus.

A-113. Nominally, one NMT (B2) per AS is responsible for monitoring the performance of the communications within that AS and initiating corrective action when necessary. There is a NMT (B2) for the brigade rear area, each maneuver battalion task force AS, and any support battalion AS that is established.

A-114. The NMT (B2) directly manages only the routers in the AS (INCs, TMGs, LAN routers), not the FBCB2 hosts. It monitors EPLRS VHSIC systems via the NCS-E, monitors FBCB2 locations, allows modification to existing network configuration and development of future configurations.

NEAR-TERM DIGITAL RADIO (NTDR)

A-115. The NTDR is a brigade and below mobile packet radio used to interconnect ABCS and is employed in the C2V, BCV, A2C2S, and TOC/TAC platforms. It is used as the primary data and imagery communications link (host-to-host) between C2 platforms at the brigade and battalion level and up to 400 radios may be employed to serve a nominal brigade area of operations. In the host-to-host mode, each NTDR provides a relay function that is transparent to the user and has network management capability through NMT. The NTDR can be employed in RETRANS platforms and configured to provide dedicated retransmission capability. It operates in the 225-450 Mhz frequency band, has a point-to-point data rate of 288 Kbps and range of 12.5 kilometers at 20 watts of output power. This radio is providing a technical baseline for development of a multi-band, multi-mode digital radio system which is currently being termed the joint tactical radio (JTR).

A-116. When establishing the individual NTDR nets, it is important to ensure that the nets are interconnected at several points. This will allow users with net access in one net to send messages into another net. The interconnection points will typically be in the CSG and battalion TOCs. This allows messages to be automatically tunneled through the ethernet LAN connections within the TOCs from one net to the other net.

SPITFIRE, AN/PSC-5

A-117. The SPITFIRE SATCOM terminal will provide command and control for the division and corps warfighter nets, support SOF C2, and SASO. This Single-channel UHF SATCOM will replace the AN/PSC-7 (MST-20plus), AN/PSC-3, AN/VSC-7, AN/MRC-140, and AN/PSC-10 terminals currently used for the warfighter nets.

A-118. The terminal will utilize demand assigned multiple access (DAMA) and advanced narrow band digital voice terminal (ANDVT) techniques. It has embedded COMSEC and TRANSEC capabilities for data, voice, and order wire communications. It supports data rates of 75-4800 bps (5 kHz) and 16 Kbps (25 kHz), weighs 11.6 lbs., operates in the military UHF Band of 225-400 MHz, and is deployable in man pack, vehicular, and aerial operations.

A-119. Spitfire has the ability to transfer data from units such as the brigade recon using the advanced data controller for TCP/IP (ADC/IP) which connects to the ethernet port of the INC. The ADC/IP acts as a bridge between two networks using UHF SATCOM.

SECURE MOBILE ANTI-JAM RELIABLE TACTICAL TERMINAL (SMART-T)

A-120. The SMART-T is a HMMWV mounted MILSTAR SATCOM terminal that will provide multi-channel range extension for the WIN at division and corps. It provides low probability of intercept and detection, built-in transmission security with over-the-air rekeying, and a capability to interface and control certain aspects of the satellite such as resource control and antenna pointing. It supports 16 Kbps up to 1024 Kbps and 1544 Kbps commercial rate.

A-121. The SMART-T uses extremely high frequency (EHF) spectrum and will replace the multi-channel ground mobile forces (GMF) SATCOM terminals at corps and below. It is interoperable with MILSTAR, FLTSAT EHF packages, and EHF Packages on UHF Follow-On (UFO) satellites.

SHF TRI-BAND ADVANCED RANGE EXTENSION TERMINAL (STAR-T)

A-122. The STAR-T is a HMMWV mounted multi-channel TACSAT terminal. It has tri-band capability in the SHF range and operates over commercial and military SHF satellites. There are two versions of the STAR-T; standard and switch. The both versions consist of communications equipment, power generation, and an antenna system. The switch version has embedded automatic switching equipment.

A-123. The STAR-T provides communications connectivity for split-based operations between the theater and the sustaining base. Theater TACSAT companies deploy up to 20 standard STAR-Ts to provide range extension links between selected EAC node switches and/or key headquarters. Links are provided to the supported corps/deployed units for entry into the EAC switched networks. Links are also provided to other services, joint/allied headquarters, staging bases and other locations depending on deployment requirements.

SINGLE CHANNEL ANTI-JAM MANPACK TERMINAL (SCAMP)

A-124. The SCAMP is a man-packable terminal designed to interface with the MILSTAR low data rate (LDR) payload (it can also operate over EHF packages on FLTSAT and UFO/E). The terminal has anti-jam, intercept, COMSEC, and exploit capabilities and low probability of detection, interception, and exploitation capabilities to reduce the effectiveness of radio electronic combat and to reduce the possibility of destruction. It operates in point-to-point and broadcast modes and provides voice and data service at a maximum data rate of 2.4 Kbps.

A-125. The terminal will provide range extension for CNR as required by ALO and special operations. The SCAMP (Block I) will be used for critical command and control (voice/data) communications between headquarters elements and their major subordinate elements.

INFORMATION AND NETWORK SECURITY

SYSTEM FUNCTIONALITY DESCRIPTION

A-126. Army digitization efforts are intended to field a wide range of embedded and stand-alone end-user computers, connected by a universal TCP/IP data network. That network will consist of heterogeneous data-capable radio networks (e.g., SINCGARS, EPLRS, NTDR, MSE) and wire communication links (e.g., local area networks), and these links will be connected and supported by a network infrastructure of specialized computers (e.g., switches, routers, name servers, security servers). Although manufacturers design systems with security in mind, and highly skilled personnel follow appropriate procedures, the Army cannot field a "bullet-proof" network. Consequently, it is necessary to maintain the ability to do real-time security management and intrusion detection as part of routine operations and to take appropriate reactive measures when problems occur. The information systems protection concept, for ABCS, envisions real-time security management as a component of network and system management.

A-127. Several security tools used to implement information and network security are listed as follows:

- Internal and external firewalls.
- Internal and external network intrusion detection systems (NIDS).
- In-line network encryptor (INE).
- Communications security (COMSEC).
- Security guards.

- DCE security services.
- Host based C2 protect tools.
- TCP wrappers.
- Security profile inspector (SPI).
- SWATCH.
- Secure shell.
- Password checker.
- Anti-virus McAfee's virus scan for Solaris.
- Purge.

A-128. It should be noted that external firewalls and NIDS refer to devices that are on the perimeter of the WIN-T and MSE data networks. Internal firewalls and NIDS refer to devices that are internal to the TOCs.

A-129. Prior to transmission, the data is encrypted and encapsulated to protect it from prying eyes. Information cannot be viewed, modified or intercepted in a usable form from these encrypted packets. Additionally, the intercepted information does not provide any useable information about the protected hosts on the WIN-T/MSE network. It uses powerful, industry standard encryption algorithms to ensure that data traveling over the TI, the WANs or the TOC LAN cannot be intercepted.

A-130. Transmission security (TRANSEC) is also an important factor that helps secure information across the various networks. Trunk encryption devices, in-line encryption devices, frequency hopping and time division techniques usually secure transmissions. The TRANSEC combined with one or more of the devices listed above are essential to ensure information security (INFOSEC).

Concept

A-131. Network protection is based on a “defense-in-depth” philosophy as illustrated in Figure A-10. The objective of the defense-in-depth is to set up multiple barriers to an outside intruder, a malicious insider, etc. Each barrier combines protection, detection, and reaction features. The defense-in-depth philosophy consists of protection layers building upon each other as defined below:

- **Layer 1.** The first layer of defense is the external digital perimeter composed of COMSEC, firewalls, security guards, and where necessary, physical isolation serving as a barrier to outside networks such as the non-classified internet protocol router network (NIPRNET) as illustrated in Figure A-10. If a hacker penetrates the firewalls and remains undetected by the NIDS on the interfaces from the outside world, layer 2 protection mechanisms remain in place protecting the network.

- **Layer 2**., The internal digital perimeter, consists of firewalls and/or router filtering, serving as barriers between echelons and/or functional communities. Internal barriers may also be accomplished using COMSEC and guards. If a hacker could penetrate the layer 2 Firewalls and remain undetected by the NIDS on the TOC interface, the layer 3 protection would remain.
- **Layer 3**., This a secure local workstation/platform environment, consisting of individual access controls, configuration audit capabilities, C2 protect tools, and procedures. The final protection mechanisms are comprised of C2 protection mechanisms on the hosts.

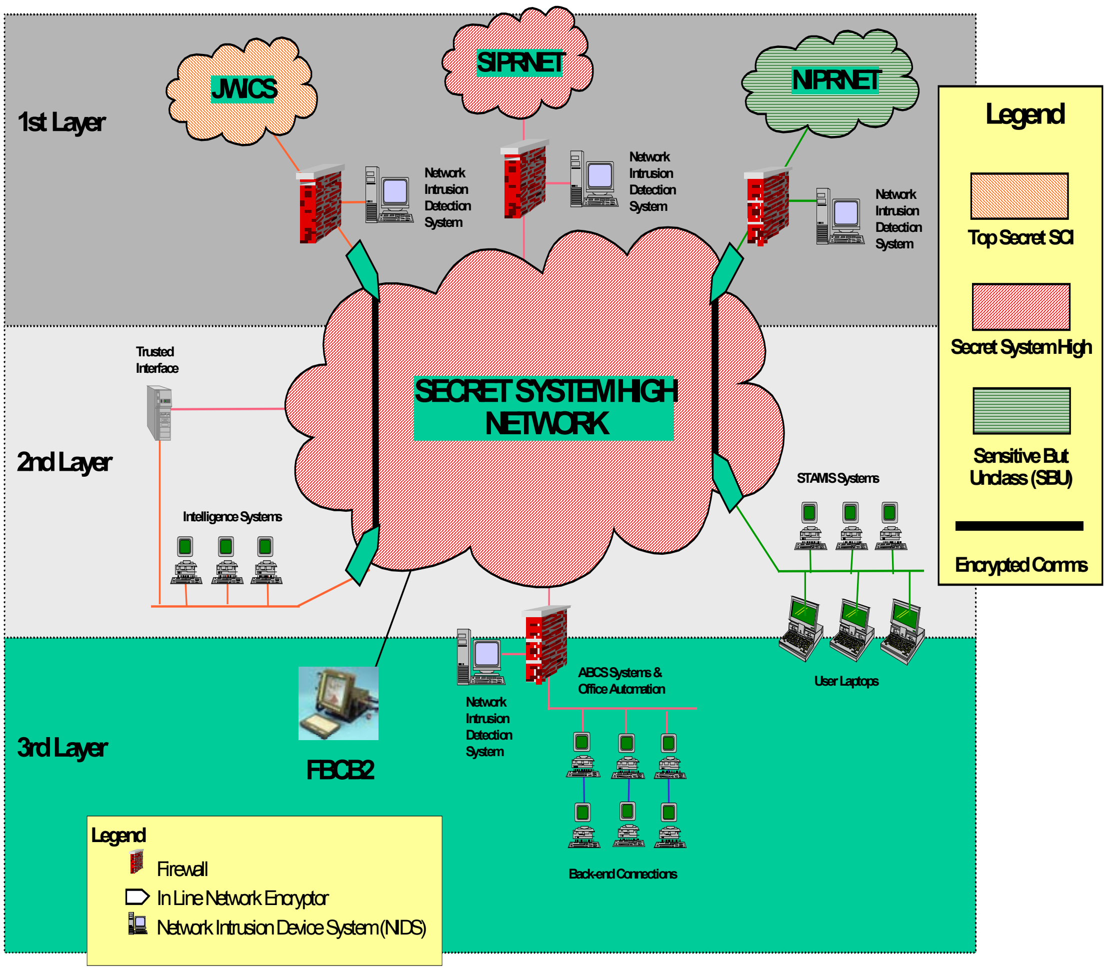


Figure A-10. Concept of Defense-in-Depth Network Protection

A-132. Information systems protection is built into the architecture and design of systems, networks, and overall infrastructure; is implemented concurrent with the implementation of the components of the digitization architecture; and is accessed throughout the development process.

A-133. Criteria for the digitization system architecture balances user performance requirements (typically expressed in terms of connectivity, speed of service or message completion rates) with security related architecture features such as redundancy, resiliency, and recoverability.

A-134. Information systems protection is designed so that damage is contained and precluded from cascading across the battlefield. The design provides for necessary redundancy and alternate pathways to assure that critical functions can continue in the face of computer attacks. For example, the design provides for alternative routing in the event that selected communications links are jammed or degraded.

Security Services

Firewalls

A-135. The first line of defense within the WIN-T/MSE data networks is protecting access to and from the TI. Without this protection, the door open to the TI is also the door open to the WIN-T/MSE data network. A firewall effectively puts a barrier between the WIN-T/MSE data network and the outside, securing the perimeter and repelling hackers. The firewall acts as a single point of entry where all traffic coming into the WIN-T/MSE data network can be audited, authorized and authenticated. Any suspicious activity based on rules established by the user sets off an alert.

A-136. The axent raptor firewalls used in the external perimeter are software programs that work at the application level. Using a set of application-specific (for example, http, ftp, or H.323) security proxies, the firewall evaluates each attempt to pass data through it for possible security risks. This software is hosted on either an NT workstation or a sun workstation (Solaris 2.6 operation system).

A-137. The axent raptor firewalls will be used at connections between the WIN-T/MSE datanetwork and external networks operating at the same classification level. Fire wall functionality, e.g., router filtering, will be used between WIN-T/MSE data network connections to TOC LANs by configuring the packet filtering rules in the router to block or filter any unwanted protocols and addresses. This same firewall functionality will be used at lower TI connections as well.

A-138. To accommodate the lessons learned and provide the best possible protection for tactical C2, a specific security architecture is being designed and implemented for the FDD information assurance.

Network Intrusion and Detection (NID)

A-139. Protection against intrusion into friendly computer networks through denying unauthorized entry and access into these systems is essential for network protection. The vast percentage of intrusion results from human error. Training and operations security (OPSEC) compliance by system manager, operators, and users are the best measures to combat system compromises.

A-140. An effective method for real-time intrusion detection is to monitor security-related activity occurring on the various systems and devices that make up the network (i.e., routers and switches). The information systems protection lessons learned from the TFXXI AWE and DAWE showed the need for near real time intrusion detection system to identify and react to potential computer attackers. The advantage of real-time activity monitors is that they deploy close to the mission-critical data and applications.

A-141. Specifically, the NID:

- Tracks audit trails from applications, databases, web servers, routers, firewalls, etc. to evaluate system usage over time.
- Monitors critical files for Trojan horses, unauthorized changes, etc. to detect and prevent malicious software from entering into the network.
- Watches TCP and UDP port activity to detect the direction of the network attack.
- Accepts SNMP traps and triggers.
- The NIDS is employed at all external connections to systems (i.e., firewalls).
- The NIDS is employed in TOCs to monitor inter and intra TOC communications.
- Network security management (NSM)/surveillance provides real-time network surveillance and reaction to network intrusion. Robust and resilient infrastructure is designed to "contain" damage from attacks and to be readily reparable in case of attack. The fundamental criteria are that no single attack leads to failure of a critical function, and no single protection mechanism protects critical function or system.
- The NSM security tools are used to identify individual systems vulnerabilities and apply counter-measures before fielding of these systems. One of the most important factors to ensure prevention of intrusion into the automated information systems (AIS) is that all battlespace information systems (BIS) operate in SECRET systems-high mode. Any non-secure system or device connected to or entering any network of secure nature must have an in-line encryption device in use between the network entry point and the entering equipment. This ensures the security of all networks.

Inline Network Encryptor (INE)

A-142. There is one INE for each TOC, vehicle or element with a networked sensitive but unclassified (SBU) workstation for each LAN connection (some have both a hardwire and wireless LAN). The INE will be used to support the transport (i.e., tunneling) of information over the TI at other than the network's system high level.

A-143. System-high use of the MSE packet net today does not require INEs. Users at other security levels will be able to share the transmission media by using INEs for end-to-end cryptographic isolation.

A-144. The present MSE tactical name server/mail transfer agent (TNS/MTA) operates system-high with respect to security, just like the network it serves. Users at other security levels will need some dedicated TNS/MTAs. Though running the same name/mail server software, these would each have an INE, which only accepts connections at its own security level. Unclassified- and secret-level servers might be made co-resident by porting existing TNS/MTA software to a computer with a trusted MLS operating system. There is one INE for each GBS receiver.

Password Control

A-145. Passwords for systems processing classified or unclassified information must be randomly generated with at least an eight-character string using the 36 alphanumeric characters, with at least two of the characters being numeric. The ISSO or designated representative is responsible for overseeing generation, issuance, and control of all passwords. Passwords are issued IAW the following guidelines:

- Users will not have any control over choosing their passwords.
- After generation, password handling and storage are at levels of the most sensitive data contained in the system. Knowledge of individual passwords will be limited to a minimum number of people and not shared. Password issuance is only to users authorized to access the system.
- At the time of password issuance, all users receive a briefing on:
  - Exclusiveness, classification, and uniqueness of each password.
  - Safeguard measures required for classified and unclassified passwords.
  - Prohibitions against disclosure to unauthorized personnel to include personnel assigned to the same project and hold identical clearances.
  - Requirement to inform an ISSO immediately of password disclosure or misuse or other potentially dangerous practices.
  - Issuance of the same password only once. Passwords will be retired when the time limit has expired or the user has transferred to other duties, reassigned, retired, discharged, or otherwise separated from the duties or the function for which the password was required.

Passwords, as unique identifiers of individual authority and privileges, are strictly for use by one user.

- All passwords on classified systems change at last quarterly. Passwords on Non-sensitive and SBU systems change at least semi-annually.
- Passwords need protection against unauthorized observation on terminals and video displays. Each systems operator is responsible for securing operations of their systems. This should prevent unauthorized password observation.

C2 Protect

A-146. Command and control protect (C2 Protect) encompasses those measures taken to maintain effective C2 of our forces by turning to friendly advantage or negating adversary efforts toned information to influence, degrade, or destroy the friendly C2 system. Commanders develop comprehensive protection programs in anticipation of how an adversary will employ elements of attack and intrusion to disrupt the C2 systems and decision-making processes. Listed below are the five principles of IA and protection.

- Gain C2 superiority. This includes functions such as the unimpeded friendly processing of information, accurate development of courses of action, valid decision making, and efficient communications to and from subordinates.
- Remain inside the adversary's decision cycle by denying, influencing, degrading, and/or destroying the adversary's C2, personnel, equipment and systems.
- Reduce the adversary's ability to conduct attack.
- Reduce friendly C2 vulnerabilities using protection measures. For example, hardening information systems with protection devices and techniques to deter attacks and intrusions.
- Reduce friendly interference in our networks and systems throughout all levels of NSM.

Communications Security

A-147. The COMSEC in networks is an absolute must. Specific keys enable encryption of the voice and data passed through transmission devices and computers. The national security agency (NSA) controls most encryption keys or dictates, by regulation, other keys locally generated and distributed. Overall, COMSEC responsibilities rest with the G6/S6/S3.

A-148. Inherent in both the EPLRS and SINCGARS are significant security features. These features include complex low probability of intercept (LPI) transmission techniques, data coding techniques, and data encryption. These security features are augmented with additional specific security techniques to provide system integrity.

Host-Based C2 Protect

A-149. A variety of host-based C2 Protect applications can be found on ABCS and secure UNIX configuration is provided in UNIX configuration guidance for ABCS. Among these are the following:

- The DII COE provides an automated UNIX configuration tool.
- The TCP wrappers are used to authenticate TCP and UDP connections to hosts.
- Security profile inspector is used to identify modifications to system-critical files.
- The SWATCH monitors system audit files for refused connections identified by TCP wrappers, and issues an alert.
- Secure shell provides a strong authentication and secure communication for FTP, TELNET, and others.
- The password checker is used to check selectable passwords to insure they meet revised AR 380-19, Information Systems Security, that requires an 8-character password with 2 numerics.
- McAfee's Virus scan for Solaris provides on-demand protection of PC viruses on UNIX.
- Purge is a non-destructive hard disk (SCSI) declassification software program.

Emergency Procedures

A-150. There are cases requiring drastic procedures to protect networks. The following procedures are carried out only after directed to do so by the commander, or under extreme emergencies. These emergencies are normally covered in a unit's SOP:

- Zeroize COMSEC devices.
- Purge systems.
- Destroy classified systems only when capture is imminent.
- Notify activities as required to enable a proper response.

FBCB2 Perspective - C2 Protect

A-151. The FBCB2 operates at a system high mode, as defined in AR 380-19 and PEO command, control, and communications systems (PEO C3S) security policy; and supports a C2 level of trust, as defined in DOD 5200.28-STD. System high is a mode of operation wherein all users of the FBCB2 computer system possess the required security authorization, but not necessarily a need-to-know, for all data handled by the FBCB2 system. The FBCB2 software supports operation at either of two system (High) sensitivity levels, secret or sensitive but unclassified (SBU). The system sensitivity level controls message marking, message rejection, and screen marking functions.

A-152. In accordance with the principle of "least privilege", FBCB2 limits the user to only those operational capabilities and data needed to perform the user's assignment in accordance with the user's role. When accessing FBCB2, the user is identified by a user group (e.g., the user's platoon), and a role sensitivity level, which identifies the maximum sensitivity level (SBU or Secret) of data that can be made available to the user. The system sensitivity level is set based on the role sensitivity level of the logged-in user. Further, FBCB2 restricts the user to functionality based on one of four access levels indicating authority/responsibility, pre-assigned to positions in the force structure. This enforces a "role-based" method of access control. Separate security roles are also defined for the security officer (SO), system administrator, and maintainer.

A-153. The FBCB2 requires the user to log into the system prior to granting the user functional access to FBCB2 data. If the users own geographical position data are displayed prior to login, access to FBCB2 functionality and data will be granted after entry of the user group identity. The user must then enter a valid password that matches to this identity and the user's role sensitivity level, and acknowledge an AR 380-19 compliant computer log-on banner notice. This is a text notice warning to the user that appropriate authorization is required to enter the system and that the user is subject to monitoring.

Access Control

A-154. The FBCB2 software provides an operational user the capability to initiate an emergency disable request in the event of an overrun and anticipated capture of an FBCB2-equipped vehicle/TOC. In response to such a request, FBCB2 overwrites the hard disk and resets the router to its factory default configuration.

A-155. The FBCB2 rejects incoming C2 JVMF messages when the message sensitivity level of the incoming C2 JVMF message, as indicated in the JVMF message header security classification field, exceeds the system sensitivity level.

A-156. When connected directly to the router, in the fielded configuration, the INC router authenticates the FBCB2 host via the challenge handshake authentication protocol (CHAP). The FBCB2 responds to authentication requests from the INC router, at router initialization when the PPP link is established, and periodically thereafter during router operation, by supplying the router authentication password in accordance with the CHAP. The INC router will not communicate to an FBCB2 host that fails this authentication. The FBCB2 configures the INC router operational data by affecting SNMP write operations (i.e., sets) on the INC MIB. The FBCB2 supplies the INC configuration password to the INC prior to the configuration process. The INC router grants access to the FBCB2 host for router configuration based on validity of the password. The INC router will not perform the configuration processes if the FBCB2 host fails authentication. For each requested set of INC MIB data, FBCB2 will supply an SNMP community name. The INC router will not perform the SNMP set operation if the community name is invalid.

A-157. The FBCB2 restricts functional users from direct access to the command line of the operating system, from directly executing operating system commands, and from escaping to the operating system through keyboard action.

Security Status Reporting

A-158. The FBCB2 audits a refined set of security critical event exceptions. For example, the event of a user's failure to enter a correct password after successive retry, will be audited. Audited events are not saved locally. They are forwarded via the security JVMF message to FBCB2 hosts within the lower TI, actively running the security officer (SO) role, where they are collected for review and disposition by the SO(s). Effective routing of audit event messages to hosts actively running the SO role, are achieved through the use of designated SO multicast groups. Each SO is provided the capability to log security events, and to archive the log. Audited events include the following data: type of event, date and time the event was detected, role and URN of the host logged in (if any) at the time of the event, geographic location of the event (if available), and success or failure (if applicable) of the event.

Labels

A-159. The FBCB2 marks all screens to reflect the system sensitivity level. The TOC LAN configuration could include a printer accessible to FBCB2. The FBCB2 marks printed output to reflect the system sensitivity level, in accordance with AR 380-5, Department of the Army Information Security Program. The FBCB2 marks C2 messages generated automatically, or created manually by the user, not to exceed the system sensitivity level. The FBCB2 software automatically fills the security classification field of the message header per MIL-STD-2045-47001B. The FBCB2 permits the user to override the default message sensitivity level, of manually created messages, not to exceed the system sensitivity level.

Password Management

A-160. Password management is a set of services for the SO to manage passwords. These services include generation of AR 380-19 compliant passwords, assigning the passwords to user groups, and loading them in sets on individual target FBCB2 computers. Services are also provided for the SO to display and update the status of password assignment and loading. In accordance with signal operating instructions (SOI) procedure, the SO records the passwords and identifiers off-line.

Purge

A-161. The FBCB2 supports, if available, government furnished equipment (GFE) provided off-line purge capability. Purging is performed on magnetic hard disks by overwriting all locations with a character, its complement, then with a random character.

Anti-Viral Protection

A-162. The FBCB2 incorporates a GFE provided method of malicious code detection.

Appendix C

Logistics Planning Checklist

This appendix is a logistics planning checklist for use by the DISCOM battle staff. It is provided as a sample and not intended as an all-inclusive document. Refer to the appropriate tactical standard operating procedures for detailed information.

LOGISTICS PLANNING CHECKLIST

- Is a listing of doctrinal policy and procedural and publications, United Nations, North Atlantic Treaty Organization, and national, available to facilitate planning?
- Is there a concise statement of the purpose of the logistics support plan?
- Is there a paragraph that provides a summary of the operation that the logistics plan supports?
- Are the assumptions listed and reasonable? Are key assumptions identified;-availability of ports, no humanitarian assistance?
- Are responsibilities for support clearly identified?
- Support.
  - Is there a paragraph that describes how supply maintenance, transportation, and field support will be provided?
  - Is the force structure identified sufficient or excessive? Does it specify task organization for support?
  - Have terrain and enemy intelligence has been analyzed to determine the impact on logistics support?
  - Has the deployment flow been properly analyzed to determine time-phasing for induction of logistics elements?
- Supply.
  - General:
    - ⇒ Is supply system and procedural guidance provided for role specialist commodities?
    - ⇒ Is the flow of requisitions described for support?

- ⇒ Do automated systems of supported units and task organized CSS units have interphase? If not, how are unit requirements passed?
- ⇒ Are provisions made for contracting and local purchase?
- ⇒ Are the stockage objectives by class of supply specified?
- ⇒ Is the known or estimated order ship time provided?
- ⇒ Will automated or non-automated procedures be used?
- ⇒ Have interservice support requirements been identified?
- ⇒ What support can/will be provided to host nation, allies or other services?
- ⇒ What intra theater support is provided?
- ⇒ Are retrograde procedures for excess and unserviceable items provided?
- ⇒ Is the control of aviation intensively managed items address?
- ⇒ Are provisions made for emergency resupply?
- ⇒ Have initial preplanned supply support and emergency support packages been considered?
- ⇒ Is the communication transceiving capability provided and compatible with the automated systems being deployed?
- ⇒ Addresses required for multi-national support?
- ⇒ Are specialized air lines of communication of DSS facilities required to be designated?
- ⇒ Are procedures described for cancellation/diversion of materiel in-process/in-transit at the termination of the operation/exercise?
- ⇒ Are provisions made for logistics support of civilians and enemy prisoners of war?
- ⇒ Is there covered storage in the area of operations to protect supplies from the elements? If not are shipments packaged for outdoor storage?
- ⇒ Are MHE requirements and sources identified?

▪ Class I:

- ⇒ Is a ration cycle described by phase?
- ⇒ Are fresh eggs, fruits, vegetables, meats, juices, ultra-high temperatures milk and canned soft drinks supplements to the MRE, T, and B ration meals considered?

- ⇒ Do local fresh fruits and vegetables meet U.S standards?
- ⇒ Have unitized operational rations been considered for ease of handling and accountability?
- ⇒ Are cash meal payment procedures established – multi-national?
- ⇒ Are bakery supplements to MRE, T, and B ration meals considered?
- ⇒ Are veterinary personnel adequate for subsistence support requirements?
- ⇒ Are hospital rations addressed?
- ⇒ Are chill and freeze reefer requirements for supply activities addressed?
- ⇒ Is the U.N. ration scale from an approved source?
- ⇒ Is a water quality standard established?
- ⇒ Are the sources of water local, surface, or wells? Have they been mixed?
- ⇒ Has use of potable water equipment been restricted to potable uses only? Have provisions been made for winterization of this equipment – tents heaters, and insulators?
- ⇒ Have requirements been identified – refugees, and displaced civilians?
- ⇒ Do water-planning factors include considerations for retrograde and engineer constructions?
- ⇒ What are the treatment/storage/distribution cooling requirements? Are they satisfied by deploying capability and/or contractor support?
- ⇒ What are the well drilling requirements? What about the quality of existing wells?
- ⇒ Are potable ice considerations covered? Is it medic-certified? What are the sources?
- ⇒ Has use of forward area water point supply system been maximized?

- Class II:
  - ⇒ Are requirements for individual clothing, CTA 50-900 items or mission-essential consumables addressed?
  - ⇒ Are there any items that require special consideration – cold weather equipment, vector control, tentage for humanitarian support, water purification supplies?
- Class III:
  - ⇒ Are the requirements, inclusive of multi-national, established by location for each type of product required?

- ⇒ Has a defense fuel contracting representative been assigned to the sub area joint petroleum office in the joint lines of communication ?
- ⇒ Have the medical unit requirements been considered?
- ⇒ Are ordering/accountable officer requirements addressed?
- ⇒ Are existing pipeline distribution systems available? What are the capabilities? Is the distribution system vulnerable?
- ⇒ Are remote fueling sites required?
- ⇒ Are international and interservice support billing and reimbursement procedures identified?
- ⇒ Has fuel compatibility been determined?
- ⇒ Are trucks and tankers capable of negotiating roads, bridges and tunnels? Should HEMTTs be used vice 5K tankers?
- ⇒ Is the requirement for AOAP testing in effect or waved?
- ⇒ Are POL quality surveillance procedures specified? Are the test kits on hand?
- ⇒ Are additives required for commercial fuel?
- ⇒ Are unique packaged requirements addressed?
- ⇒ Are industrial gasses addressed?
- ⇒ Is in-country refueling of fixed and rotary winged aircraft been minimized?

▪ Class IV:
- ⇒ Are unique requirements for construction/security materiels addressed?
- ⇒ Has prepositioning of materiel been considered?
- ⇒ Are prescribed loads to be deployed?
- ⇒ Has in-country procurement been surveyed?

▪ Class V:
- ⇒ Is unit basic load deployment adequately addressed?
- ⇒ Is the logistics support structure prescribed?
- ⇒ Are training ammunition requirements addressed?
- ⇒ Are there special/unique requirements (flares, demolition, and mines)?
- ⇒ Has a request for site approval and construction of ammunition storage facilities been included in engineer planning?

- ⇒ Have the storage, handling, shipping, security, and safety requirements been reviewed and addressed in planning?
- ⇒ Are special permits needed/provided for?
- ⇒ Are requirements for explosive disposal units and their command and control identified and resourced?

▪ Class VI:

- ⇒ Are the deploying units provided guidance on personal demand items?
- ⇒ Are sundry packs available?
- ⇒ Has AAFES been notified and integrated into the multi-national plan? Has eligibility of other nationals in U.S. and the U.S. personnel in other national facilities been determined?
- ⇒ Has the policy on rationing and check cashing been addressed?

▪ Class VII:

- ⇒ Does the plan specify the equipment level for deploying units?
- ⇒ Are equipment re-distribution requirements specified?
- ⇒ Are replacement actions for salvage equipment specified?
- ⇒ Are special equipment requirements addressed?
- ⇒ Has disposition of unserviceable Class VII been determined?

▪ Class VIII:

- ⇒ Are procedures unique to medical supply described?
- ⇒ Are ASL objectives addressed?
- ⇒ Is the disposal of salvage supplies addressed?
- ⇒ Are special medical equipment and supply requirements identified based on medical; mission and area of operation?
- ⇒ Are medical oxygen and other medical gas requirements identified and resupply procedures established?

▪ Class IX:

- ⇒ Are cannibalization procedures addressed?
- ⇒ Will the GS base support the Class IX supply system?
- ⇒ Is stockage of major assemblies addressed?
- ⇒ Are requirements for special non-expendable components addressed?

- Maintenance

  - Does the plan describe how different levels of maintenance will be performed?
  - Are maintenance priorities provided by phase?
  - Does the joint lines of communication have the ability to cross level international maintenance assets?
  - Have convoy support requirements been identified?
  - Is missile maintenance support available in the area of operation?
  - Has the logistics support element been integrated into the maintenance plan?
  - Are special medical maintenance requirements addressed?
  - Are AVIM/AVUM aspects addressed?
  - Does the plan cover TMDE repair and calibration?
  - How will repairs under warranty be addressed?
  - Is evacuation of repairables addressed?
  - Is operational readiness float addressed?
- Transportation
  - General:
    - ⇒ Are the transportation support systems for DSS air lines of communication addressed?
    - ⇒ What are sea lines of communication requirements? Can containers be used with carrier delivery direct to the SSAs?
    - ⇒ Is a coastal line of communication required? Army freight ships? Landing crafts? Lighterage, American Comorant?
    - ⇒ Have MHE requirements been addressed?
    - ⇒ Which ports are available for each commodity?
    - ⇒ What is access to ports/airfields?
    - ⇒ Is oceanographic data available?
    - ⇒ What airfields can be used? What are their capabilities? Have the departure airfield control group/ arrival airfield control group (DACG/AACG) requirements been satisfied?
    - ⇒ Is there a rail system available?
    - ⇒ Is the highway net described? What are the capabilities and limitations – bridges, tunnels, and overpasses?
    - ⇒ Are there transportation movement priorities provided?
    - ⇒ Is there access to movement control databases for intransit visibility?

- ⇒ What is the weather impact on ports, airfields, and highway nets?
- ⇒ What are the transportation funding arrangements?
- ⇒ Are in-country highway, rail, air, and inland waterway mode requirements addressed?
- ⇒ Is a movement system for personnel and cargo specified (inter-theater, intra-theater, in-country)?
- ⇒ Has the use of foreign flag sea/airlift been addressed?
- ⇒ Are there any self deployment requirements – Army aircraft, logistics support vessels , boats?
- ⇒ Will refrigerated transport be required?
- ⇒ Are there any procedures addressed for shipping supplies and equipment that arrive at home station after the units have deployed?
- ⇒ What support will be provided by, or to, the host nation, other services and allies?

▪ Logistics over the shore (LOTS) Operations:

- ⇒ What shorelines are conducive for LOTS operations?
- ⇒ What are the characteristics of the shoreline?
- ⇒ What types of roads access the shoreline?
- ⇒ What type of railroad accesses the shoreline?
- ⇒ What contract civilian/host nation personnel and equipment assets are available to assist in LOTS operations?

▪ Inland Waterways:

- ⇒ What inland waterways are available?
- ⇒ What are the characteristics and capabilities of the inland terminals?
- ⇒ What is the present usage of the inland waterways?
- ⇒ What is the enemy's capability to interdict the inland waterways?
- ⇒ How accessible are the waterways roads or rail?

▪ Intercoastal Shipping:

- ⇒ What intercoastal shipping assets are available to support military operations (bulk fuel, ammunition, and dry cargo)?
- ⇒ What routes are currently in use?
- ⇒ What is the enemy's ability to interdict?

▪ Containers:

- ⇒ What is the container policy?

⇒ What contract civilian/host nation personnel and equipment are available to assist inter-modal operations?

⇒ What is the capability of units to handle container shipments?

- Fixed Ports:

⇒ What fixed ports are available to support military marine terminal operations?

⇒ What are the characteristics and capabilities of the fixed ports?

⇒ What type and quantity of MHE are available for use in support of military marine terminal operations?

⇒ How many berths and anchorages will be available for use in support of military terminal operations?

⇒ What is the enemy's ability to interdict the ports?

⇒ What kinds of security measures are currently in use?

⇒ What is the port's capability to handle containerized cargo (fixed crane, floating crane, RTCHs)?

⇒ What effect does weather and sea have on port operations?

⇒ What contract civilian/host nation marine terminal personnel and equipment assets are available to support military terminal operations?

⇒ What is the present level of usage of the ports?

⇒ What capability does the government/local civilian contractors have to repair damage to port facilities?

- Airfields:

- ⇒ What airfields are available to support military operations?
- ⇒ What are the personnel and cargo reception capabilities of the airfield?
- ⇒ What is the current usage of the airfield?
- ⇒ What are the characteristics and capabilities of the roads that access the airfield?
- ⇒ Has support been planned for USAF mobile aeromedical staging facilities?
- ⇒ What contract civilian/host nation personnel and equipment assets are available to assist in arrival/departure airfield control group operations?
- ⇒ What airfield facilities are available for military use during AACG/DACG operations?
- ⇒ What impact does weather have on airfield operations?
- ⇒ Have the AMC channel airlift requirements been specified?
- ⇒ Who is tasked with the arrival airfield control group mission?

▪ Main supply routes and alternate supply routes:

- ⇒ What routes are available to support military operations?
- ⇒ What are the characteristics and capabilities of the routes to support military operations?
- ⇒ What are the dimensions of tunnel along the routes?
- ⇒ What are the dimensions and classifications of bridges along the routes?
- ⇒ What capabilities does the government have to repair damaged segments of the routes?
- ⇒ What segments of the routes does the civilian populace (refugee control) heavily use?

▪ Rail:

- ⇒ What rail lines are available to support military operations? intratheater/intertheater?
- ⇒ What is the gauge of the tracks?
- ⇒ What effect does the weather have on rail operations?
- ⇒ What is the condition of the rail lines?
- ⇒ What is the enemy’s ability to interdict the rail lines?
- ⇒ What capabilities do the government or local civilian contractors have to repair damaged track, bridges, and tunnels?

- ⇒ What are the characteristics and capabilities of the rail terminals and marshalling yard?
- ⇒ What is the present level of usage of the rail lines?
- ⇒ What is the description (model number, wheel arrangement, horsepower, weight, tractive effort, and type coupler) of typical line-haul locomotives and switch engines currently in service in the area of operations?
- ⇒ What are the capabilities, dimensions (length), and age of typical rolling stock currently in service in the area of operations?
- ⇒ Is a track profile of the main line indicating the location, percent, and length of the ruling grade available?
- ⇒ Is a plan view showing location and length of minimum radius curves together with any sections of multiple main line track available?
- ⇒ What is the location and length of passing tracks on the main line?
- ⇒ What is the current level of traffic (trains per day) utilizing the main line in the area of operations?
- ⇒ What is the location, type, and capacity of rail yards in the area of operations?
- ⇒ What is the number and length of track in each yard? What is the location, descriptions (type, constructions, length, clearances, cooper rating), and condition of rail bridges and tunnels on the main line?
- ⇒ What is the location, description (length and clearances), and condition of railway tunnels on the main line?
- ⇒ What is the location, storage capacity and condition of locomotive fueling facilities in the area of operation?
- ⇒ What is the location and quality of water supply on the main line?
- ⇒ What type of communications and signals are in use for train operations?
- ⇒ What is the type and location of the power source required for operation of communications and signal facilities?

- Field Services:
  - Are laundry, bath, and clothing renovation requirements addressed (by phase)?
  - Is mortuary affairs capability commensurate with the expected requirement?

- Are procedures for salvage collection, evacuation, and disposal covered?
- Is fire protection provided (aviation, ammunition, petroleum, base camps)?
- Are procedures for trash disposal addressed?
- Are there provisions for local procurement/contracting service?
- Are any airdrop requirements satisfied?
  - ⇒ Who rigs?
  - ⇒ Who provides slings?
  - ⇒ Who provides rigging?
- Are there any low altitude parachute extraction system requirements? Other airdrop?
- Are field bakery services required? Can the host nation satisfy the requirement?
- What provisions have been made to obtain deliberate decontamination support from a chemical unit?
- Are procedures specified and do units have the equipment necessary to clean equipment for redeployment to meet USDA requirements to enter the OCONUS?
- Is there adequate shower, laundry, and latrine support available from civilian contract/host nation support?

• Miscellaneous:
  - Are provisions made for LOGSITREP or LOGSTAT readiness reporting?
  - What are the facilities requirements to support the logistics systems? Have these requirements been incorporated into the engineer planning? Can any of the facility requirements be satisfied by host country facilities?
  - What are the funding aspects of logistics support?
  - Have all requirements been costed?
  - Has an account processing code been established?
  - Are the communications to support logistics operations provided for in the communications planning?
  - Are there adequate provisions in the plan for contracting support?
  - Are there provisions for contracting support/local purchase?
  - Has an adequate number of contracting officers with the proper warrant been provided?
  - Is finance support available to the contracting officer?
  - Are linguists available to support the contracting/local purchase requirements?

  - Are there provisions in the plan for maneuver/war damage resulting from logistics operations?
  - Are special Department of Agriculture cleaning requirements for retrograde equipment identified?
  - Are automated logistics systems procedures properly addressed?
  - Have backup master files been established and prepared for shipment separate from the primary master files?
  - Are maintainers, operators, and managers assigned and will-trained?
  - Are sufficient copies of user manuals on-hand and current?
  - Are repair parts on-hand and up to required levels for computer hardware including generators and other subsystems?
  - Have provisions been made for backup support for repair parts, hardware maintenance and the receipt of software change packages and emergency change messages?
  - Have arrangements been made for telephonic assistance (functional and technical) after deployment?
  - Have details been worked out for transmission of documents to higher echelons?
  - Have appropriate parameter changes been made in the automated system(s) (for example, signal and overseas deployment codes)?
  - Will customer units require training and are customer user manuals available for automated system support?
  - Have individuals been trained/appointed for local procurement? Will local currency be available?
  - Have local procurement procedures been established?
- Indigenous resources with military logistics value.
  - Command, control, communications, computer, intelligence, surveillance, and reconaissance (C4ISR) assets:
    - ⇒ Abandoned communications assets.
    - ⇒ Captured communications assets.
    - ⇒ Communications networks (radio, television, telephone, telegraph, newspaper).
    - ⇒ Computer distributors/outlets copiers, duplication, facsimile services.
    - ⇒ Local police and fire departments.
    - ⇒ Office supply firms.
    - ⇒ Power plants and utilities.

- ⇒ Seats of local government (files, blueprints, maps, command posts).
- ⇒ Telephone books ("yellow pages").

▪ Decontamination assets:

- ⇒ Abandoned NBC equipment.
- ⇒ Captured NBC equipment and supplies.
- ⇒ Car washes.
- ⇒ Dairy tankers for water transport.
- ⇒ Fire hydrants.
- ⇒ Fire stations and equipment.
- ⇒ Hose distributors.

Appendix D

Tactical Level Logistics Information Needs And Considerations

This appendix provides a checklist of the primary logistics information needs and considerations required by the DISCOM battle staff and is not intended as an all-inclusive description or identification of each. Refer to the appropriate field manuals and standard operating procedures for detailed information.

NEEDS AND CONSIDERATIONS CHECKLIST

The logistics information needs and considerations required by the DISCOM battle staff are:

- 2^{ND} and 3^{RD} order effects of decisions.
- Acquisition law.
- Advance echelon (ADVON) findings/problems/progress.
- Aerial refueling operations status.
- Aerial/seaport throughput capacity (current and projected).
- Air defense umbrella.
- Airfields/airstrips in area of operations.
- Air line of communications requirements and status.
- Air force prime beef/red horse/prime rib engineer teams.
- Air force war readiness spares kit (WRSK) provided and required.
- Allied/coalition support provided and required.
- Area damage control and fire fighting resources.
- Area of responsibility/operations (AOR/AO) design.
- Armed services blood program status.
- Army and Air Force Exchange service (AAFES) support.
- Base development.
- Battle losses.
- Battlefield damage assessment and repair (BDAR).
- Battlefield distribution scheme
- Boundaries.
- Bridge and road classifications.
- Calibration support for theater.

- Campaign plan.
- Campaign plan assumptions.
- Casualty rates (expected and actual).
- Civil-military operations (CMO) posture (current and projected).
- Civil reserve air fleet (CRAF) support.
- Combat health logistics.
- Commander's priorities.
- COMMZ development.
- Concept of support development in harmony with campaign plan.
- Concept of support coordination.
- Conflict termination arrangements.
- Consumption factors (current and projected).
- Consumption rates (estimated and actual).
- Containerization and container handling equipment.
- Contingency contracting support.
- Contractor support.
- Convoy tracking.
- Courses of action analyses.
- Cross-leveling of stocks with theater.
- Current mission(s).
- Defense Logistics Agency (DLA) coordination/assistance.
- Disease, a non-battle injury (DNBI) rates (expected and actual).
- Echelon above corps (EAC) logistics unit adequacy.
- Emergency force modernization efforts.
- Emergency modification work orders (MWOs).
- Emergency resupply.
- Enemy prisoner of war (EPW) logistics support.
- Engineering and construction standards/policies.
- Executive agents for joint force.
- Explosive ordnance disposal assets.
- Fast sealift ship (FSS) availability/status.
- Food service support.
- Force provider; harvest bare/eagle/falcon status.
- Force tracking.
- Funding.
- Health service support posture (current and projected).

- Heavy equipment transport (HET) asset posture.
- High mortality item stockage criteria.
- Host nation support (HNS) arrangements.
- Humanitarian support missions.
- Identification, friend or foe (IFF) arrangements.
- Imagery of area of operations.
- In-transit visibility (ITV) of logistics resources.
- Intermediate staging/support bases (ISBs).
- International laws and customs.
- Interoperability.
- Intra-theater airlift and sealift.
- Labor sources.
- Law enforcement capability.
- Law of land warfare.
- Liaison officer (LNO) exchange program.
- Linguists.
- Local purchase procedures and theater policy.
- Logistics conferences in theater.
- Logistics force integration and task organization.
- Logistics situational awareness at all levels.
- Logistics preparation of the battlefield.
- Logistics capabilities (current and projected).
- Logistics shortfalls/challenges.
- Logistics work-arounds (current and projected).
- Logistics infrastructure maturation.
- Logistics force adequacy.
- Logistics lessons learned.
- Logistics over the shore (LOTS) operations.
- Logistics resources in occupied territory.
- Long-lead procurement items.
- Maintenance force adequacy.
- Maintenance trends.
- Maintenance operational readiness float (ORF) assets.
- Major subordinate command missions.
- Major subordinate commands’ situation reports.
- Major weapon systems status.
- Maneuver control system (MCS) information.
- Map production and distribution.

- Marine force service support group (FSSG) status.
- Master Department of Defense activity address code (DODAAC).
- Unit identification code (UIC) directory for force __________.
- Material management.
- Maturation of logistics C4I system.
- Media coverage.
- Combat health logistics status.
- Mission branches and sequels.
- Mortuary affairs.
- Movements management status (current and projected).
- Nuclear, biological, and chemical protection arrangements.
- New equipment training activities.
- Non-developmental item (NDI) maintenance and supply support.
- Non-governmental organizations in theater.
- Offshore petroleum distribution system availability.
- On-going staff actions and suspenses.
- Order-ship-times.
- Out- of-sector logistics support.
- Overflight and basing rights.
- Personnel status (current and projected).
- Personnel stop-loss policy.
- Petroleum lab testing.
- Political sensitivities.
- Port opening and operations.
- Port clearance posture
- Post support activity (PSA) requirements.
- Postal support.
- Post-conflict battlefield clean up.
- Preferred munitions stockages.
- Private volunteer organizations in theater.
- Property disposal process.
- Provisional logistics unit activations.
- Ready reserve force (RRF) vessel availability/status.
- Real estate management.
- Reception, staging, onward movement, and integration (RSOI) activity.
- Reconstitution of forces.

- Redeployment arrangements reporting procedures.
- Resource conservation.
- Retrograde operations (logistics).
- Risk management and risk assessment.
- Rules of engagement (ROE).
- Safety issues.
- Security arrangements for modes and lines of communications.
- Senior logistician's concept of support.
- Senior logistician's intent.
- Single fuel or multiple fuel concept for theater.
- Specialized repair activity (SRA) support.
- Stockage levels in days of supply (on-hand and projected).
- Storage facility requirements/availability.
- Supply trends.
- Support for civilian/non-combatant population.
- Support for special operations forces (SOF).
- Support planning by phase of operations.
- Support for airborne operations.
- Support for deception operations.
- Support for train-ups.
- Support relationship lash-up.
- Support unit/activity/vessel locations.
- Support for rehearsals.
- Supporting commander-in-chief (CINC) assistance.
- Tactical assembly areas (TAAs).
- Technical intelligence.
- Theater aircraft maintenance program (TAMP) status.
- Theater ammunition status.
- Theater command and control arrangements.
- Theater depot level maintenance support.
- Theater medical evacuation policy and process.
- Theater war reserve stocks.
- Threat equipment.
- Threat capabilities.
- Threat logistics shortfalls.
- Threat logistics support bases.
- Threat intentions.

- Time duration (expected and actual) of operations.
- Time phased force and deployment list (TPFDL) responsiveness.
- Total asset visibility (TAV).
- Trafficability study of area of operations.
- Transportation network status (current and projected).
- Unique characteristics of area of operations.
- U.S. Customs Service activities during redeployment.
- USTRANSCOM coordination.
- Wargaming.
- Water production, supply, and distribution.
- Weather conditions.
- Wholesale level augmentation in-theater.

APPENDIX E

SUPPORTING AUTOMATION EQUIPMENT WITHIN DIGITIZED ARMY

Introduction

This appendix describes the tactics, techniques and procedures required for supporting automation equipment within the digitized Army. It provides information on the mission, functions, and organizations providing automation support and is directed towards the commanders and staff. The special text outlines the functions and operations of each support element supporting Division automation. This includes hardware, software, and network support responsibilities.

This appendix also integrates varied maintenance plans into a support concept that applies only to the support of stand-alone computer systems. It does not apply to automation embedded within weapon systems and platforms. Although this appendix targets the digitized Army, the procedures described can be applied to all types of Army organizations.

Note: This ST does not attempt to list all Army Battle Command Systems (ABCS), Standard Army Management Information Systems (STAMIS), Combat Support Systems (CSS), Support Automation, and Network Devices or functions associated with digitizing the Army. System and Network Administration procedures and responsibilities may be found in the following Signal Doctrinal Manuals: FM 6-02.7 (FM 24-7), *Tactical Local Area Network (LAN) Management Techniques*, FM 6-02.32 (FM 11-32), *Combat Net Radio Operations,* FM 6-02.41 (FM 24-41), *Tactics, Techniques and Procedures (TTP) for Enhanced Position Location Reporting System (EPLRS),* FM 6-02.71 (FM 11-71), *Network and Systems Management,* FM 6-02.42 (FM 11-41), *Signal Support - Echelons Corps and Below,* FM 6-02.50 (FM 11-50), *Combat Communications (Hvy&Lht) Divisions, and* FM 6-02.69 (FM 24-69), *Signal Digital Equipment Procedural Guide.*

Supporting Automation

The revolution in military operations is rapidly transforming the Army into a highly lethal, technologically advanced fighting force. This transformation to a digital, information-based Army requires a substantial investment in automation and network communication equipment. Thousands of computers are currently being developed, tested, and fielded to provide commanders and leaders at every level near-real-time situational awareness on the battlefield. This chapter provides a brief description of the supported automation equipment.

AUTOMATION EQUIPMENT

The digitized Army will employ a wide variety of automation equipment ranging from simple commercial-off-the-shelf (COTS) laptop computers to ruggedized

UNIX-based command and control (C2) systems. This publication recognizes that support for these systems varies and attempts to categorize the equipment accordingly. Automation equipment can essentially be categorized into three distinct types: the Army Battle Command and Control System (ABCS), the Standard Army Management Information System (STAMIS), and Support Automation.

Army Battle Command Systems (ABCS)

ABCS consists of the various C2 systems aimed at enabling commanders to "see and understand" the battlespace. ABCS is a system of systems designed to assist commanders in exercising C2 of available forces in mission accomplishment. ABCS is the integration of fielded, developmental, and future automated information systems (AISs) employed in both training and tactical environments.

Note: A description of ABCS is covered in Appendix A or FM 24-7.

Standard Army Management Information Systems (STAMIS)

The combat service support (CSS) community has developed functional information management systems that increase the productivity of the individual soldier and effectiveness of the unit. These systems provide the infrastructure required for any military ground operation. The technical goal is to establish a seamless and interoperable network. The network involves the integration and communication software used by all STAMIS systems which include–

- Unit-Level Logistics System-Aviation (ULLS-A)
- Unit Level Logistics System-Ground (ULLS-G).
- Unit Level Logistics System-S4 (ULLS-S4).
- Standard Property Book System-Redesign (SPBS-R).
- Standard Army Retail Supply System (SARSS-1 and SARSS-2AD).
- Standard Army Maintenance System (SAMS-1 and SAMS-2).
- Standard Installation/Division Personnel System-3 (SIDPERS-3).
- Department of the Army Movement Management System-Redesign (DAMMS-R).
- Standard Army Ammunition System-Modernization (SAAS-Mod).
- Theater Army Medical Management Information System (TAMMIS)
- Medical Communications for Combat Casualty Care (MC4)

  Note: Descriptions of the above systems are listed in Appendix A.

STAMIS systems are Commercial off-the-Shelf (COTS) computers with evolving open-system software to enhance sustainment capabilities. An important tenet of this architecture is that a division or separate brigade will use nothing larger than a desktop personal computer (PC). Each unit's computer is equipped with software to support critical functions from the motor pool to the battalion aid station. STAMIS provides automated support/information for the following CSS functions:

- Supply/property accountability.
- Medical logistics.
- Maintenance.
- Transportation.

- Personnel.
- Financial management.
- Ammunition.
- Command and Control (C2) (Combat Service Support Control System (CSSCS)).
- Personnel service support (legal, chaplain, finance, postal services, and so forth).

Note: The hardware of nonlogistical personnel service support systems (Legal, Chaplain, Finance, Postal Services, e.) are not supported by STAMIS. COTS or Support Automation hardware platforms are used to support these types of management systems. These application services are not listed under support automation, but the hardware support for these nonlogistical items are explained.

SUPPORT AUTOMATION

Support automation includes COTS, government-off-the-shelf (GOTS), and automated data processing equipment (ADPE) systems. These systems (less ABCS and STAMIS) are necessary for a unit to accomplish its assigned mission. Some examples of COTS equipment include desktop Personnel Computers (PCs), laptop computers, compact disk-read only memory (CD-ROM) readers, and peripheral devices. Table(s) of organization and equipment (TOE), tables of distribution and allowances (TDA), common table of allowances (CTA) 50-909, or appropriate major Army command (MACOM) directorate may authorize this equipment.
COTS equipment is normally acquired with manufacturers warranties. However, these warranties are frequently voided and impractical for units in a deployed environment.

NETWORK DEVICES

Network devices are digital devices and peripherals that support the inter/intra connection of data/voice/video communications. This broad range of devices encompasses all network devices necessary to make up the local area network (LAN) and wide area network (WAN). Some examples of network devices include inline network encryption (INE) devices, routers, hubs, and switches.

Staff Roles and Responsibilities

INTRODUCTION

The management and support of automation poses numerous challenges for Army leaders. This section identifies the roles and responsibilities of key personnel within Corps, Divisions, and Support Commands. It focuses on those tasks and responsibilities associated with the planning, management, operation and support of automation. Except where noted, the commanders and staff leaders listed below are authorized at every level from battalion to corps. FM 101-5 provides additional information on staff responsibilities and duties.

Today's Automated Information Systems (AIS) are extremely complex and require support from various sources to ensure their successful operation. The Army currently trains selected military occupational specialties to troubleshoot computer hardware, networking equipment, and operating systems. This training seldom includes troubleshooting of the multitude of software applications resident on Army AIS. The actual users of the AIS are the best trained to provide the system specific application support.

This publication designates staff responsibility for various ABCS and STAMIS systems to facilitate application training and support. While the G6/S6 is responsible for the overall health of all AIS within the unit, other staff sections and organizations are required to provide the necessary system specific application support.

COMMANDER

The commander provides purpose and direction to soldiers. He positions himself on the battlefield where he can best facilitate accomplishing the mission. He is responsible for:

- Establishing automation support priorities
- Ensuring subordinate leaders are trained in the employment, operation and sustainment of automation
- Providing command and control of automation resources

CHIEF OF STAFF/EXECUTIVE OFFICER

There is a Chief of Staff (CofS) at Corps and Division and an Executive Officer (XO) at brigade and battalion. The CofS/XO is the commander's principal assistant for directing, coordinating, supervising, and training the staff. The commander normally delegates executive management authority to the CofS/XO. They are responsible for directing the execution of staff activities. They exercise overall responsibility by:

- Providing command guidance for automation support
- Coordinating the staff to ensure ABCS integration
- Coordinating the staff to ensure automation support
- Managing the Commander's Critical Information Requirements (CCIR)
- Directly supervising the main command post (CP) and headquarters cell to include displacement, protection, security, and communications
- Ensuring the staff integrates and coordinates its activities internally, vertically (with higher headquarters and subordinate units), and horizontally (with adjacent units)

PRIMARY STAFF

Primary staff officers are the commander's principal staff assistants and are directly accountable to the XO/CofS. The staff helps the commander coordinate and supervise the execution of plans, operations, and activities. The staff processes and analyzes information and makes recommendations to assist the commander in decision-making.

G1/S1

The G1/S1 is the principal staff officer for all matters concerning human resources (military and civilian) that include personnel readiness, personnel services, and administrative headquarters management. As the staff proponent for SIDPERS, the G1/S1is also responsible for:

- Supervising SIDPERS operations and support
- Providing guidance on the employment and support of SIDPERS
- Providing software application expertise for SIDPERS
- Coordinate with the G-4 to insure that the CSSCS network supports personnel operations.

G2/S2

The G2/S2 is the principal staff officer for all matters concerning military intelligence, counterintelligence, security operations, and military intelligence training. Specific responsibilities include seven major tasks: direct, collect, analyze, disseminate, present enemy information, assist in attacking enemy C2, and assist in protecting friendly C2. As the staff proponent for ASAS-RWS and IMETS, the G2/S2 is also responsible for:

- Supervising All Source Analysis System-Remote Workstation (ASAS-RWS) and Integrated Meteorological System (IMETS) operations and support
- Providing guidance on employment and support of ASAS-RWS and IMETS
- Providing software application expertise for ASAS-RWS and IMETS
- Supervising the command security program and evaluate physical security vulnerabilities (See AR 190-13, AR 190-51, and AR 380-19)
- Assist the G6/S6 in implementing and enforcing LAN security policies

G3/S3

The G3/S3 is the principal staff officer for all matters concerning training, operations and plans, and force development and modernization. The G3/S3 is also responsible to the XO/CofS for integrating all ABCS systems and their use in supporting the tactical mission. The G3/S3 also serves as the staff proponent for Maneuver Control System (MCS), Advanced Field Artillery Tactical Data System (AFATDS), Air and Missile Defense Workstation (AMDWS), Forward Area Air Defense Command , Control, Computer and Intelligence System (FAADC3I), and Force XXI Battle Command-Brigade and Below (FBCB2). He accomplishes these responsibilities by:

- Planning, operating and employing ABCS
- Providing operational and support guidance to subordinate units
- Coordinating with the G6/S6 for communications connectivity for the system
- Providing software application expertise on proponent systems
- Monitors and reports the readiness of all ABCS systems

- Develop CONOP/restore/transition plans for integrated information operations
- Develop and execute sustainment training programs for battlefield automation

G4/S4

The G4/S4 is the principal staff officer for coordinating the logistical integration of supply, maintenance, transportation, and services. The G4/S4 is the link between the support unit and his commander plus the rest of the staff. The G4/S4 assists the support unit commander in maintaining logistics visibility with the commander and the staff. He must maintain close and continuous coordination with the G3/S3 and the support command commander who is responsible for support of tactical operations. The G4/S4 is the staff proponent for CSSCS/Logistical STAMIS. He is also responsible for:

- Coordinating maintenance support
- Coordinating all classes of supply (less VIII)
- Coordinating the requisition, acquisition, and storage of supplies and equipment and the maintenance of materiel records
- Supervising CSSCS operations and support
- Providing guidance on employment and support of CSSCS
- Monitoring and reporting the status of all automation equipment
- Planning, integrating, and employing logistical STAMIS
- Coordinate all internet dependent STAMIS actions with G6
- Providing software application expertise on CSSCS
- Establishing and enforcing CSSCS operational standards.

G6/S6

The G6/S6 is the principal staff officer for all matters concerning signal operations, automation management, network management, and information security. The G6/S6 coordinates communications requirements to support missions and prepares appropriate plans and orders. As the network administrator, the G6/S6 installs and maintains the transport infrastructure (video, voice, and data). Installs, operates, and maintains Local Area Networks (LANS) and Wide Area Networks (WANS). Maintains network security of routers and transmission systems and troubleshoots physical layer network problems. As the primary staff officer for all automation network support, network policy and ABCS support, the G6/S6 is responsible for:

- Monitor/manage the WAN/LAN performance/connectivity
- Managing/monitoring software releases of ABCS/STAMIS operating system within the battalion, brigade, and division
- Overseeing the planning and installation of the LAN configuration procedures
- Planning, engineering and managing the tactical internet/Tactical LAN
- Implementing and enforcing LAN security policies
- Network Configuration
- Automation Training on network devices such as: routers, hubs, switches, etc…) NOT RESPONSIBLE FOR APPLICATION SOFTWARE TRAINING!

- Implementing and training response teams to provide on site support
- Determine preventive measures that must be employed to secure the information that networks and information systems pass and store. (See AR 380-19, AR 25- Information Assurance (IA) dtd. December 1999, AR 380-5, and Army Tactical Network and Information Systems Information Assurance Concept of Operation, dtd. 08 September 00, ver. 0.8)

AUTOMATION OFFICER (AO)

AO is a functional staff organization within the Division G6 section. This staff element provides the division with support for C2 systems (ABCS). AO plans, organizes, and coordinates all tactical automation to support the division commanders C2 systems (ABCS). AO establishes automation systems administration procedures for all automation software and hardware employed by the division, coordinates the configuration of the communications network that supports the division, and establishes automation system security for all automation software and hardware employed by the division.

SUPPORT COMMAND

Support Commands at all levels have unique staff sections not found in other commands. These staff sections are listed below along with their duties and responsibilities for automation and combat service support.

S2/S3

Within the support commands of the corps and division, the S2 and S3 sections are typically consolidated. The S2/S3 is the principal staff advisor to the support command commander on military intelligence, counterintelligence, organization, training, communications, and Nuclear, Biological and Chemical (NBC) matters. The S2/S3 will:

- Determine Division Support Command (DISCOM) unit readiness and mission capability.
- Plan/monitor operator sustainment training
- Provide operational and support guidance to subordinate units
- Coordinate with the S6 for communications connectivity
- Supervise the command security program and evaluate security vulnerabilities
- Assist the S6 in implementing and enforcing LAN security policies

SUPPORT OPERATIONS

The Support Operations Officer is responsible for providing division units with centralized, integrated and automated command, control, and planning for all logistical distribution management operations within the division. He ensures that supply, maintenance, transportation, and field services resources are used effectively. He provides management support and direction to DISCOM assets responsible for providing logistics. Management includes planning, coordinating, and controlling the allocation and use of available resources to fulfill the DISCOM commander's logistics requirements. The support operations officer also:

- Develops administrative plans and coordinates logistics plans.
- Recommends priorities for allocating logistical/support resources.
- Maintains coordination with reinforcing maintenance units, to include the Electronic Sustainment Support Center (ESSC).
- Articulates support priorities to the reinforcing maintenance units and the ESSC to facilitate the repair and return of the most critical equipment.
- Advises the Commander on problems affecting supply, maintenance, transportation, and field service operations.
- Recommends to the S2/S3 the future allocation and location of logistics elements.
- Plans, coordinates, and evaluates supply and maintenance operations.
- Coordinates, monitors, and informs supported units of the location of supply points.
- Determines requirements for the development and technical supervision of division authorized stockage lists. Requirements are determined in accordance with AR 710-2, associated pamphlets, and automated systems users manuals.
- At the DISCOM level, manages the division master property records. It establishes and maintains a centralized division property book for all divisional units.
- Manages maintenance workload of corps reinforcing units and Maintenance Support Teams (MSTs) in support of the division, when located in the division area.
- Advises the commander on the status of maintenance and repair parts.

Combat Service Support Automation Management Office (CSSAMO).

THEATER SUPPORT COMMAND (TSC), CORPS SUPPORT COMMAND (COSCOM).

CSSAMOs located at the Theater Support Commands and COSCOMs serve in a supervisory role to all subordinate CSSAMOs. They establish CSS automation policy and provide guidance for all the CSSAMOs in the command. They coordinate actions and serve as the systems integrator for the command. They are the focal point for all new system fieldings, software changes, engineer change proposals and any other CSS automation actions requiring coordination between agencies, within and outside the commands.

AREA SUPPORT GROUP (ASG), CORPS SUPPORT GROUP (CSG), DISCOM, ARMORED CAVALRY REGIMENT (ACR)/SEPARATE BRIGADES.

The CSSAMO provides customer support in operating and sustaining the Army's CSS Standard Army Management Information Systems (STAMIS). This includes support for all application software, limited hardware repair, monitoring user training programs, and new equipment fielding of STAMIS. The CSSAMO is responsible for the following tasks:

- Provides STAMIS application and operating system support
- Provides software configuration management and control
- Provides database management support
- Maintains tape libraries
- Develops temporary workarounds
- Tests users suggestions
- Conducts customer assistance visits
- Assists units during deployments
- Task organizes resources to support deployments
- Troubleshoots HW/SW problems
- When required, maintains hand receipts and STAMIS Computer Exchange (SCX) Line Replaceable Units (LRUs)
- Coordinates repair of SCX LRUs
- Coordinates closely with the G6/S6 on STAMIS software implementation and changes
- Receives, issues and controls all STAMIS software releases
- Operates the STAMIS help desk

SIGNAL BATTALION

The signal battalion supports the division (brigade combat teams, separate battalions, division support command (DISCOM) (CSSAMO), and division headquarters (division rear, division main, tactical command posts, and support area)) by maintaining its communications systems in order to support division level combat functions, which include C2 (ABCS), STAMIS (Global Combat Support System-Army (GCSS-Army)), and CSS.

The signal battalion controls the data transport systems used to transmit ABCS and STAMIS data internal/external to the division. The degree of success in providing the division commander quality C2 (ABCS) and accurately forecasted logistical support (STAMIS/CSS) depends on the availability and success of transmission to and from these systems. The signal battalion must provide ABCS, STAMIS, and CSS the ability to receive, process, and transmit information.. The signal battalion must provide a communications network that's configured properly and interfaced at the appropriate level. How well the signal battalion accomplishes these tasks has a direct effect on accomplishing the commander's intent.

AUTOMATION SUPPORT PERSONNEL

The relationship between the various officer, warrant officer, and enlisted Military Occupational Specialties (MOSs) is crucial to the total support of the division's communications and automation systems.

The MOSs and additional duties listed below have uniquely different responsibilities; they each play an important part in maintaining automation on the battlefield.

MOS 31U

The 31U, Signal Support Systems Specialist supervises, installs, employs, maintains, and troubleshoots Signal support equipment systems and terminal devices. He is trained to operate and support a wide variety of electronic, communications, communications security (COMSEC), and automated systems. The 31U is located within the various battalion and brigade S6 sections and also within the Signal battalion. As a part of the S6 section, the 31U is located where he can best provide support to the unit's communications and automation systems. The sections are centralized at the battalion/brigade headquarters facilitating signal support planning and training. However, the section is flexible enough to allow task organization of the 31U to support individual unit requirements. This enables the 31U to assist units with communications and automated systems training and preventive maintenance checks and services (PMCS).

MOS 74B

The 74B, Information Systems Operator-Analyst supervises installs, operates, and performs unit level maintenance on network servers, multifunction and/or multi-user information processing systems, peripheral equipment, and associated devices in mobile and fixed facilities. The 74B can troubleshoot the entire spectrum of the network, hardware and software. Additionally, the 75B performs analyst, system administrator, and LAN management functions. Combined with the 31U, the 74B gives the S6 section the capability of troubleshooting and repairing most network and computer problems. The 74B is located within the battalion/brigade S6 sections, G6 section, the Signal battalion, and the division CSSAMO.

MOS 35J

The 35J, Computer/Automation System Repairer performs or supervises the direct support (DS) and general support (GS) levels of maintenance on microcomputers and electromechanical telecommunications terminal equipment, facsimile machines, field artillery (FA) digital devices, and other associated equipment and devices. The 35J is located within the Base Support Company (BSC), the Area Maintenance Company (AMC), the Ground Maintenance Company (GMC), and the non-divisional maintenance company.

MOS 250N

The 250N, Network Management Technician manages plans, designs, engineers, installs, operates, maintains, and evaluates automation communications at all command levels within the Department of the Army and Department of Defense. The 250N is responsible for the operation of message, circuit, and data-switching networks at all echelons: division, corps, joint task force, theater, and sustaining base. He coordinates network interface protocols and procedures with those of other services and combined forces, and coordinates network troubleshooting and restoration of communications paths to maintain robust networks. The network management technician implements procedures for detecting and reporting COMSEC insecurities and recommends compromise recovery actions. He develops policy and provides guidance for management of division and above and joint task force networks. He provides technical guidance and direction to subordinate operating elements. The 250N develops and supervises the training of network management personnel. The 250N is located at brigade and above level in selected units throughout the division.

MOS 251A

The 251A, Information Systems Technician manages personnel and equipment assets associated with AISs and Internet protocol (IP) networks to include the internetworking of systems. The 251A is trained to perform configuration management of the AIS network hardware installation and integration of information systems into tactical networks. To ensure system security, the 251A implements and supervises security training and awareness programs and conducts AIS security inspections. The 251 is responsible for systems administration of tactical AISs in the division; manages training of personnel in the installation, operation, administration, and maintenance of tactical AISs, internet works, and video teleconferencing systems. He provides technical guidance and direction and helps develop maintenance programs to subordinate operating elements. The 251A is located at brigade and above level in selected units throughout the division.

FUNCTIONAL AREA (FA) 53

FA 53, Systems Automation Manager manages computer systems and provides automation expertise at all Army organizational levels to include joint, combined, and selected agencies. FA 53 officers assist commanders with a variety of automation services. FA 53 officers translate mission needs into defined computer systems requirements; advise on all automation policy and technical matters; perform economic analyses; plan, program, and budget for automation resources and logistic support; establish procedures for effective and efficient use of computer system resources; and plan and manage LANs. A FA 53 officer heads the CSSAMO in the division. The FA 53 officer is located in brigade and above staff elements.

MOS 25A

The 25A signal officers understand the Army's information system networks and the connectivity between different information systems. They are technically proficient with branch and mission-unique equipment, tools, and systems. The 25A officer is located throughout the division down to the platoon level.

INFORMATION MANAGEMENT OFICER (IMO)

The IMO is responsible for the support automation within an Organization. This function is an additional/special duty that is assigned to an individual. This position does not require any formalized school training, specific MOS or rank.

MISSION APPLICATION ADMINISTRATOR (MAA)

The MAA provides the using units with the expertise to assist the Mission Application User (MAU) to operate, maintain, and troubleshoot failed hardware and software systems. He also trains the MAU on the units/battlefield FA specific AISs. The MAA—

- Assists the MAU in troubleshooting.
- Monitors the Preventative Maintenance Checks and Services (PMCS) program.
- Monitors software applications and configuration management.
- Maintains master copies of his battlefield functional area (BFA) specific software

- Creates backups of the BFA AIS data.
- Assists the MAU in recovery of data.
- Coordinates automation support with the S6 section.

  Note: This position is an additional duty and is not a standard TOE duty position.

MISSION APPLICATION USER (MAU)

The MAU provides the BFA with the capability to operate and maintain the specific AIS. The MAU is the best trained to provide systems specific application automation support. The MAU—

- Installs the AIS.
- Operates the AIS.
- Performs backups and recovery of files.
- Performs PMCS.
- Performs operator level security.
- Performs unit level maintenance on ABCS, STAMIS, and support automation.
- Prepares continuity plans for degraded operations.

Hardware/Software and Support Automation Procedures

Units cannot afford to have systems down for any significant period of time. Continuous improvements in technology and extensive fielding of new equipment have made logistical automation support increasingly difficult. Support is also further complicated by the increased involvement of contractors on the battlefield. Many computers today, particularly C2 devices, are supported through unique, stovepipe systems. These stovepipes often involve a mix of military, civilian, and contractor personnel for both maintenance and supply support. This chapter discusses ABCS, STAMIS, and support automation procedures.

ARMY BATTLE COMMAND SYSTEM (ABCS) SUPPORT

ABCS equipment is currently supported through a variety of maintenance concepts and warranties. The majority of ABCS systems is purchased through the common hardware/software (CHS) program. The CHS-2 platforms are the most modern, upgraded configurations and are scheduled to replace the CHS-1 systems.

The CHS-2 hardware is supported through a two-level maintenance concept. The current Army maintenance program is a flexible, four-level system. The levels are operator/unit, direct support (DS), general support (GS), and depot. Currently selected units supported under Force XXI designs have merged the existing 20/30 maintenance levels. Units of Army XXI design will migrate into a two-level maintenance structure where maintenance functions are consolidated into either field or sustainment maintenance levels.

Field maintenance support includes operator/unit, direct support (DS), and some component repair capability designed to repair components and end items for customer units versus the supply system. The multicapable maintainer is the cornerstone of field maintenance support. This individual is trained to perform both unit and DS tasks to improve system readiness and reduce repair cycle time. Field level maintenance is performed by the unit and is characterized by Line Replaceable Unit (LRU) removal and replacement. LRUs are covered by a life of the contract warranty and repaired by the contractor. For the ABCS central processing units (CPUs), monitors, printers, keyboards, interconnecting cables, external drives, and mouse/pointing devices are considered LRUs.

Sustainment maintenance support includes depots, Directorate of Logistics (DOL) assets, special repair activities (SRAs), and forward repair activities (FRAs). There are also a limited number of specialized GS units that provide missile and signal unique support.

The G6/S6 sections also assists units in maintaining ABCS. Figure 3-1 shows the general flow of maintenance support for ABCS.

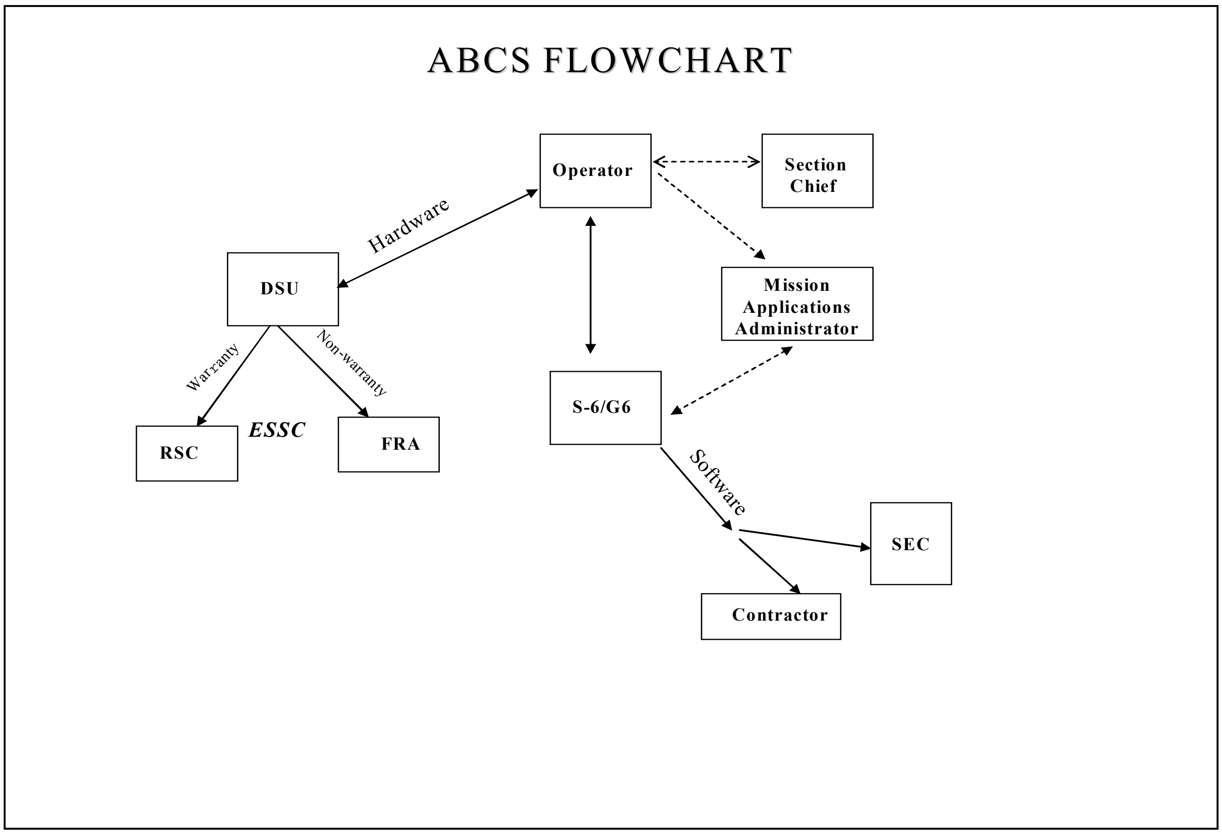


Figure 3-1 ABCS Flowchart

ABCS- BRIGADE SUPPORT AREA (BSA) PROCEDURES

The support procedures within the BSA (Figure 3-2), DS supply, and maintenance are consolidated within the BSC. The FSC receives unserviceable LRUs from unit personnel and processes their requests for replacement LRUs and consolidates distribution to the BSC. The FSC also receives replacement LRUs from the BSC and issues them to the MAU.

The BSC screens all LRUs to determine if the systems are covered by warranty. Warranted LRUs will be managed as repairable exchange using “off-line” manual procedures. ***Note:*** This is necessary to provide a no cost issue to the unit. Current supply/financial systems interface will not allow for free issue. GCSS-A will remedy this issue when fielded. For warranted and non-warranted LRU repair see Table 3-1.

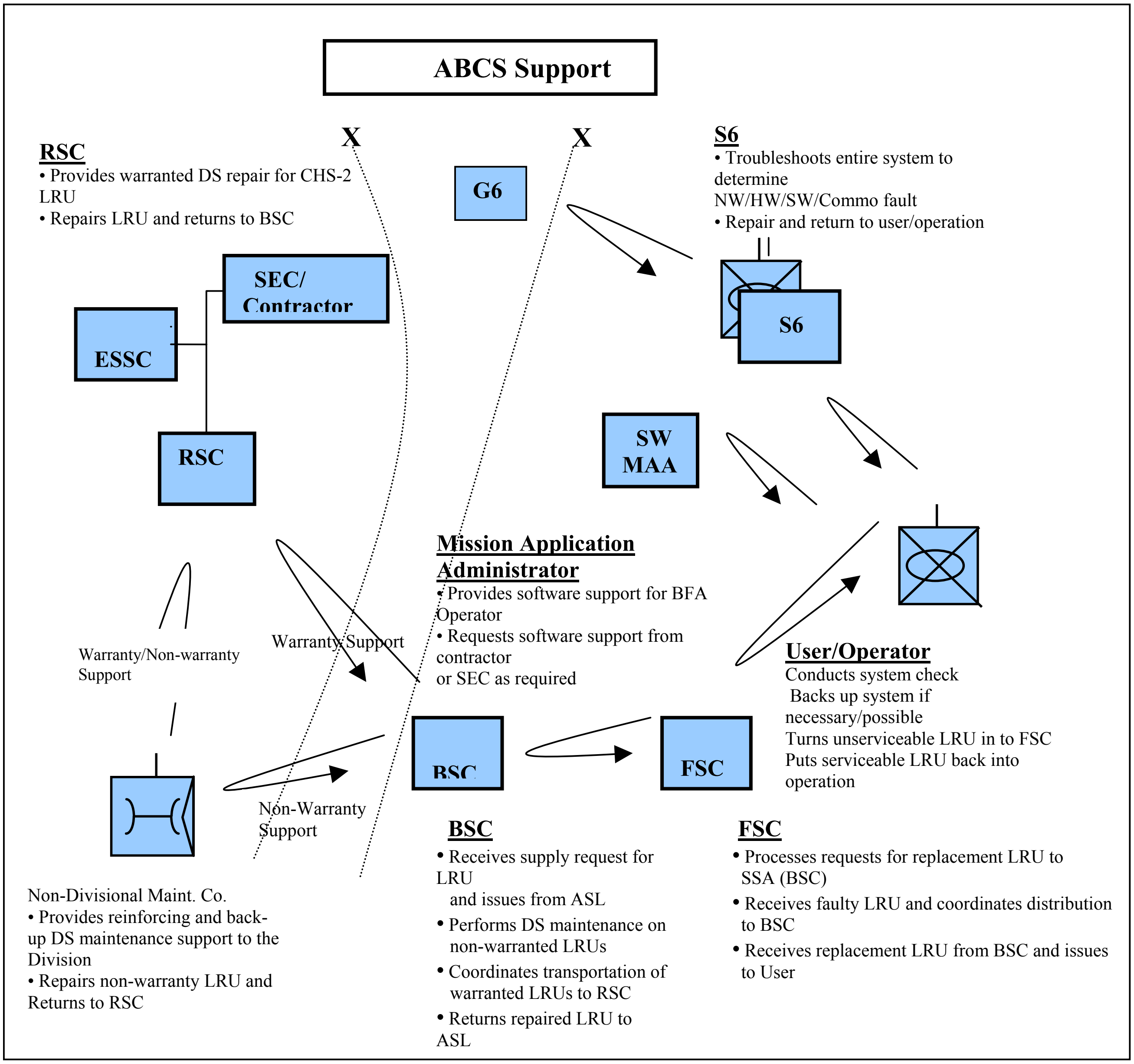


Figure 3-2. ABCS-BSA Support Procedures

ABCS-Division Support Area (DSA) procedures
The support procedures within the DSA differ slightly from the BSA (Figure 3-2). In the DSA (Figure 3-3), DS supply and maintenance are not consolidated within a single company such as the BSC. Within the DSB, the AMC provides DS maintenance to other DSB units, the Signal battalion, the air defense artillery (ADA) battalion, the military intelligence (MI) battalion, the Multiple-Launch Rocket System (MLRS) battalion, and other division rear units. The DSB quartermaster (QM) company operates the SSA. Within the division aviation support battalion (DASB), the GMC provides DS maintenance to other DASB units, the division aviation

brigade, and the division cavalry squadron. The DASB headquarters and supply company operate the SSA.

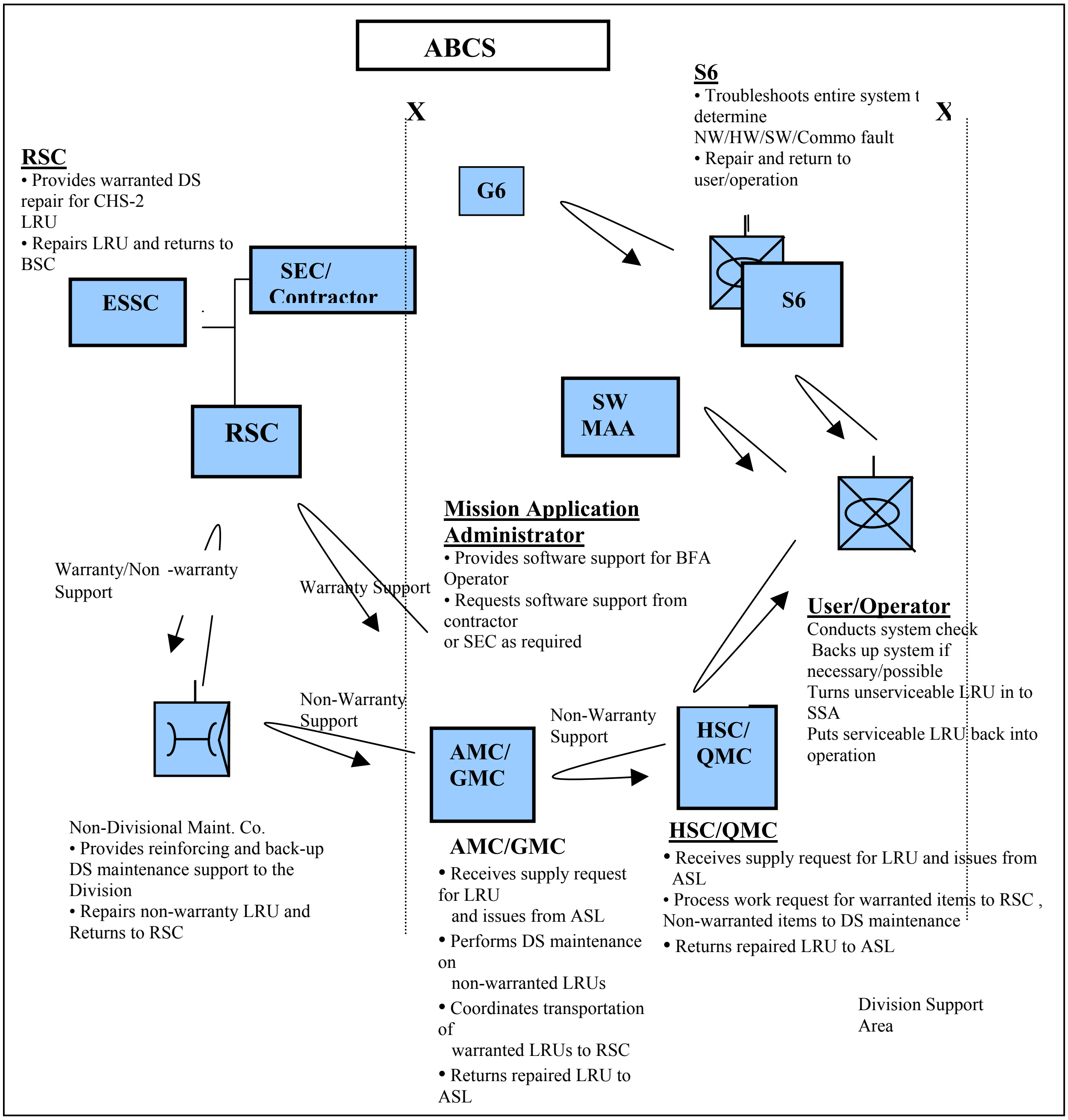


Figure 3-3. DSA Support Procedures

ABCS-ECHELONS ABOVE DIVISION (EAD) PROCEDURES

ABCS support at EAD follows similar procedures as the support within the division area. Figure 3-4 shows the notional support for corps ADA units. The battalion S6 section provides unit level troubleshooting assistance to ABCS MAUs.

The non-divisional maintenance company provides DS supply and maintenance support for the battalion. The non-divisional maintenance company provides support to corps units on an area basis.

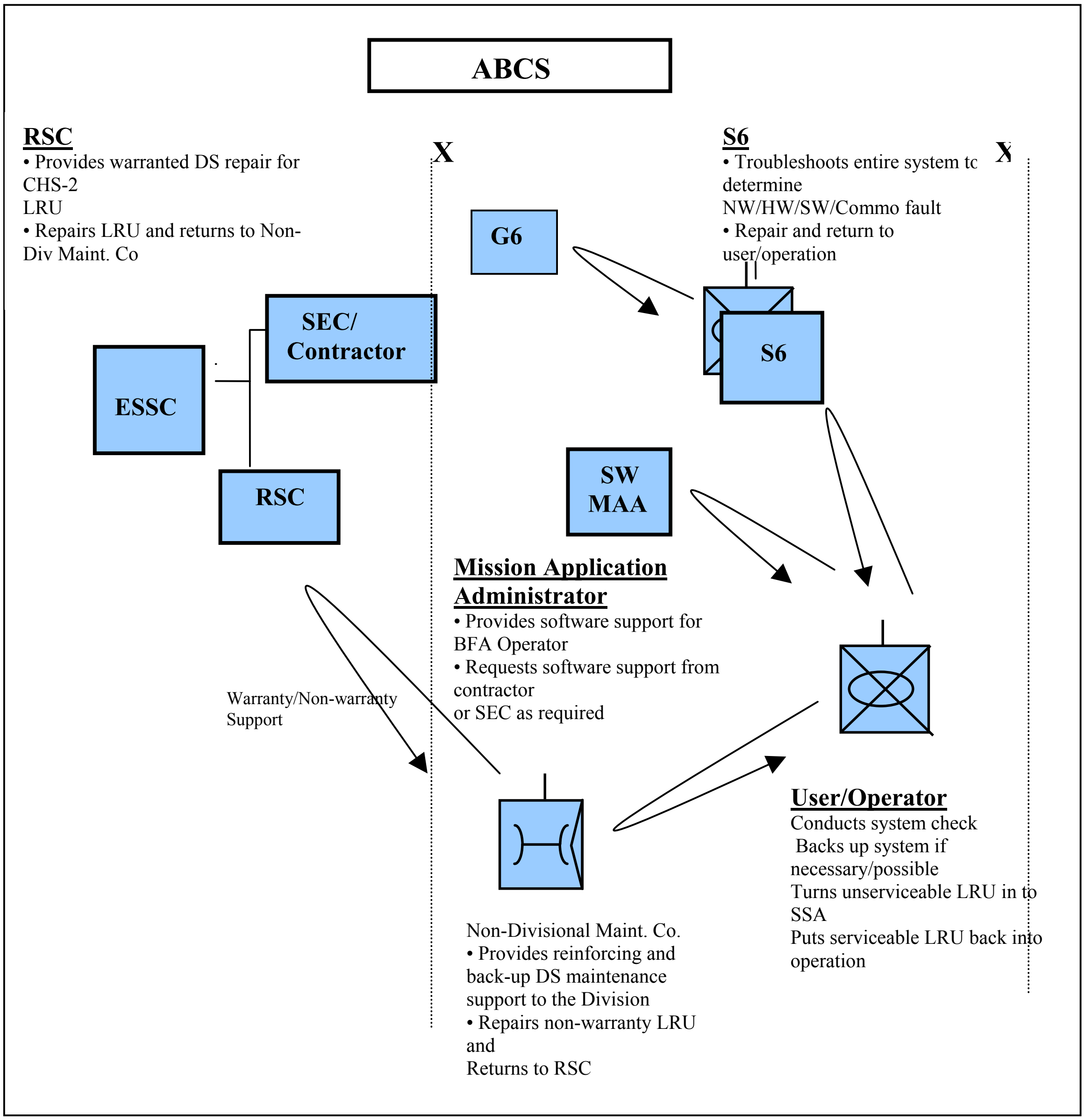


Figure 3-4. ABCS Support for EAD

Table 3-1 lists the troubleshooting procedures for ABCS (BSA/DSA/EAD).

Table 3-1. Troubleshooting Procedures for ABCS (BSA/DSA/EAD)

Step	Procedure
1	**The MAU discovers a fault**
	The MAU determines the system to be nonoperational and notifies the MAA/section chief of a system failure. Using diagnostic software and built-in-test equipment, the MAU and MAA will try to determine whether the failure is software, hardware, or network related. For software related problems, the MAU will reload the software (provided software and skill sets are available) and return the system into operation.
2	**MAA troubleshoots**
	The MAU/MAA cannot correct the problem or determines the problem to be a network/communications-related failure; he will contact the S6.
3	**The S6 is notified—**
	1. The S6 will troubleshoot the system and identify the failure as software (step 4), hardware (step 5), or network (step 6) problem. Upon completing the troubleshooting procedures, the S6 assists the MAU/MAA in– • Restoring the system by reinstalling system/application software. • Identifying/verifying the malfunctioning LRU. • Identifying problems in the LAN connectivity. 2. The S6 cannot restore the system; the unit turns in the LRU to the FSC. 3. The S6 requests assistance from the G6 for LAN connectivity problems when required.
4	**Software**
	If the problem is software and reinstalling the system application does not correct the fault, the S6 will direct the unit to contact their next level of software support (ex. Bde/Div MAA) and/or the S6 will consult the G6 for additional assistance in fault isolation and repair.
5	**Hardware**
	The S6 identifies the problem to be a malfunctioning LRU and cannot repair it. The S6 will direct the unit to turn the unserviceable LRU into the ~~FSC~~ Maintenance Company, or the S6 will consult the G6 for additional assistance in fault isolation and repair. The MAU will request replacement LRUs and turn in the failed LRU through the supporting– • FSC if at the BSA. • SSA if at the DSA/EAC.
6	**Network/LAN connectivity**
	If the fault is determined to be in the LAN and the proper tools and/or skill set(s) are not available for the S6 to repair the fault, the G6 will assist the S6 in repairing LAN connectivity problems.

Table 3-1. Troubleshooting Procedures for ABCS (DSA/BSA/EAD) (continued)

Step	Procedure
7	**Warranted LRUs**
	For warranted LRUs, the SSA processes a work request to the appropriate RSC. Based on the maturity of the theater of operations, the BSC may process warranted items through the non-divisional maintenance company. Elements of the RSC typically deploy as part of CECOM's ESSC. The RSC will repair all warranted LRUs and return them to the SSA. The SSA returns the item to the user or supply.
8	**Nonwarranted LRUs**
	Non-warranted systems will require coordination between the FSB support operations section, the BSC, and the supporting non-divisional maintenance company. This coordination is required to determine the appropriate repair facility based on the unit's maintenance backlog, personnel, and test equipment available. The SSA will work order the LRU to the appropriate unit for repair. At the BSC/AMC/GMC, maintenance personnel will conduct a technical inspection to verify failure. When a failure exists, the DS maintainer will perform all authorized repair actions to restore the LRU to a serviceable condition. These procedures may involve the use of operating system tools, diagnostic software, and school-taught repair skills. Nonwarranted LRUs will be managed as repairable exchange. The repaired LRU will be returned to the SSA or returned to the customer for completed work requests. The BSC/AMC and GMC may also evacuate excess workload to the non-divisional maintenance company.
9	**Non-divisional maintenance company**
	The non-divisional maintenance company provides DS maintenance support to units on an area basis. DS maintainers will perform all authorized repair actions to restore the LRU to a serviceable condition. The non-divisional maintenance company will return all serviceable LRUs to the customer. Additionally, the unit provides reinforcing and backup DS maintenance to the– • BSC if at the BSA. • AMC and GMC if at the DSA. • SSA if at EAD. **Note: Figure 3-3 shows the general flow of ABCS support for the DSA.**
10	**ESSC**
	The ESSC provides warranty/nonwarranty support. Contractor maintainers will perform all authorized repair actions to restore the LRU to a serviceable condition. They also provide support in shipping distribution back to the manufacturer when further repairs are needed. The ESSC returns all serviceable LRUs to the SSA . **Note: Figure 3-2 shows the general flow of ABCS support for the BSA. Figure 3-4 shows the general flow of ABCS support for the EAD.**

STANDARD ARMY MANAGEMENT INFORMATION SYSTEM (STAMIS) SUPPORT

STAMIS equipment currently operates on standard, Common off the Shelf (COTS), and non-developmental items (NDI) hardware and software. STAMIS hardware is fielded with a manufacturer warranty for DS level repairs. The Depot Forward Repair Activity (FRA) maintains warranty information for all supported STAMIS equipment. The FRA either repairs or facilitates the distribution and repair of all warranted STAMIS hardware. The FRA also performs all non-warranty repair of STAMIS hardware.

STAMIS basically follows a two-level maintenance concept: The first level of maintenance is performed by the CSSAMO and consists of basic diagnostics and exchange of Line Replaceable Units (LRU). The CSSAMO will have the ability to perform basic diagnostics in an attempt to determine which LRU has malfunctioned. Once the LRU has been isolated, the CSSAMO will exchange the malfunctioning LRU.

The second level of maintenance consists of the CSSAMO evacuating the faulty LRU to either a Forward Repair Activity (FRA) or the manufacturer. If the LRU is still under warranty, it will be forwarded the manufacturer for repair or exchange. If the LRU is out of warranty, it will be forwarded to the designated FRA for repair. If the LRU cannot be repaired by the FRA, the LRU will be returned to the CSSAMO for turn-in and purchase of a replacement.

The general maintenance flow is shown in Figure 3-5. The S6 provides unit level maintenance for network problems. The CSSAMO provides detailed software application support (Figure 3-6) and manages the STAMIS Computer Exchange (SCX) account. The FRA for hardware and the STAMIS Customer Assistance Office (CAO) provide DS maintenance for software applications. Table 3-2 list STAMIS support procedures.

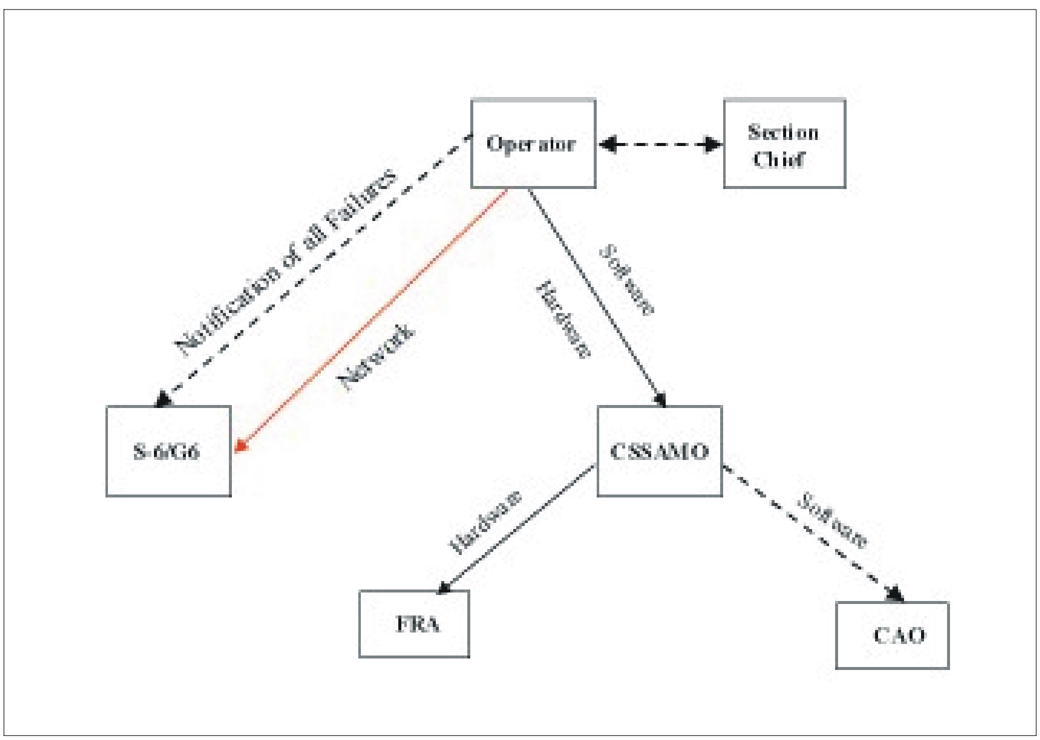


Figure 3-5. STAMIS Flowchart

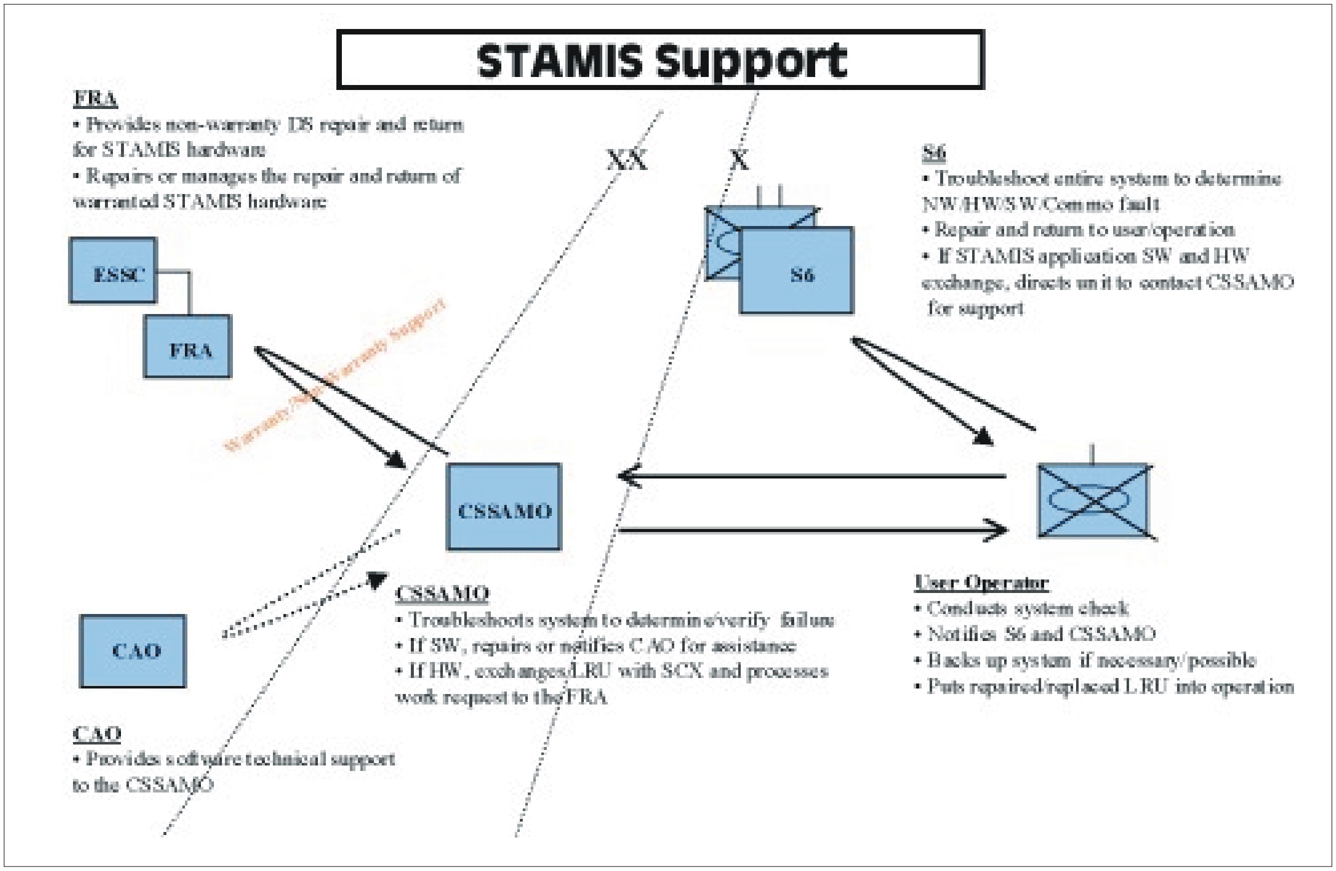


Figure 3-6. STAMIS Support Flowchart

Table 3-2. STAMIS Support Procedures

Step	Procedure
1	**The MAU discovers a fault**
	The MAU determines the system to be non-operational and notifies the MAA/section chief of a system failure. Using diagnostic software and built-in-test equipment, the MAU and MAA will try to determine whether the failure is software, hardware, or network related. For software related problems, the MAU will reload the software (if available) and return the system into operation. MC4 is a software application that provides for "restore disk" capability by the MAA or designated Enterprise Manager.
2	**MAA troubleshoots**
	The MAU/MAA cannot correct the problem or determines the problem to be a network/communications-related failure; he will contact the S6.

Table 3-2. STAMIS Support Procedures (continued)

Step	Procedure
3	**The S6 is notified—**
	1. The S6 will troubleshoot the system and identify the failure as software (step 4), hardware (step 5), or network (step 6) problem. Upon completing the troubleshooting procedures, the S6 assists the MAU in– • Restoring the system by reinstalling system/application software. • Identifying/verifying the malfunctioning LRU. • Identifying problems in the LAN connectivity. 2. The S6 requests assistance from the G6 for LAN connectivity problems when required. 3. If the S6 cannot resolve the problem, the CSSAMO will be contacted. The CSSAMO will troubleshoot the system to determine if the failure is software (step 4), hardware (step 5), or network (step 6) problem.
4	**Software**
	1. The CSSAMO will troubleshoot the software application and operating system and attempt to restore the system to an operational condition. For repairs beyond their capability, the CSSAMO will notify the STAMIS CAO. The CAO will provide the technical support necessary to restore the system to an operational condition.
5	**Hardware**
	For hardware faults, the CSSAMO will first verify failure and identify the faulty LRU. The CSSAMO will exchange LRUs with the supported unit from SCX stocks. The CSSAMO will process the work order and request disposition instructions from the FRA. MC4 equipment is not a repairable platform using Line Replaceable Units (LRU) and is considered a complete system or Shop Replaceable Unit (SRU). Computer exchange is the only authorized action to be performed for replacement purposes.
6	**Network/LAN connectivity**
	If the fault is determined to be in the LAN and the proper tools and/or skill set(s) are not available for the S6 to repair the fault, the G6 will assist the S6 in repairing LAN connectivity problems.
7	**Warranted LRUs**
	For warranted LRUs, the FRA may direct the CSSAMO to return the LRU to the original equipment manufacturer.
8	**Nonwarranted LRUs**
	For nonwarranted LRUs, the CSSAMO will process a work order with the FRA. Once the items are repaired, the CSSAMO will return the LRUs to SCX stockage.

Table 3-2. STAMIS Support Procedures (continued)

Step	Procedure
9	**Electronic Sustainment Support Center (ESSC)**
	The ESSC provides warranty/non-warranty support. Contractor maintainers will perform all authorized repair actions to restore the LRU to a serviceable condition. They also provide support in shipping distribution back to the manufacturer when further repairs are needed. The ESSC returns all serviceable LRUs to the CSSAMO.

SUPPORT AUTOMATION

Support automation describes all computers and ADPE used to support a unit's operation (less ABCS and STAMIS). Appendix A provides a description of support automation.

With some exceptions, the TDA or CTA authorizes support automation. This equipment is normally covered by a manufacturer's warranty. While warranties differ in terms of coverage and length, most do not apply when units deploy.

Units have two options for support of support automation: organic support and a mixture of organic and contract support.

ORGANIC SUPPORT

First option, organic support relies on the unit information management officer (IMO) and the S6 for unit level maintenance. Unit level maintenance involves the removal and replacement of LRUs. LRUs consist of CPUs, monitors, printers, external drives, keyboards, pointing devices, and cables. DS maintenance is provided by selected DS maintenance activities and involves the repair of LRUs. Repair is accomplished by the removal and replacement of shop replaceable units (SRUs). DS repair can only be accomplished through the provisioning of spare SRUs and selected components. Units may also utilize local purchase procedures to acquire the necessary SRUs

ORGANIC AND CONTRACT SUPPORT

Second option entails a mix of organic and contract support. Unit IMOs and S6 sections provide unit level hardware and software support. Software support consists of operating system diagnostics and other utility applications. For hardware, unit level repair consists of removal and replacement of LRUs. The FRA provides DS maintenance through a reimbursable contract. This procedure is shown in Figures 3-7 and 3-8. Table 3-3 list organic support procedures.

Note: The provisioning of spare LRUs as far forward (BSC/FSC/combat repair teams (CRTs)) as possible on the battlefield significantly reduces travel and repair time, which ultimately increases readiness.

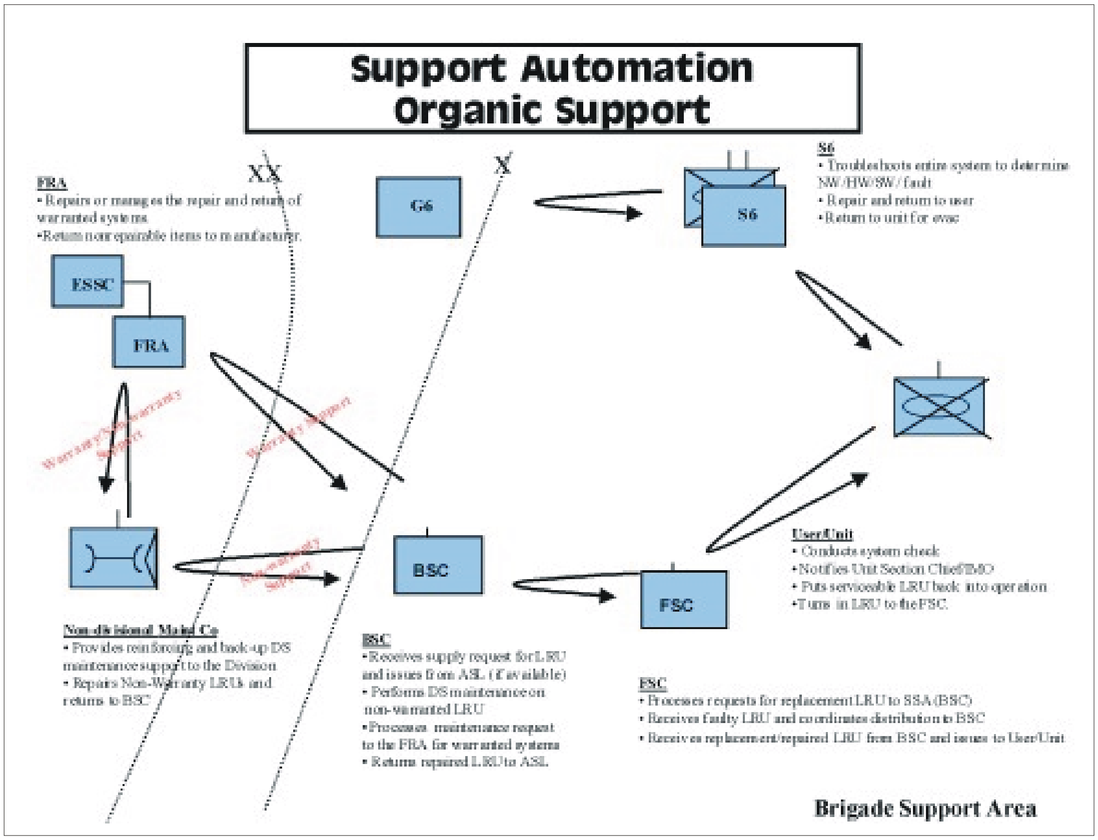


Figure 3-7. Organic Flowchart

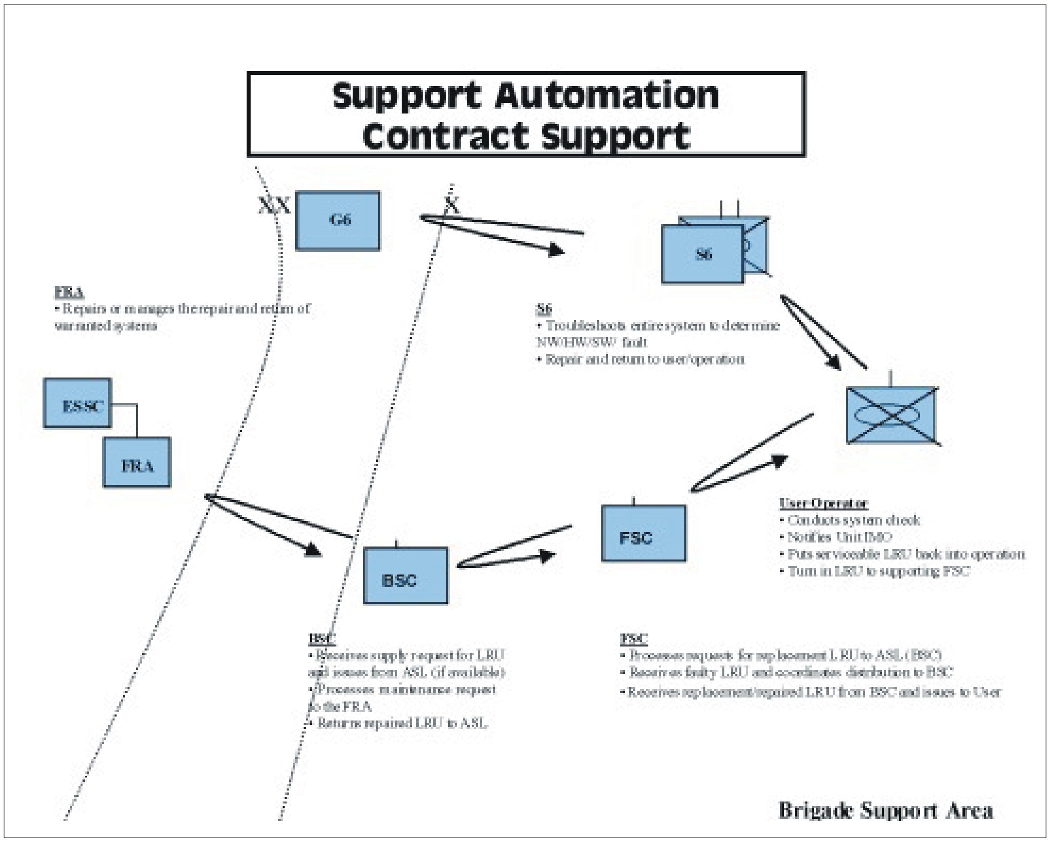


Figure 3-8. Contract Flowchart

Table 3-3. Support Automation–Organic Support Procedures

Step	Procedure
1	**The MAU discovers a fault**
	The MAU determines the system to be non-operational and notifies the IMO of a system failure. The MAU and IMO will try to determine whether the failure is software, hardware, or network related. The unit IMO will provide intensive troubleshooting and attempt to return the system to operation.
2	**MAU/IMO troubleshoots**
	If the MAA/IMO cannot correct the problem, they will contact the S6 section for assistance.

Table 3-3. Support Automation-Organic Support Procedures (continued)

Step	Procedure
3	**The S6 is notified—**
	1. The S6 will troubleshoot the system and identify the failure as software (step 4), hardware (step 5), or network (step 6) problem. Upon completing the troubleshooting procedures, the S6 assists the MAU in– • Restoring the system by reinstalling system/application software. • Identifying/verifying the malfunctioning LRU. • Identifying problems in the LAN connectivity. 2. The S6 cannot restore the system; the unit turns in the LRU to the FSC. 3. The S6 requests assistance from the G6 for LAN connectivity problems when required. The S6 will verify the status of the automation system and attempt to identify the failure as a software (step 4), hardware (step 5), or network (step 6) problem. Upon completing troubleshooting procedures, the battalion S6 will assist the user in repairing the automation system. If the support S6 cannot restore the system, the unit will turn in the LRU to the FSC supply platoon.
4	**Software**
	The IMO will use available software troubleshooting tools and utility software. IMOs will also maintain copies of all operating system and application software for reloads when necessary.
5	**Hardware**
	If spare LRUs were provisioned and are on-hand at the FSC, the unit will request and receive a replacement. If spares are not on-hand, the FSC supply platoon will issue a due out to the unit and request a replacement LRU from the BSC SSA.
6	**Network/LAN connectivity**
	If the fault is determined to be in the LAN and the proper tools and/or skill set(s) are not available for the S6 to repair the fault, the G6 will assist the S6 in repairing LAN connectivity problems.
7	**Warranted LRUs**
	Warranted LRUs are managed as repairable exchange using "Off-Line" manual procedures. This is necessary to provide a no cost issue to the unit. Note: The current supply/financial systems interface will not allow for free issue. GCSS-A will remedy this when fielded. For warranted LRUs, the SSA processes a work request to the FRA. Based on the maturity of the theater of operations, the headquarters and supply company (HSC) may process warranted items through the non-divisional maintenance company. For selected items, the FRA is authorized to perform the necessary warranty repair. All others will be returned to the manufacturer. The FRA will return all repaired LRUs to the SSA. The SSA either returns the item to the customer or authorized stockage list (ASL).

Table 3-3. Support Automation-Organic Support Procedures (continued)

8	**Nonwarranted LRUs**
	Nonwarranted systems require coordination between the FSB support operations section, the BSC, and the supporting non-divisional maintenance company. This coordination is required to determine the appropriate repair facility based on the unit's maintenance backlog, personnel, and test equipment available. The SSA will work order the LRU to the appropriate unit for repair. At the BSC/AMC/GMC, maintenance personnel will conduct a technical inspection to verify failure. When a failure exists, the DS maintainer will perform all authorized repair actions to restore the LRU to a serviceable condition. These procedures may involve the use of operating system tools, diagnostic software, and school-taught repair skills. Nonwarranted LRUs are managed as repairable exchange. The repaired LRU is returned to the SSA or returned to the customer for completed work requests. The BSC/AMC and GMC may also evacuate excess workload to the non-divisional maintenance company.
9	**Non-divisional maintenance company**
	The non-divisional maintenance company provides DS maintenance support to units on an area basis. DS maintainers will perform all authorized repair actions to restore the LRU to a serviceable condition. The non-divisional maintenance company will return all serviceable LRUs to the customer. Additionally, the unit provides reinforcing and backup DS maintenance to the– • BSC if at the BSA. • AMC and GMC if at the DSA. • SSA if at EAD. • Note: Figure 3-3 shows the general flow of ABCS support for the DSA.
10	**ESSC**
	The ESSC provides warranty/nonwarranty support. Contractor maintainers will perform all authorized repair actions to restore the LRU to a serviceable condition. They also provide support in shipping items back to the manufacturer when further repairs are needed. The ESSC returns all serviceable LRUs to the SSA. **Note: Figure 3-7 shows the general flow of support automation (organic). Figure 3-8 shows the general flow of support automation (contract).**

NETWORK DEVICES

Network devices are the hubs, switches, routers, Combat-Service-Support Automation Information Systems Interface (CAISI), and other devices essential for network connectivity. These items are covered in Appendix A. Network devices are currently procured through the CHS-2 program and are maintained under warranty. This maintenance support is deployable to a theater of operations through CECOM's ESSC. Organic support is limited to fault isolation and replacement at the unit level and the stockage of spares at the DS (SSA) level. Figure 3-9 shows the flow of support for network devices, and Table 3-4 lists the network device support procedures.

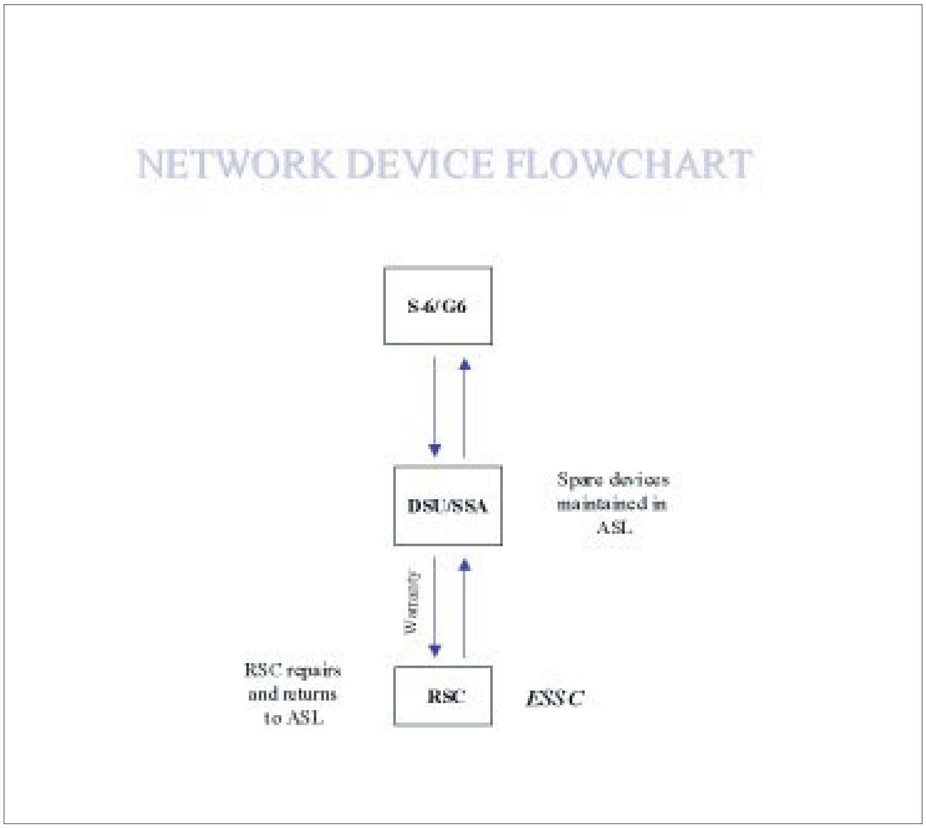


Figure 3-9. Network Devices Support Flowchart

Table 3-4. Network Device Support Procedures

Step	Procedure
1	**The MAU discovers a fault**
	The MAU determines the system to be nonoperational and notifies the MAA/section chief of a system failure. Using diagnostic software and built-in-test equipment, the MAU and MAA will try to determine whether the failure is software, hardware, or network related. For software related problems, the MAU will reload the software, if available, and return the system into operation.
2	**MAA/IMO troubleshoots**
	The MAU/MAA cannot correct the problem or determines the problem to be a network/communications-related failure; he will contact the S6.

Table 3-4. Network Device Support Procedures (continued)

Step	Procedure
3	**The S6 is notified—**
	The S6/G6 troubleshoots and discovers a faulty network device (see step 6). The S6/G6 will immediately request replacement from the supporting SSA. Upon receipt of the serviceable device, the S6/G6 will install the item and attempt to restore the network.
4	**Software**
	If applicable, the S6 will try to reload the operating software in an attempt to get the device operable.
5	**Hardware**
	The S6 identifies the problem to be a malfunctioning LRU and cannot repair it. The S6 will direct the unit to turn the unserviceable LRU into the FSC, or the S6 will consult the G6 for additional assistance in fault isolation and repair. The MAU will request replacement LRUs and turn in the failed LRU through the supporting– • FSC if at the BSA. • SSA if at the DSA/EAD.
6	**Network/LAN connectivity**
	If the fault is determined to be in the LAN and the proper tools and/or skill set(s) are not available for the S6 to repair the fault, the G6 will assist the S6 in repairing LAN connectivity problems.
7	**Warranted LRUs**
	For warranted LRUs, the SSA processes a work request to the appropriate Regional Support Center (RSC). Based on the maturity of the theater of operations, the BSC may process warranted items through the non-divisional maintenance company. Elements of the RSC typically deploy as part of CECOM's ESSC. The RSC will repair all warranted LRUs and return them to the SSA. The SSA returns the item to the user or supply.
8	**Nonwarranted LRUs**
	Nonwarranted systems require coordination between the FSB support operations section, the BSC, and the supporting non-divisional maintenance company. This coordination is required to determine the appropriate repair facility based on the unit's maintenance backlog, personnel, and test equipment available. The SSA will work order the LRU to the appropriate unit for repair. At the BSC/AMC/GMC, maintenance personnel will conduct a technical inspection to verify failure. When a failure exists, the DS maintainer will perform all authorized repair actions to restore the LRU to a serviceable condition. These procedures may involve the use of operating system tools, diagnostic software, and school-taught repair skills. Nonwarranted LRUs are managed as repairable exchange. The repaired LRU is returned to the SSA or returned to the customer for completed work requests. The BSC/AMC and GMC may also evacuate excess workload to the non-divisional maintenance company.

Table 3-4. Network Device Support Procedures (continued)

Step	Procedure
9	**Non-divisional maintenance company**
	The non-divisional maintenance company provides DS maintenance support to units on an area basis. DS maintainers will perform all authorized repair actions to restore the LRU to a serviceable condition. The non-divisional maintenance company will return all serviceable LRUs to the customer. Additionally, the unit provides reinforcing and backup DS maintenance to the– • BSC if at the BSA. • AMC and GMC if at the DSA. • SSA if at EAD. • Note: Figure 3-3 shows the general flow of ABCS support for the DSA.
10	**ESSC**
	The ESSC provides warranty/nonwarranty support. Contractor maintainers will perform all authorized repair actions to restore the LRU to a serviceable condition. They also provide support in shipping items back to the manufacturer when further repairs are needed. The ESSC returns all serviceable LRUs to the SSA.

MAINTENANCE MANAGEMENT

Maintenance management procedures for automation systems will be established from unit through support level. The unit level maintenance personnel will use the ULLS program to process all maintenance transactions. DS or system support personnel (CSSAMO) will use the SAMS-1 to control all maintenance actions. The only exception is when the unit ULLS is non functional and requires maintenance. When fielded, the GCSS-A maintenance module will be used to perform both unit and DS maintenance actions. Commanders at all levels will have visibility of all automation failures by implementing maintenance management procedures.

The Army Maintenance Management System (TAMMS) (DA Pam 738-750) describes the forms and records required in performing unit and DS level maintenance. TAMMS will be completed either by manual process or using the automated process described in DA PAM 738-750. However, if the automated systems fail, manual record keeping will be maintained. Regardless of the system in use, the purpose of the TAMMS operation is to create, maintain, and properly dispose of operational, maintenance and equipment historical records in accordance with DA PAM 738-750.

REPAIR PARTS

Units or organizations authorized Shop Stocks, and Combat Spares will comply to AR 710-2 and applicable publications. The Bench stock consists of low dollar repair parts such as nuts, bolts, and associated hardware that will be consumed on a daily basis by operators and maintainers. The Shop stock will consist of DS maintenance repair parts that are demand supported, non-demand supported, and specified initial stockage repair parts for newly introduced end items.

Units will process requests under the automated supply system and IAW AR 710-2.

Automation Support Organizations

CSS for the future Army force (Force XXI) represents a significant change from the current Army of Excellence (AOE) Division. Organizational structures reflect a paradigm shift from a supply-based CSS system to an advanced distribution-based CSS structure. (See Figure 4-1.) This chapter describes some of the new maintenance and supply organizations within the Division and Corps, to include their role in supporting automation systems.

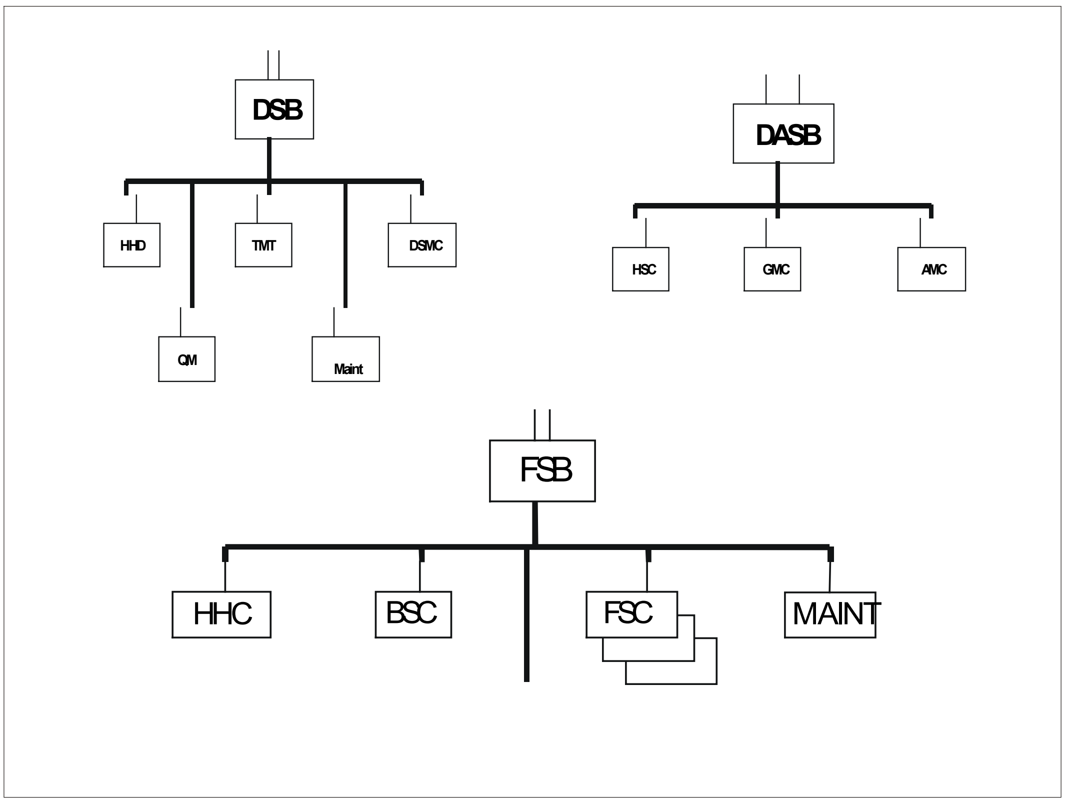


Figure 4-1. Example of New Maintenance and Supply Organizational Structures

DIVISION SUPPORT BATTALION (DSB) QUARTERMASTER (QM) COMPANY

The QM company provides DS supply to division headquarters, DSB, DISCOM headquarters, division artillery (DIVARTY) headquarters, battalion, ADA battalion, MI battalion, Signal battalion, and military police (MP) company. The QM company provides receipt, limited storage, and issue of Classes II, III (bulk) and III (packaged), IV, and IX (less air). It provides receipt and issue of Classes I and VI at the field ration issue point daily and receipt and issue of Class VII at the SSA as required. The Class IX section stocks selected spare LRUs for the various automation systems. The Class IX section work-orders unserviceable LRUs to the appropriate maintenance activity for repair.

AREA MAINTENANCE COMPANY (AMC)

The AMC provides DS maintenance to division troop units, DIVARTY headquarters, and DSB CSS elements operating in the division rear area. (See Figure 4-2.) The AMC also provides DS maintenance support to ADA, MI, Signal, and FA (MLRS) units. Unlike the AOE main support battalion (MSB) maintenance companies, the AMC does not provide backup maintenance support to the forward support battalions. Corps maintenance companies, such as the non-divisional maintenance company, provide this function.

The AMC provides limited repair of automation equipment. Currently, the unit provides DS maintenance of the Advanced Field Artillery Tactical Data System (AFATDS) lightweight computer unit and is projected to repair the FBCB2 system when fielded. Some specific automation support functions include:

- Warranty management.
- Provide DS troubleshooting and repair of selected LRUs.
- Coordinate distribution of warranted LRUs to the ESSC.
- Evacuate excess maintenance to the non-divisional maintenance company.

DIVISION AVIATION SUPPORT BATTALION (DASB) HSC

The HSC consists of a battalion headquarters and a supply company. The battalion headquarters provides C2 and administration support for all organic and attached DASB units. The battalion headquarters plans, directs, and supervises support for the aviation brigade and division cavalry squadron. The supply platoon provides receipt, issue, and storage of Class IX (LRUs and SRUs) for the aviation brigade and division cavalry squadron. The Class IX section stocks selected spare LRUs for the various automation systems. The Class IX section work-orders unserviceable LRUs to the appropriate maintenance activity for repair.

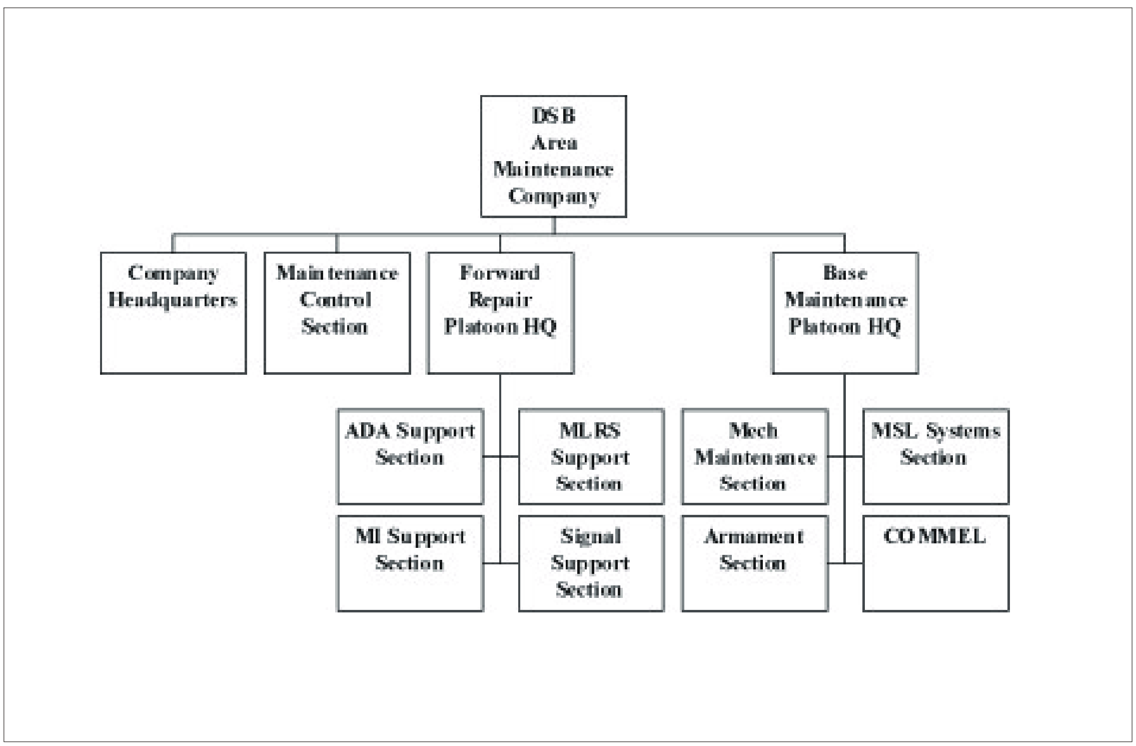


Figure 4-2. AMC Organizational Structure

Ground Maintenance Company (GMC)

The GMC consists of a company headquarters, a battalion maintenance platoon, and a DS maintenance platoon. (See Figure 4-3.) The GMC provides unit maintenance for all DASB non-air items and DS maintenance for all aviation brigade, DASB, and division cavalry non-air items.

The missile support section of the DS maintenance platoon provides repair of selected automation systems. Some specific maintenance management functions include:

- Warranty management.
- Provide DS troubleshooting and repair of selected LRUs.
- Evacuate excess maintenance to the non-divisional maintenance company.

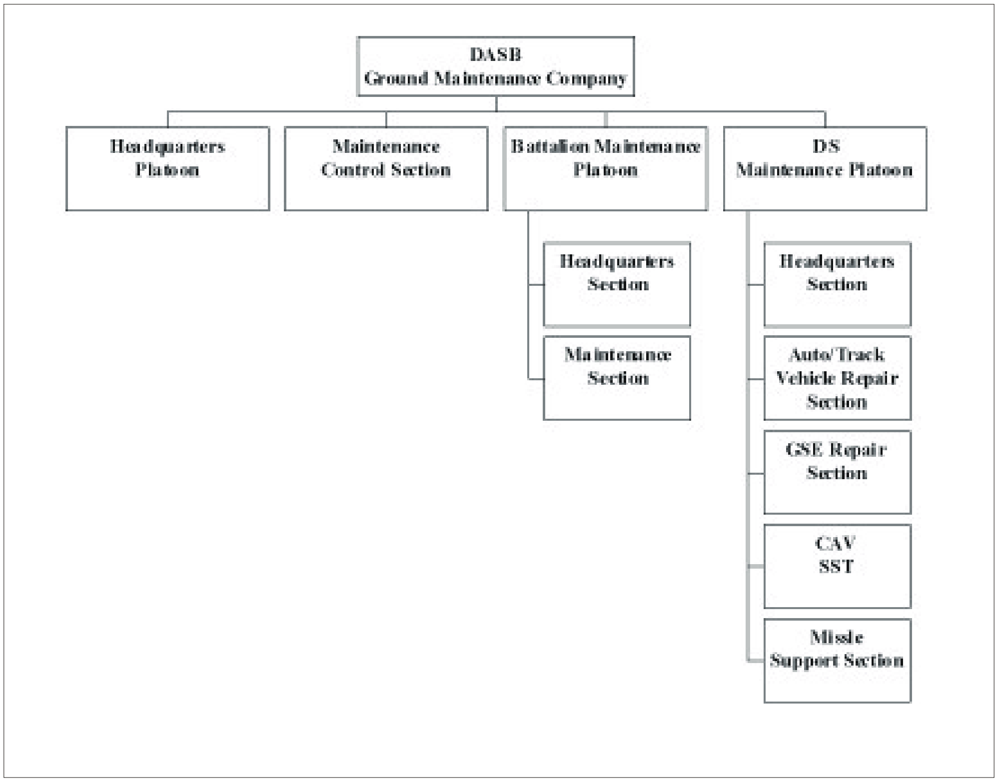


Figure 4-3. GMC Organizational Structure

Base Support Company (BSC)

The BSC is a multifunctional unit that provides CSS to brigade combat teams (BCTs) and divisional units operating within the brigade area. The BSC provides tactical field maintenance to the engineer battalion, brigade headquarters, brigade reconnaissance troop, FSB headquarters, medical company, and BSC. (See Figure 4-4.) The BSC also provides DS base shop, commodity-specific maintenance to the entire BCT. On an area basis, it provides DS maintenance to BCT units within the BSA and limited reinforcing and backup support to the FSCs. The BSC is the first echelon of DS automation maintenance support for the maneuver battalion and division units operating in the brigade rear area. The BSC also provides the brigade a single source for all supply (less Class VIII) and transportation operations. The BSC also maintains Classes II, III (packaged), IV, and IX ASL for the brigade.

The BSC currently performs only limited maintenance of automation equipment. Specific systems include the lightweight computer unit and the FBCB2 system. The majority of new equipment fielded to the first digitized division (FDD) is covered by warranty from the manufacturer. Spare LRUs may be stocked within the Class IX section of the supply and transportation (S&T) platoon. Unserviceable items are work-ordered to the appropriate maintenance activity (BSC maintenance platoon, non-divisional maintenance company, or the ESSC). Specific automation support functions include:

- Receipt, store, and issue Class IX.
- Maintain repairable exchange of selected LRUs.
- Coordinate distribution of unserviceable LRUs to appropriate repair activity.
- Evacuate excess maintenance to the non-divisional maintenance company.

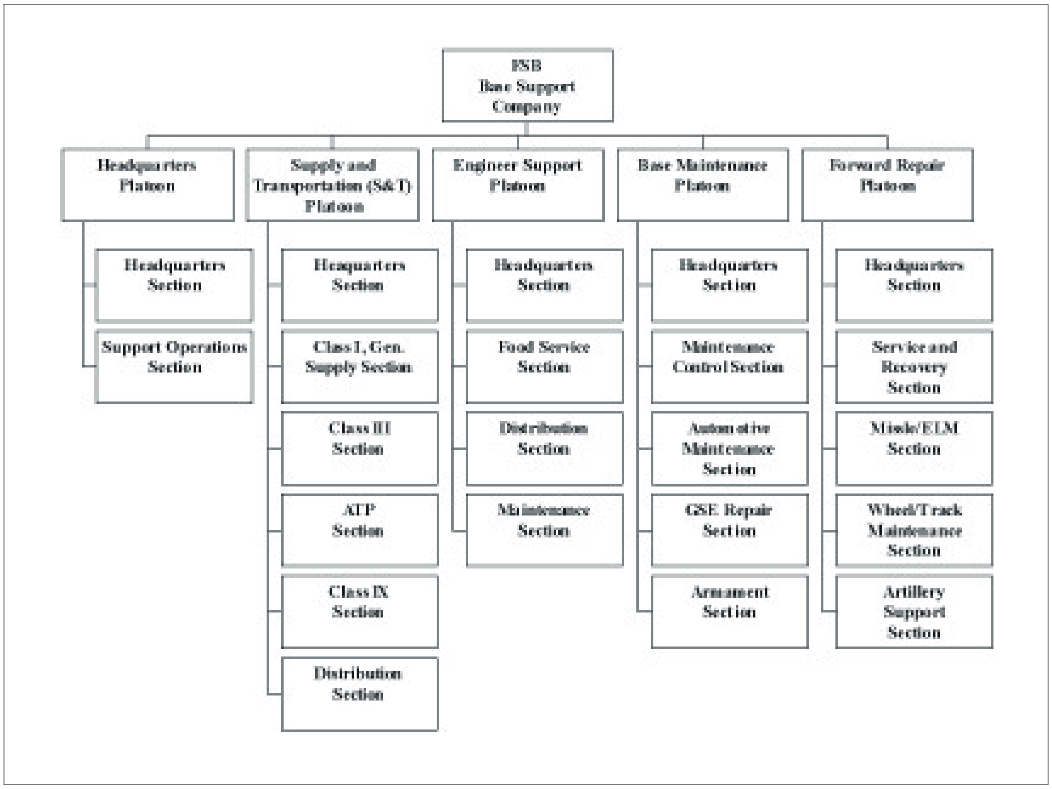


Figure 4-4. BSC Organizational Structure

Forward Support Company (FSC)

The FSC is a multifunctional CSS unit that provides habitual support to a maneuver battalion. The FSC provides unit and DS level maintenance and DS level supply to the supported battalion task force. The FSC requests and issues LRUs for most types of automation. The FSC cannot provide maintenance support for automation equipment. Some specific functions include:

- Request, receive, and issue Classes IX and VII for its supported task force.
- Coordinate distribution of serviceable and unserviceable LRUs from the S6 into the battlefield distribution system.

NON-DIVISIONAL MAINTENANCE COMPANY

The non-divisional maintenance company provides DS maintenance for the division. (See Figure 4-5.) The unit provides repair and return of selected ABCS LRUs and other automation equipment. The supply platoon requests, stores, and issues Class IX, to include SRUs and LRUs. Specific functions include:

- Provide backup DS maintenance support to the division
- Provide DS maintenance support to units on an area basis
- Warranty management
- Provide SAMS-1 support to the corps support group CSSAMO for STAMIS repairs
- Provide DS repair of LRUs
- Maintain repairable exchange of LRUs
- Receive, store, and issue Class IX

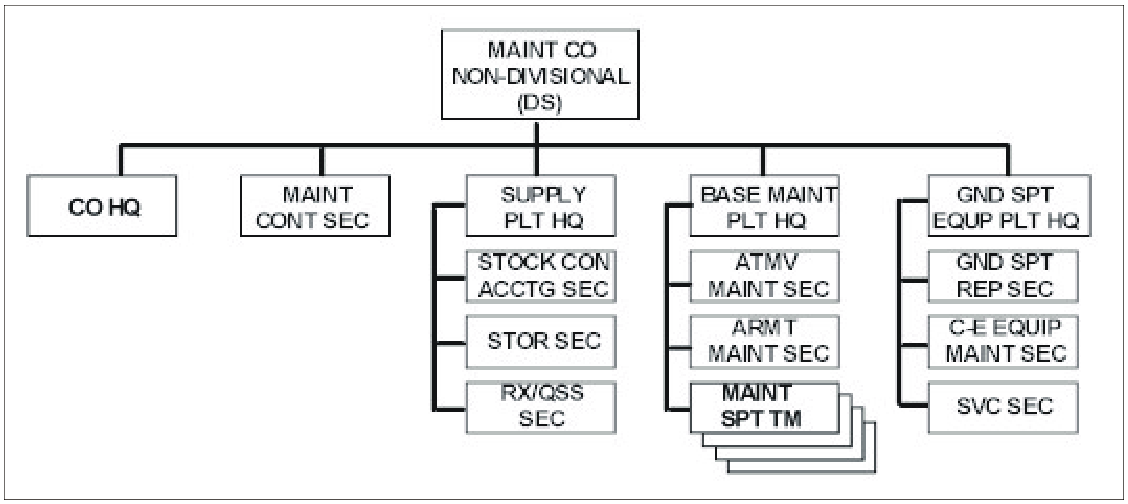


Figure 4-5. Non-Divisional Maintenance Company

Electronic Sustainment Support Center (ESSC)

The ESSCs were established by CECOM as regional organizations to consolidate management of sustainment maintenance and logistics support for communications-electronics (CE) equipment and systems. The ESSC provides one-stop maintenance support for selected Army tactical intelligence and electronic warfare (IEW) and CE equipment, CHS, nonembedded COTS/NDI ADPE, and other COTS/NDI equipment such as nontactical radios, and is expandable to support other electronics equipment repair. The ESSC also provides software logistics support, which is limited to replication, distribution, installation, and training for software upgrades and revisions.

The ESSC supports multiple program executive offices (PEOs) and their associated program/project/product management offices (PMOs) by providing sustainment maintenance and warranty support through one of the ESSC service providers. The ESSC coordinates with the PEOs to ensure appropriate support is in place-fielded systems. The ESSC service providers currently include:

- Tobyhanna Army Depot (TYAD)
- IEW RSC
- Mobile subscriber equipment (MSE) General Dynamics Electronics Systems (GD-ES) RSC

- CECOM Software Engineering Center RSC and Field Service Representatives
- Communications Security Logistics Activity (CSLA) Information Security (INFOSEC) Representatives

Figure 4-6 shows the equipment supported by these service providers.

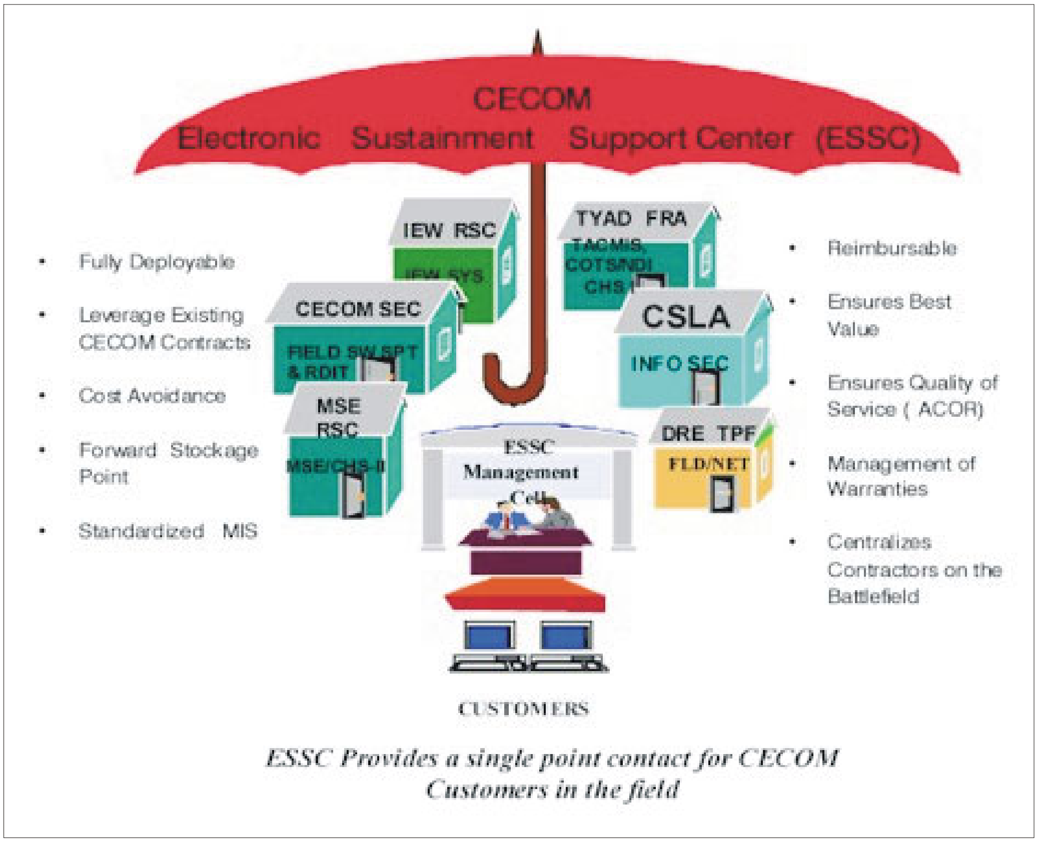


Figure 4-6. Equipment Provided by ESSC Service Providers

Specifically, the ESSC can provide the following functions/services as specified in each individual PMO sustainment plan:

- One-stop shopping for support services.
- Disposition and distribution of failed items to appropriate repair facilities.
- Point of contact/coordination and support for contractor personnel assigned to the area of operations.
- Software replication.
- Distribution of repaired items to the DS units.
- Production control and status.
- Verification of warranty equipment misuse/abuse claims.
- Contingency planning and execution.
- Subject matter expert support for DS units.
- Emergency modification/repair teams as required.
- Field modification of equipment/software when authorized.

- Help desk support.
- Training support assistance by subject matter expert and service provider personnel if available.

One of the efficiencies of the ESSC is its deployability in support of multiple regional conflicts. During deployment, ESSC cells will fully integrate into the logistics support element (LSE). As part of the LSE, ESSC cells will centralize management of contractors performing maintenance and repair on electronics systems and equipment at locations within the area of operations.

CECOM LOGISTICS ASSISTANCE REPRESENTATIVE (LAR)

CECOM provides forward technical and logistics assistance for automation equipment through the network, MSE, and network communications LARs.

The network LAR's responsibilities include:

- CISCO LAN switch
- Integrated system control (ISYSCON).
- Near-Term Digital Radio (NTDR).
- Routers.
- Wireless LAN.
- ABCS.
- CHS-1/2.
- Enhanced Position Location Reporting System (EPLRS).

The network communications LAR's responsibilities include:

- Command and control vehicle.
- FBCB2.
- Single-Channel Ground and Airborne Radio System-Advanced System Improvement Plan (SINCGARS-ASIP).
- Vehicle internal communications (VIC3).
- NTDR.

The MSE LAR's responsibilities include:

- Asynchronous transfer mode small extension node.
- High-speed multiplexer.
- Secure Mobile Antijam Reliable Terminal-Tactical (SMART-T).
- High capacity line-of-sight (HCLOS).
- EPLRS.

CENTRAL TECHNICAL SUPPORT FACILITY (CTSF)

The CTSF is a PEO for the command, control, and communications (C3) system organization located at Fort Hood, Texas, which provides three major services for ABCS and the FDD. A software-testing element provides integration, replication, support, configuration management, distribution, testing, and interoperability certification for the ABCS and CSS AIS applications. A training element provides ABCS collective training development and instruction and hosts the AIS training teams and various contractor FDD training programs. An adjacent installation facility installs ABCS platforms for the FDD and other digital units.

Networks and Automation Systems

Brief descriptions of the supported networks and automation systems are covered in this appendix.

WARFIGHTER INFORMATION NETWORK (WIN)

WIN is an integrated command, control, communications, and computers (C4) network comprised of commercially-based high technology communications network systems. It is designed to enable the gaining of information dominance by increasing the security, capacity, and velocity (speed of service to the user) of information distribution throughout the battlespace. A common sense mix of terrestrial and satellite communications is required for a robust ABCS. WIN will support the warfighter in the 21st century with the means to provide information services from the sustaining base to deployed units worldwide.

WARFIGHTER INFORMATION NETWORK-TACTICAL (WIN-T)

The WIN-T portion of WIN is focused on the terrestrial (nonsatellite) transmission and networking segment of the WIN. The terrestrial transport system is the backbone infrastructure of the WIN architecture as well as the LAN in support of the ABCS capable TOC (ABCS LAN). It provides simultaneous secure voice, data, imagery, and video communications services.

TACTICAL INTERNET (TI)

The TI will enhance warfighter operations by providing an improved, integrated data communications network for mobile users. The TI passes command, control, communications, computers, and intelligence (C4I) information, extending tactical automation to the soldier/weapons platform. The TI will focus on brigade and below to provide the parameters in defining a tactical automated data communications network.

ABCS

ABCS assists the commander in exercising C2 of available forces in the accomplishment of a mission. It allows him to “see and understand” his battlespace and gain dominant situational awareness on the battlefield. ABCS provides the commander with immediate access to situational updates and execution information and allows him to transmit situational understanding and execution from his location on the battlefield.

ABCS is the integration of fielded, developmental, and AISs and communications employed in both training and tactical environments, in both developed and undeveloped theaters, and in fixed installations and mobile facilities. Additionally, the subsystems will interoperate with other Department of Defense and commercial communications systems, including satellite communications systems, Defense Data Network (DDN), Defense Information System Network (DISN), and the Automatic Digital Network (ADN) implementations of the Defense Messaging System (DMS).

ABCS components include the–

- Advanced Field Artillery Tactical Data System (AFATDS)
- Maneuver Control System (MCS).
- Air and Missile Defense Planning and Control System (AMDPCS).
- All Source Analysis System-Remote Workstation (ASAS-RWS).
- Global Command and Control System – Army (GCCS-A).
- Combat Service Support Command System (CSSCS)
- Force XXI Battle Command Brigade and Below (FBCB2).
- Tactical Air Intelligence System (TAIS)

Additionally, the following supporting systems and functions are enablers and shall provide integral support to the overall communications requirements (see Figure A-1) for ABCS.

- Army Airspace Command and Control (A2C2) Tactical Airspace Information System (TAIS).
- Digital Topographic Support System (DTSS).
- Integrated Meteorological and Environmental Terrain System (IMETS).
- Warfighter Information Network (WIN).
- Tactical Internet (TI).
- ISYSCON.

Maneuver Control System (MCS)

MCS is the primary battle command source, providing the common operational picture, decision aids, and overlay capabilities to support the tactical commander and the staff via interface with the force level information database populated from other AISs. MCS provides the functional common applications necessary to access and manipulate the Joint Common Database (JCDB). MCS will satisfy information requirements for a specific operation; track resources; display situational awareness; effect timely control of current combat operations (offense, defense, stability, and support); and effectively develop and distribute plans, orders, and estimates in support of future operations. It will support the military decision-making process. MCS will be deployed from corps to the maneuver battalions.

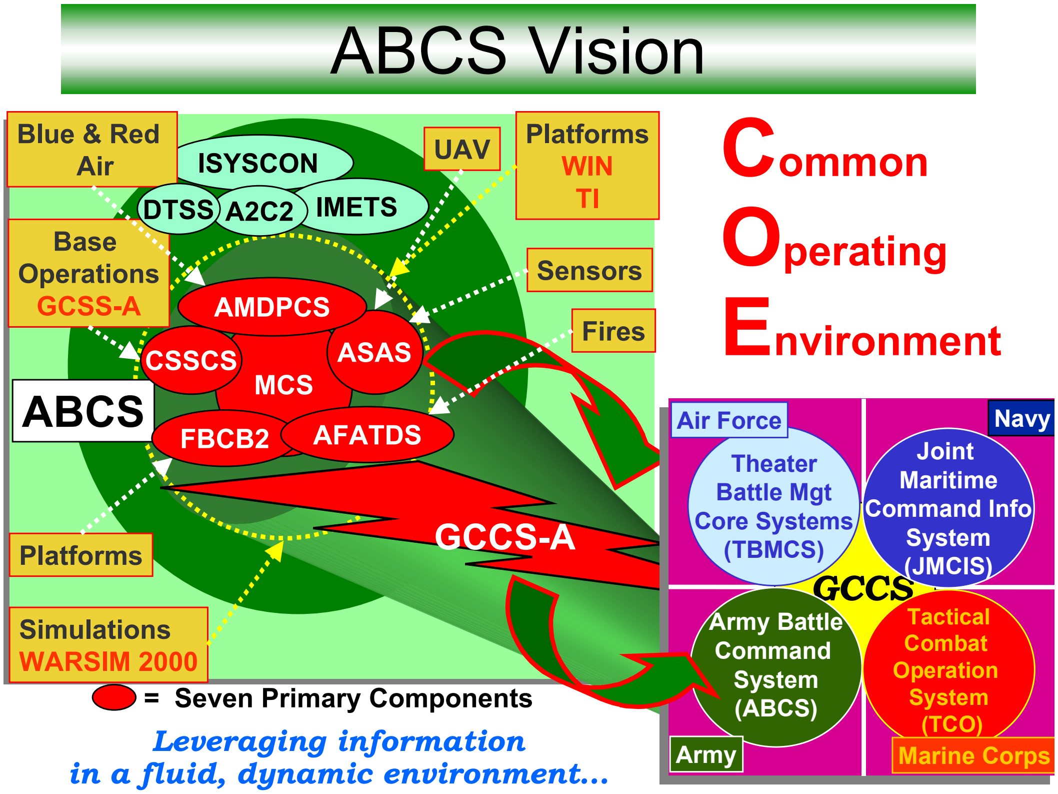


Figure A-1. Current ABCS

Advanced Field Artillery Tactical Data System (AFATDS)

AFATDS provides automated decision support for the fire support (FS) functional subsystem, to include joint and combined fires (that is naval gunfire, close air support). AFATDS provides a fully integrated FS C2 system, giving the FS coordinator (FSCOORD) automated support for the planning, coordination, control, and execution of close support, counter fire, interdiction, and air defense suppression fires. AFATDS performs all of the FS operational functions, to include automated allocation and distribution of fires based on target value analysis. AFATDS will be deployed from echelons above corps (EAC) to the firing platoons. AFATDS provides FS overlay information to the ABCS common database. AFATDS will interoperate with the United States Air Force, Theatre Maritime Battle Management Core System, and the United States Navy/United States Marine Corps Joint Maritime Combat Information System. AFATDS will also interoperate with the FS C2 systems with allied countries, including the United Kingdom, Germany, and France.

AMDPCS FORWARD AREA

AMDPCS integrates air defense fire units, sensors, and C2 centers into a coherent system that can defeat/deny the aerial threat (unmanned aerial vehicles, helicopters, fixed wing, and so forth). AMDPCS provides for automated, seamless C2 and Force XXI vertical and horizontal interoperability with joint and coalition forces for US Army air and missile defense (AMD) units. The system provides CHS modules at all echelons of command, which will provide for highly effective employment of Army AMD weapon systems as part of the joint force. AMDPCS provides the third dimension situational awareness component of the common operational picture. Initially, the AMD-workstation

(AMD-WS) will provide elements from EAC to battalion the capability to track the AMD battle force operations.

ASAS-RWS

The ASAS-RWS is the IEW component from EAC to battalion. It is a mobile, tactically deployable, computer-assisted IEW processing, analysis, reporting, and technical control system. The ASAS-RWS receives and rapidly processes large volumes of combat information and sensor reports from all sources to provide timely and accurate targeting information, intelligence products, and threat alerts. It consists of evolutionary modules that perform system operations management; system security; collection management; intelligence processing and reporting; high value/high payoff target processing and nominations; and communications processing and interfacing. The ASAS-RWS provides automated support to the doctrinal functions of intelligence staff officers (G2/S2) from EAC through battalion, including Special Operations Forces. It also operates as the technical control portion of the intelligence node of ABCS to provide current IEW and enemy situation information to the JCDB for access and use by ABCS users. The ASAS-RWS produces the enemy situation portion of the common operational picture of the battlefield disseminated via the ABCS network.

CSSCS

The CSSCS provides automated CSS information to maintenance, medical, personnel, classes of supply, personnel service support and movements to CSS, maneuver and theater commanders, and logistic and special staffs. Critical resource data is drawn from both manual resources and STAMIS at each echelon, which will evolve to the GCSS-A (the unclassified logistics wholesale/resale business-end connectivity). The CSSCS processes, analyzes, and integrates resource information to support evaluation of current and projected force sustainment capabilities. The chaplaincy is an active participant in CSSCS and will be included in the development of CSS services. The CSSCS provides CSS information for the commanders and staff and will be deployed from EAC to battalion.

FBCB2

The FBCB2 is a suite of digitally interoperable applications and platform hardware that provide on-the-move, real-time and near-real-time situational awareness and C2 information to combat, combat support, and CSS leaders from brigade to the platform and soldier level. The FBCB2 is a mission essential sub-element and a key component of ABCS. The FBCB2 will feed the ABCS common database with automated positional friendly information and current tactical battlefield geometry for friendly and known/suspected enemy forces. The goal is to field FBCB2 to the tank and Bradley-fighting vehicle and other platforms with a common look and feel screen. CHS design will facilitate training and standard operating procedures.

A2C2 TAIS

The TAIS provides A2C2 functionality. Full airspace C2 is not yet resident within ABCS, and the TAIS is migrating to meet this requirement.

DTSS

The DTSS is an automated system that provides tactical and operational commanders with geo-spatial information to support terrain visualization. The DTSS is the terrain analysis tool that provides geo-spatial information and special mission-specific products to ABCS for battlespace operations supporting EAC to brigade and platform level. The DTSS collects source material, manages digital terrain databases, and distributes material through a geo-spatial digital data storage device. The DTSS Geographic

Information System (GIS) and imagery analysis software components allow the analyst to density, manipulate, analyze, and produce standard and special topographic products for the battle commander. National and in-theater sources will provide new and enriched data to update the geo-spatial database. The DTSS uses established ABCS tactical and satellite communications means.

IMETS

IMETS is an AIS that can display and analyze weather products and provide general weather forecasting, weather warnings, and weather effects analysis for the commander and his staff to support mission planning and execution.

ISYSCON

ISYSCON provides an automated management and synchronization of multiple tactical C3 systems. ISYSCON is used at theater, EAC, corps, and division down to brigade and below. It provides automated network management assistance for network planning and engineering, battlefield spectrum management, Signal C2, WAN, and COMSEC. In addition, ISYSCON provides LAN management capabilities to monitor and maintain ABCS/STAMIS connectivity and communications services in the TOC.

GCCS-A

The GCCS-A is the Army link for ABCS to the GCCS. The GCCS-A will provide a suite of modular applications and information and decision support to Army strategic/operational/theater level planning and operational/theater operations and sustainment. The GCCS-A will support the apportionment, allocation, logistical support, and deployment of Army forces to the combatant commands. Functionality includes force tracking, host nation and civil affairs support, theater air defense, targeting, psychological operations, C2, logistics, medical, provost marshal, counter-drug, and personnel status. The GCCS-A will be deployed from theater EAC elements to division.

STAMIS

Each STAMIS is different; each has requirements governing specific site location and operations. STAMIS software is mission critical and must be accommodated before all other automation issues. It is the essential data that resupplies, requisitions, and repairs the Army. Many STAMIS software packages feed data to the Joint Chief of Staff (JCS) level and are time critical in delivery and execution. STAMIS systems must not be interfered with and must not fail because of misuse of automation assets. The direct result of STAMIS failure will manifest itself on the unit's ability to conduct its wartime mission and an undesirable reflection on the unit status report. The logistical STAMIS will be replaced by the GCSS-A.

DEPARTMENT OF THE ARMY MOVEMENT MANAGEMENT SYSTEM-REDESIGN (DAMMS-R)

DAMMS-R provides automation support for transportation staffs and organizations within a tactical theater of operations. It also supports transportation units within the continental United States (CONUS). DAMMS-R supports the Army's strategic mobility programs and is a vital link in the maintenance of intransit visibility over units, personnel, and materiel in the deployment and distribution pipeline. The system is divided functionally into seven subsystems or modules.

- System management subsystem.
- Mode subsystem.
- Movement control team operations subsystem.

- Highway regulation subsystem.
- Convoy planning subsystem.
- Operational movement programming subsystem.
- Transportation addressing subsystem.

The Transportation Coordinators Automated Information for Movements System-II (TCAIMS-II) will replace the DAMMS-R.

SAAS-MOD

The SAAS-MOD will provide centralized information management to support ammunition management functions on the battlefield and in CONUS, overseas, and within the major commands.

SAMS

SAMS increases the productivity of maintenance shops and provides commanders with accurate and timely maintenance management information. It provides visibility of inoperative equipment and required repair parts, selected maintenance, equipment readiness, and equipment performance reports. SAMS also provides completed work order data to the Logistics Support Activity (LOGSA) for equipment performance and other analyses. It further manages maintenance actions, workloads, and resources.

SAMS can automatically process DS/GS maintenance shop production functions, maintenance control work orders, and key supply functions previously performed manually. Requisitions are prepared automatically and automatic status is received from the SARSS-1. SAMS operates in the DS/GS maintenance and/or aviation intermediate maintenance (AVIM) activity, FSB, DSB, DASB, corps support battalion (CSB), ASG, and the Materiel Management Center (MMC) within division, corps, and EAC environments. SAMS consists of SAMS-1, SAMS-2, and SAMS-Installation/Table(s) of Distribution and Allowances (I/TDA).

SAMS-1 automates shop production functions and maintenance control records, maintains shop supplies, and requests repair parts. It receives maintenance data from the battalion maintenance section's ULLS.

SAMS-2 provides field commanders with selected maintenance, equipment readiness, and equipment performance reports. It also provides readiness data and life-cycle management data to the Army Materiel Command (LOGSA) databases.

SAMS-I/TDA is the nontactical installation-based application that provides standard automated maintenance operations management information to I/TDA DS and GS levels.

SARSS

SARSS is a multiechelon supply management and stock control system designed to operate in tactical and garrison environments. It supports the ULLS-G, ULLS-A, ULLS-S4, SAMS-1, SPBS-R STAMIS, nonautomated customers, and the split operations concept. SARSS is fully integrated from the user through theater Army level. It can support worldwide deployment of combat forces in various scenarios and areas of operations, ranging from low to mid to high intensity conflict, including smaller-scale contingencies. SARSS is employed in DS and GS Units, SSAs, division MMC, armored cavalry regiment MMC, and separate combat brigade MMC throughout the Army. The Automated Information Technology (AIT) source data automation is provided through use of radio frequency tags, fixed and handheld radio frequency interrogation devices, optical laser card readers/writers, and bar-code readers.

SIDPERS

SIDPERS-3 brings real-time military personnel management and strength accounting processing to the desktop. It is found within the Personnel Services battalion at the division, corps, and theater levels. The system also is found at the unit level (S1/G1) from battalion through corps. The system consists of relational database application software written in Ada and a hardware suite. The hardware architecture is a host-based design with a terminal server as the hub, which includes the database. Up to four remote PCs can connect to the terminal server to access the database and to run office automation applications while it is not performing SIDPERS-3 functions.

SIDPERS-3 provides many benefits. It reduces transaction-processing time between the field and Headquarters, Department of the Army from days to hours, quickly giving commanders more accurate information. System input edits, and help screens enable the user to increase productivity and reduce errors. Additional enhancements are the ability to produce an officer or enlisted record brief at any level down to battalion and separate unit along with a fully automated promotion module.

SPBS-R

The SPBS-R provides on-line management information and automated reporting procedures for the property book officer and produces updated company-level hand receipts when needed. It also provides automated interfaces with SSAs for request and receipt of equipment, Continuing Balance System-Expanded (CBS-X) for worldwide asset reporting, LOGSA for total asset visibility (TAV), catalog updates, unique item tracking (UIT) for weapon serial number tracking, and ARMS for NDI computer serial number tracking and warranty information.

The SPBS-R is used in brigade, division, corps, Army area, and theater of operations environments. The SPBS-R can automatically process Class II and Class IV, Class III (packaged), and Class VII supply requirements to the SARSS and the basic load Class V requests submitted to the SAAS-4.

TAMMIS

TAMMIS consists of six subsystems that support logistics and patient administration functions. The subsystems that support logistics are Medical Supply (MEDSUP), Medical Assemblage Management (MEDASM), and Medical Maintenance (MEDMNT). The subsystems that support patient administration are Medical Regulating (MEDREG), Medical Patient Accounting and Reporting (MEDPAR), and MEDPAR Command and Control (MEDPAR-CC). TAMMIS can interface with other Department of Defense management information systems and programs such as the Defense Medical Regulating Information System (DMRIS), SIDPERS-3, Prime Vendor Program, Standard Financial System (STANFINS), and many, many more. TAMMIS automates communications by setting up a transmission schedule to remote locations and automating retransmissions. TAMMIS can relay information between units in various ways. The preferred methods use the tactical terminal adapter (TTA) or LAN. Both methods rely on the MSE military communications system. Because communications cannot be assured in wartime, units can also pass information by standard telephone lines, DDN, or an international maritime satellite (INMARSAT) using a commercial modem; over a stand-alone LAN (without MSE); and by floppy diskette or tape delivered by a courier. In the near future, we hope to also be able to pass data using the high frequency radio. All methods preclude re-entering data at the receiving unit.

Medical Communications for Combat Casualty Care (MC4)

Medical Communications for Combat Casualty Care (MC4) is a family of systems hardware program that meets the Army’s tactical (combat casualty care) medical needs. It is responsible for fielding and life cycle support for nine (objective) Joint Theater Medical

Information Program medical software system applications. It will automate and link these nine medical applications, while enhancing digital communications, and promoting medical situational awareness to command and control structures, through the use of existing and emerging COTS/GOTS technologies. It will also provide visibility of deployed medial forces and casualties as well as provide an accurate and timely means for documenting healthcare from the point of care to a centralized database in the theater of operations. This centralized database will link healthcare providers, medical diagnostic systems, evacuation information, and medical logistics management to all levels of the Army's Composite Health Care System (CHCS). This MC4 TMIP-A system will be accomplished by integration of fully integrated, validated and approved software provided by the joint Theater Medical Information Program (TMIP).

The ten MC4 TMIP-A software applications are the –

- Defense Medical Logistical Support System – Assemblage Management (DMLSS-AM) Medical resupply, logistics inventory management, assemble management & product ID/storage
- Personal information Carrier (PIC) – Store and transport personal medical information
- Defense Blood Standard System (DBSS) Blood products inventory, requisitioning, movement, tracking, & storage
- Local Data Base (LDB) - Medical records consolidation & collection
- Lower Echelon Reporting and Surveillance Module (LERSM) Patient tracing, evacuation, visibility, status reporting & treatment
- Medial Reference Component (MRC) Medical reference library
- Patient Encounter Module (PEM) Encounter data collection
- Immunization Tracking System (ITS) Record/report immunizations
- Health Surveys (HS) Post deployment assessment

ULLS

ULLS provides tactical line companies and supporting CSS companies the capability to automate logistics at the unit level. The ULLS application software operates on a standard computer centrally procured NDI computer platforms, and peripheral devices. Following are the different ULLS applications:

ULLS-A

The ULLS-A is located in all aviation units. It performs those functions for aviation that ULLS-G performs for ground units.

ULLS-G

The ULLS-G is located at any unit that has an organizational maintenance facility. It automates vehicle dispatching, PLL management, and TAMMS. The ULLS-G interfaces with the SARSS-1, SAMS-1, IVIS Inter-Vehicle Information System (IVIS), vehicle sensors, and ULLS-S4. The AIT interrogator connects directly to the ULLS-G. The ULLS-G links to the wholesale supply system through the objective supply capability (OSC).

ULLS S4

The ULLS-S4 is located at unit level supply rooms, as well as battalion and brigade level S4 staff sections. The ULLS-S4 automates the supply property requisitioning/document register process, hand/subhand receipts, component, budget, and logistical planning activities at the unit supply, battalion, and brigade S4 levels. It also receives and produces the Army Materiel Status System (AMSS) reports generated by the ULLS-G/A systems or by another ULLS-S4. The ULLS-S4 interfaces with the SPBS-R, ULLS-G, and ULLS-A (for budget and AMSS data transferring); the SAAS; the SARSS-Objective (SARSS-O) at the DS level; the OSC SARSS gateway; and the CSSCS.

GCSS-A

The GCSS-A will be the Army's AIS to modernize and integrate the capabilities of the existing logistics STAMIS. These capabilities will include supply, property, ammunition, and maintenance functions (less medical) with significant enhancements. The principal logistics STAMIS systems to integrate include the ULLS, SARSS, SPBS-R, SAAS, and SAMS.

The six GCSS-A modules are the–

- Modernized supply and property module that integrates supply operations and property accountability in all units.
- Modernized maintenance module that integrates maintenance operations (ground, aviation, and water equipment) at all maintenance levels.
- Modernized ammunition supply point module that integrates Class V management and operations.
- Modernized SSA module that integrates the supply management and operations at SSAs and storage sites.
- Modernized and integrated materiel management module that integrates supply, property, ammunition, and maintenance management in all materiel management organizations.
- Management module that integrates information from multifunctional CSS data sources and allows for data exchange with other GCSS-A modules and external AISs.

In addition to the replacement of legacy system functions of the logistics STAMIS systems above, a variety of functional enhancements are planned for incremental block development. These enhancements provide automation tools and functional applications that support other CSS mission requirements, including:

- Food service operations.
- Troop issue subsistence operations.
- Legal affairs and assistance operations.
- Religious support and unit ministry team operations.
- Mortuary and memorial affairs operations
- Class III bulk accountability and distribution.
- Central issue facility operations and accounting for organizational clothing and individual equipment.
- Clothing issue point operations.
- Water supply operations.
- Finance unit operations to include the Installation Finance Office.
- Arms room and tool room operations.
- Forward maintenance support team, contact team, and equipment recovery team operations.

The GCSS-A will establish interfaces so that users can gain access to information and exchange operational data in the areas of personnel, medical, finance, transportation, training, unit administration, and other CSS functional areas. Some examples of these interfaces include–

- SIDPERS.
- The Defense Integrated Manpower Human Resources System (DIMHRS).
- The Tactical Personnel System (TPS).
- The Defense Medical Logistics Standard System (DMLSS).
- The Defense Casualty Information Processing System (DCIPS).
- TCAIMS-II.
- The Battlefield Company Information System (BCIS).

The GCSS-A will also establish interfaces to weapons system data collectors and automated diagnostic and prognostic systems such as the voice activated data recorder (VADR), Soldier Portable On-System Repair Tool (SPORT), Failure Analysis and Maintenance Planning System (FAMPS), Health Usage and Monitoring System (HUMS), Longbow Integrated Maintenance Support System (LIMSS), and the digital source collector (DSC). Selected data from weapons system processors and automated diagnostic tools will be transported where needed to support fleet management, trend analysis, and other purposes.

Tier 1 – Initial Operational Capability (Integration and Modernization)

In this tier, an initial operational capability (IOC) will be developed through incremental integration and modernization of current tactical logistics STAMIS systems. The principal ones to integrate will include the ULLS, SARSS, SPBS, SAAS, and SAMS. The six GCSS-A modules will be the products of this integration.

All components of the GCSS-A must communicate flexibly. The system will be designed to take advantage of all available methods of communications, including tactical packet networks, circuit switch networks, wireless networks, the DISN, telephone networks, and strategic communications capabilities. The sneaker net will be used only as necessary to transfer information on removable media.

Tier 2 – Enhanced Operational Capability (Wholesale and Retail Integration)

This tier will enhance the IOC provided in Tier 1 by the redesign of CSS business practices to include integrating wholesale CSS functionality. Design and development will capitalize on advanced technology, electronic data interchange, advanced warfighting experiments, emerging battlefield distribution concepts, Force XXI initiatives, decision support tools, interfaces with wholesale-automated systems, and integration of the Army Total Asset Visibility System. The initial focus is on logistics modernization (LOG MOD), which is intended to privatize the functions of the current wholesale Standard Depot System (SDS) and the Commodity Command Standard System (CCSS).

Tier 3 – Full Operational Capability (Joint Integration)

This tier will implement all required interfaces with automated systems in the joint community, national sustaining base, and applicable allied systems. Access will be available to CSS data sources, and complete interoperability will be achieved when operating in the open system environment. This tier will provide a seamless, integrated, modular, interactive, and interoperable CSS automated system for the total Army.

TCAIMS-II

The TCAIMS-II, a joint system, will be an aggregation of the US Air Force Cargo Movement Operations System (CMOS), the USA Transportation Coordinator Automated Command and Control Information System (TCACCIS) and DAMMS-R, the Marine Air-Ground Task Force (MAGTF) Deployment Support System (MDSS), and the US Marine Corps TCAIMS, possibly the air load module (ALM), and the Integrated Computerized Deployment System (ICODES). The TCAIMS-II is part of the reengineering of the Defense Transportation System (DTS). It will empower the user to–

- Build automated unit equipment lists and deployment equipment lists from standard retail supply and personnel systems.
- Plan convoys and request convoy clearances.
- Request transportation support from all modes.
- Conduct load (air/sea/rail) planning.
- Manage mode operations.
- Pass information to the strategic transportation systems.
- Provide enhanced unit/sustainment intransit visibility data and total asset visibility data.
- Execute the day-to-day operations of the Installation Transportation Office/Traffic Management Office (ITO/TMO).

SUPPORT AUTOMATION

Automation has become an integral part of tactical operations. Computers are used in nearly every section of a unit from the motor pool to the orderly room. Contributing to this expansion is the Department of Defense trend towards a paperless environment. Currently, the Army is in the process of converting all paper technical manuals (-20 level and higher) to CD-ROM. The Army is also undertaking a major diagnostic improvement effort, focused on modernizing its aging, cumbersome test, measurement, and diagnostic equipment (TMDE).

Headquarters, Department of the Army will likely not restrict units from purchasing support automation for mission needs. In fact, CTA 50-909 allows commanders to purchase computers to support mission requirements. This could produce a tremendous maintenance problem for many units. As a result, major commands should consider establishing policy that regulates the types and quantity of support automation equipment units deploy with. This procedure will assist logisticians in developing support plans and priorities for automation equipment. Additionally, it may prevent overwhelming the supply and maintenance systems.

OFFICE AUTOMATION

Office automation includes computers and ADPE used only to support a unit's garrison mission. These items are not used in the tactical environment. Office automation deployed in a tactical environment is the sole and deliberate decision of the unit commander. This decision may impact on readiness if the office automation system fails in a tactical environment and the commander has not made unit level maintenance coordination and provisioning to sustain these items. The commander is responsible for repair or nonuse of these items if deployed in a tactical environment. Office automation includes desktop or laptop computers and peripheral equipment. These computers are required for unit administration and have become essential for mission accomplishment.

ELECTRONIC TECHNICAL MANUAL (ETM) READERS

ETM readers are laptop computers with built-in CD-ROM drives. They are fielded to support maintenance operations in the digital age. ETM readers provide operators and mechanics a lightweight, portable tool for CSS operations. They allow mechanics to easily access troubleshooting procedures and repair parts information while performing maintenance operations. In the future, these devices will also interface with the logistics STAMIS (GCSS-A). The Logistics Integration Agency is also experimenting with wireless alternatives for maintenance operations.

COMPUTER-BASED TMDE

Computer-based TMDE is rapidly replacing the Army's aging inventory of analog test equipment. The SPORT is a Pentium processor-based portable computer that replaces the current contact test set and the Simplified Test Equipment-Internal Combustion Engine (STE-ICE). It is an on-system tester designed to augment the built-in test/built-in test equipment capability of Army systems. The SPORT comes equipped with a built-in CD-ROM reader, which allows it to serve as a delivery device for ETMs and interactive ETMs (IETM), and a software loader verifier. The SPORT will be an integral part of every unit motor pool within the Army.

COMMUNICATIONS SYSTEMS SUPPORTING ABCS AND STAMIS

Army communications are divided into four systems: the Army Data Distribution Center (ADDS), Area-Common User System (ACUS), Combat Net Radio (CNR), and Broadcast.

ADDS

ADDS is an integrated C3 system providing near-real-time transmission capabilities to support low to medium volume data networks. ADDS automatically relays information from the origin to the destination transparent to the user. EPLRS and JTIDS are subsystems of ADDS.

ACUS

The ACUS is a communications system made up of network node switching centers connected primarily by LOS multichannel radios and tactical satellites (TACSATs). Army ACUS networks are the Tri-Service Tactical Communications (TRI-TAC) at EAC and MSE at echelons corps and below (ECB). The ACUS provides a multiuser, common-user area system for high-volume voice and data communications.

MSE

The MSE system is the primary ACUS configuration for ECB. MSE forms a network that covers the area occupied by unit subscribers. For a division, the grid is made up of four to six centralized node centers (NCs), which make up the hub or backbone of the network. Throughout the maneuver area, subscribers connect to SENs/large extension nodes (LENs) by radio or wire. These extension nodes serve as local call switching centers and provide access to the network by connecting to the NCs.

The MSE system provides both voice and data communications on an automatic, discrete addressed, fixed-directory basis using flood search routing. The system supports both wire and mobile subscribers.

Tactical Packet Network (TPN)

The TPN is overlaid on the MSE network and uses existing trunks exclusively for data transmission. Users can connect computers and LANs to the TPN from their command posts. Rather than using a direct end-to-end connection, which ties up an entire trunk, the TPN breaks up the data into “packets” and routes them along their most efficient path to their destination. When all packets arrive, the receiving packet switch reassembles the data and sends it to its destination.

CNR

The CNR is a system of systems consisting of SINCGARS, a TACSAT communications system, and high frequency radios. CNRs are the primary means of communications in maneuver units. To support the commander, units use these radios in networks such as command, administrative/logistical, and intelligence/operations.

BROADCAST

Broadcast communications systems use technology similar to commercial radio stations. Transmit-only stations send information to high frequency radio systems, satellites, unmanned aerial vehicles (UAVs), or other means. Weather, intelligence, and position location/navigation (POS/NAV) information are support derived from the broadcast system.

LAN

A LAN is a data communications network that interconnects digital devices and other peripherals. These are linked and distributed over a localized area for communicating between computers and sharing resources. Two or more computers linked by software and connected by cable are considered a LAN. A LAN includes–

- Digital devices (computers, scanners, printers, and other peripherals).
- A communications medium that exchanges data from one device to another.
- Network adapters that provide devices with an interface to the communications medium.

Digital systems within a command post are normally connected on a LAN (several command posts are so large that they comprise several LANs). Tactical LANs can be configured as switch-based or router-based architecture interconnecting the various systems. Routers on the LAN allow addressees to change as needed for jump and/or split operations. The LAN manager physically establishes, connects, and maintains the operation and troubleshoots the LAN. Figure A-2 shows a generic tactical LAN configuration. The specific LAN interfaces determine the number of devices used per LAN segment. LANs usually have a connector (port) to which an adapter is connected, and then a coaxial cable is connected between “tee” connectors on this port to form the data bus. LAN length should not exceed 600 feet.

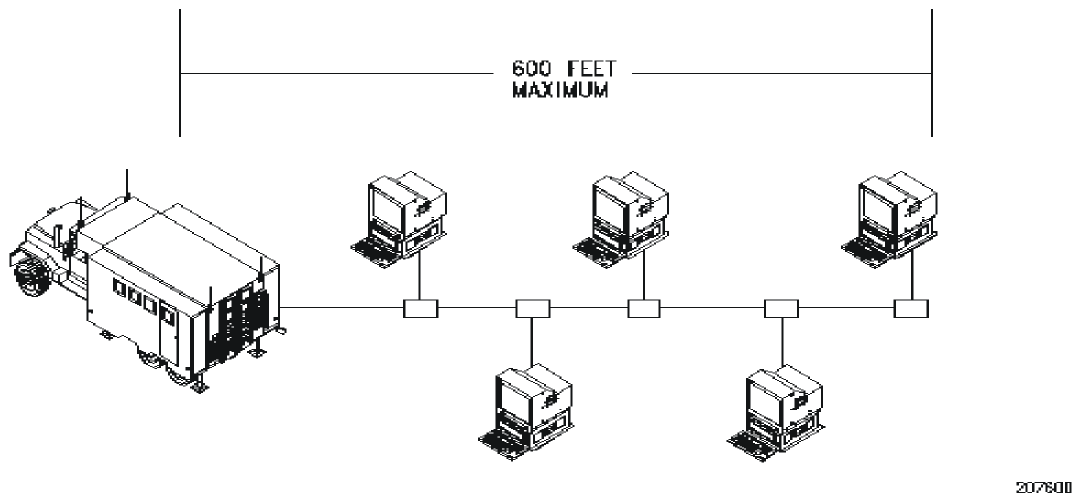


Figure A-2. Generic Tactical LAN Configuration

A tactical LAN is configured to interconnect various TOC shelters. The LAN manager is usually the deputy G6 and or S6. The corps and division deputy G6 and the brigade and battalion S6 have approval authority over all systems connected to their LAN. They ensure the LAN is connected to the WAN. See FM 24-7 for additional information.

WAN

Data and signal distribution between computer systems covering a large geographic area is accomplished by a WAN. LANs or computers connected to telephone lines, radios, or satellite links form a WAN. Figure A-3 shows several widely spread sites connected in a WAN. WANs are also valuable when some of the sites are on the move and relocate frequently. WANs require devices such as modulators/demodulators, multiplexers, or front-end processors to convert the computer data into a form, which can be transmitted over wires or radio links. In addition they must have communications software to control the transmission and reception of the data.

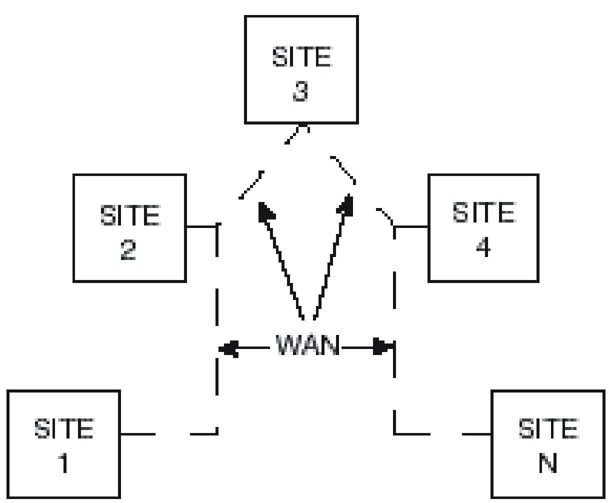


Figure A-3. WAN Connectivity

Digital command posts are normally connected on a WAN. The WAN consists of three types of networks:

- MSE network.
- Global Broadcast Service (GBS).
- Near-Term Data Radio (NTDR).

The LAN connects to the WAN at a gateway. The gateway is located in a SEN or LEN. The G6/S6 and supporting signal unit is responsible for connectivity to the SEN and WAN operations.

TI

The TI is integrated with ABCS but focused at providing the necessary information exchange for battle command at brigade and below. The FBCB2 devices of the TI are integrated into TOC LANs at battalion and brigade echelons, thus enabling information flow from the soldier/platform level to the division and throughout ABCS. EPLRS also links the TI to ABCS at the brigade and battalion TOCs. The EPLRS network provides the primary data and imagery communications transmission system at these echelons.

ROUTER

A tactical LAN consists of several separate LANs interconnected by routers. The tactical LAN interconnects the various TOC shelters. Routing is moving information across an internetwork from the source to the destination. Along the way, at least one intermediate node is encountered. Routing involves two basic activities: determination of optimal routing paths and the transfer of information groups through an internetwork. When a router receives an incoming packet of information, it checks the destination address and attempts to associate this address with the next hop (router).

SWITCHES

A LAN switch is a device that typically connects LAN segments and a high-speed port. A LAN switch has a dedicated bandwidth per port. When a LAN switch is powered up and the devices that are connected to it request services from other devices, the switch builds a table that associates addresses of each local device with the port number through which that device is reachable. See FM 24-7 for a more detailed discussion on router and switch-based TOC architecture.

TACTICAL COMMUNICATIONS INTERFACE MODULE (TCIM)

The TCIM provides Ethernet LAN-based hosts with access to the WAN for FS ABCS systems.

COMBAT SERVICE SUPPORT AUTOMATED INFORMATION SYSTEM INTERFACE-ENHANCED (CAISI-E)

The CAISI-E is a device that provides tactical network connectivity for the logistics community STAMIS. It provides packet connectivity to the TPN, allows systems using asynchronous serial protocols to communicate over Transmission Control Protocol/Internet Protocol (TCP/IP) networks, and serves as a concentrator by allowing multiple users to effectively utilize the limited access ports to the MSE TPN. The CAISI-E serves as an X router, which provides network address translation (NAT) service, Dynamic Host Configuration Protocol (DHCP), and private network for up to 252 IP addresses hidden behind a single registered IP address on the TPN/Non-secure Internet Protocol Routing Network (NIPRNET).

System Security

Information assurance investigates security vulnerabilities in distributed information systems and develops architectures, systems, and techniques for providing protection from attack and exploitation. This appendix covers the procedures for the security and protection of systems that create, process, store, and transmit sensitive but unclassified (SBU), classified, and caveated/handling coded information.

OVERVIEW

If the MAU discovers or suspects a virus or security violation, they should first notify their local terminal area security officer (TASO). The TASO will investigate the problem and determine if it can be corrected locally or if notification of the information system security officer (ISSO) is required. If it is determined that the problem must be reported, the TASO will contact the ISSO located in the support S6. The TASO will identify the security violation or virus information, system identification, and hardware information.

Units have the ultimate responsibility to maintain information systems security (ISS) of their automated systems. Automated systems that have classified or SBU data and require external maintenance support must have data removed before the system is turned over to maintenance support. If the data is not accessible because of a faulty drive reader or some other fault, the data on the system must be cleared, purged, declassified, or destroyed before the system is turned over to maintenance support.

SECURITY PROCEDURES

The information systems security manager (ISSM) is responsible for the security of all information systems and media assigned to the organization and under his purview. To protect these assets, he must ensure that the security measures and policies contained within this appendix are followed. Additionally, the ISSM will publish supplemental organizational procedures (standing operating procedures (SOPs), and so forth), if needed, to implement the requirements herein.

The procedures contained below meet the minimum-security requirements for the clearing, declassifying, degaussing, destruction, storage, sanitizing, and overwriting of magnetic media. These procedures will be followed when it becomes necessary to release magnetic media, regardless of classification, from sensitive compartmented information (SCI) channels.

Overwriting cannot sanitize media that has contained SCI, other intelligence information, or restricted data; such media must be degaussed before release. Media that never contained cryptographic (CRYPTO) material cannot be sanitized at all; such media must be destroyed.

CLEARING MEDIA

Clearing media is erasing or overwriting all information on the media without the totality and finality of purging. The clearing procedure is adequate when the media will remain within a certified facility (vault, room, and so forth); however, removable media that is not cleared must continue to be controlled at its prior classification or sensitivity level. Purging or sanitizing of media means to erase or overwrite, totally and unequivocally, all information stored on the media.

DECLASSIFYING MEDIA

Declassifying media is the administrative action taken after it is purged. Declassifying is required when the media must leave the facility under the control of uncleared personnel; that is for maintenance operations.

Media can be declassified only after purging. The appropriate ISSO must verify that the technique chosen for purging (or sanitizing) meets applicable requirements. The ISSO must establish a method to periodically verify the results of the purging. As a minimum, a random sampling will be taken to verify each purge.

Transporting media

Transporting any media, such as hardware/items, that could not be declassified or purged will require personnel with the same level of clearance or higher as the hardware/items being transported. This is in accordance with AR 25-IA.

DEGAUSSING

Degaussing (that is demagnetizing) is a procedure that reduces the magnetic flux on media virtually to zero by applying a reverse magnetizing field. Properly applied, degaussing renders any previously stored data on magnetic media unreadable and may be used in the sanitation process. Degaussing is more effective than overwriting magnetic media.

Magnetic media is divided into three types (I, II, and III) based on its coercively. Coercively of magnetic media defines the magnetic field necessary to reduce a magnetically saturated material's magnetization to zero. The level of magnetic media coercively must be ascertained prior to executing any degaussing procedure. The individual performing the physical degaussing of a component must ensure that the degausser can meet or exceed the coercively factor of the media and that the proper type of degausser is used for the material being degaussed. The three types of degaussers are—

- Type I, which is used to degauss Type I media (that is media for which coercively is no greater than 350 oersteds (Oe)).
- Type II, which is used to degauss Type II media (that is media for which coercively is no greater than 750 Oe).
- Type III, which is used to degauss Type III media (that is media for which coercively is in excess of 750 Oe). Currently there are no degaussers that can effectively degauss all Type III media. Some degaussers are rated above 750 Oe, and their specific approved rating will be determined prior to use.

Refer to the current issue of the National Security Agency (NSA) Information Systems Security Products and Services Catalogue (Degausser Products List Section) for the identification of degaussers acceptable for the procedures specified herein. These products will be periodically tested to assure continued compliance with the appropriate specification. National specifications provide a test procedure to verify continued compliance with the specification.

Once a degausser is purchased and becomes operational, the gaining organization must establish a SOP explaining how it will be used. Tables A-1 and A-2 provide instructions for sanitizing data storage media and system components. Data storage media will be destroyed in accordance with the designated approval authority/service certifying organization (DAA/SCO) approved methods.

MEDIA DESTRUCTION

Magnetic storage media that malfunctions or contain features that inhibit overwriting or degaussing will be reported to the ISSO. The ISSO will coordinate the repair or destruction of the media with the ISSM and responsible DAA/SCO.

Destroying is the process of physically damaging the media to the level that the media is not usable as media and there is no known method of retrieving the data. Army Regulation (AR) 380-5 governs the destruction of most AIS media. AR 380-19 and Director of Central Intelligence Directive (DCID) 1/21 provides guidance on the destruction of laser printer cartridges.

Destruction of Expendable Items

Destruction of expendable items (for example, floppy diskettes) is not authorized for release to outside of the SCI community. If these items are damaged or no longer deemed usable, they will be destroyed. When destroying, remove the media (magnetic Mylar, film, ribbons, and so forth) from any outside container (reels, casings, hard or soft cases, envelopes, and so forth) and dispose of the outside container in a regular trash receptacle. Cut the media into pieces (a crosscut chipper/shredder may be used to cut the media into pieces) and then burn all pieces in a secure burn facility. If applicable, environmental laws do not permit burning of a particular magnetic recording item; it will be degaussed, cut into pieces (a chipper/shredder preferred), and disposed of in a regular trash receptacle.

Table A-1. Sanitizing Data Storage Media

Media Type	Procedure(s)
Magnetic tape	
Type I	a or b
Type II	b
Type III	Destroy
Magnetic disk packs	
Type I	a or b
Type II	b
Type III	Destroy
Magnetic disks	
Floppies	Destroy
Bernoulli	Destroy
Removable hard disks	a or b or c
Nonremovable hard disks	a or b or c
Optical disks	
Read Only (including CD ROMs)	Destroy
Write Once, Read Many (WORM)	Destroy
Read Many, Write Many	Destroy

Procedures:

a. Degauss with a Type I degausser.

b. Degauss with a Type II degausser.

c. Overwrite all locations three times (first time with a random character, second time with a specified character, and third time with the complement of the specified character).

Note: The ISSO will perform or supervise these procedures.

Table 2. Sanitizing System Components

Type of Component	Procedure(s)
Magnetic bubble memory	a or b or c
Magnetic core memory	a or b or d
Magnetic plated wire	d or e
Magnetic-resistive memory	Destroy
Solid state memory components	
Dynamic random access memory (DRAM) (Volatile)	Destroy
If RAM is functioning	d, then e and i
If Ram is defective	f, then e and i
Static random access memory (SRAM)	j
Programmable ROM (PROM)	Destroy (see h)
Erasable programmable ROM (EPROM/UVPROM)	g, then c and i
Electronically erasable PROM (EEPROM)	d, then i
Flash EPROM (FEPROM)	d, then i

Procedures:

a. Degauss with a Type I degausser.

b. Degauss with a Type II degausser.

c. Overwrite all locations with a random character, a specified character, and then its components.

d. Overwrite all locations with a random character, a specified character, and then its components.

e. Remove all power, including batteries and capacitor power supplies from RAM circuit board.

f. Perform three power on/off cycles (60 seconds on, 60 seconds off each cycle, at a minimum).

g. Perform an ultraviolet erase according to manufacturer's recommendation, but increase time | |requirements by a factor of 3.

h. Destruction required only if ROM contained a classified algorithm or classified data.

i. Check with the DAA/SCO to see if additional procedures are required.

j. Store a random unclassified test pattern for a time period comparable to the normal usage cycle.

Note: The ISSO will perform or supervise these procedures.

Destruction of Removable Hard Disks and Disk Packs

Removable hard disks are expendable items and are not authorized for release outside of the SCI community unless they have been degaussed and declassified. Each item is considered classified to the highest level of data stored or processed on the information system in which it was used. If removable hard disks are damaged or no longer deemed usable, they are destroyed. If the platter(s) of the defective unit can be removed and the removal is cost effective, then destruction of a removable hard disk consists of dismantling the exterior case and removing the platter from the case. Local destruction of the platter consists of removing the magnetic surface by sanding.

Disk packs are considered classified to the highest level of data stored or processed on the information system in which it was used. If disk packs are damaged or no longer deemed usable, they are destroyed. Local destruction of the platter consists of removing the magnetic surface by sanding.

STORAGE MEDIA

Storage media containing SCI will be handled as stated in AR 380-19.

OVERWRITING

Overwriting is a software process that replaces the data previously stored on magnetic storage media with a predetermined set of meaningless data. Overwriting is an acceptable method for clearing. However, the effectiveness of the overwrite procedure may be reduced by several factors, including ineffectiveness of the overwrite procedures, equipment failure (for example, misalignment of read/write heads), or inability to overwrite bad sectors or tracks or information in inter-record gaps.

The preferred method to clear magnetic disks is to overwrite all locations three times (the first time with a random character, the second time with a specified character, and the third time with the complement of that specified character). The overwrite procedure must be verified by the ISSM or designee.

SANITIZING

Sanitizing is the process of removing the data on the media before the media is reused in an environment that does not provide an acceptable level of protection for the data that was on the media before sanitizing. In general, laboratory techniques cannot retrieve data that was sanitized/purged. Sanitizing may be accomplished by degaussing.

The following procedures are used to clear and sanitize magnetic storage media that is no longer useable, requires transfer, or should be released from control. Personnel needing to destroy, degauss, overwrite, declassify, downgrade, release, or ship media from AISs for all classification levels (to include COMSEC keying material) must follow the rules and Table A-1. If an item is not contained in Table A-1, the headquarters level information systems security program manager (ISSPM) must be contacted for directions.

MEMORY COMPONENTS AND BOARDS

Prior to the release of any malfunctioning memory components and boards, the following requirements will be met in respect to coordination, documentation, and written approval. This section applies only to components identified by the vendor or other technically knowledgeable individual that can retain user-addressable data. It does not apply to other items (for example, cabinets, covers, or electrical components not associated with data), which may be released without reservation. For the purposes of this section, a memory component is considered to be the lowest replacement unit in a hardware device. Memory components reside on boards, modules, and subassemblies. A board can be a module or may consist of several modules and subassemblies. Unlike magnetic media sanitation, clearing may be an acceptable method of sanitizing components for release (see Table A-2). Memory components are specifically handled as either volatile or nonvolatile.

VOLATILE MEMORY COMPONENTS

Volatile memory components do not retain data after removal of all electrical power sources; and when reinserted into a similarly configured system, do not contain residual data. Volatile memory components that have contained extremely sensitive or classified information may be released only in accordance with procedures developed by the ISSM or designee and stated in the accreditation support documentation. A record must be maintained of the equipment release indicating that, per a best engineering assessment, all component memory is volatile and that no data remains in or on the component when power is removed.

NONVOLATILE MEMORY COMPONENTS

Nonvolatile memory components that do retain data when all power sources are discontinued are ROM, programmable ROM (PROM), or erasable PROM (EPROM), and their variants that have been programmed at the vendor's commercial manufacturing facility and are considered to be unalterable in the field may be released. All other nonvolatile components (for example, removable/nonremovable hard disks) may be released after successful completion of the procedures outlined in Table B-2. Failure to accomplish these procedures will require the ISSM, or designee, to coordinate with the DAA/SCO to determine releasability.

Visual Displays

.A visual display is considered sanitized if no sensitive information is etched into the visual display phosphor. The ISSO should inspect the face of the visual display without power applied. If sensitive information is visible, destroy the visual display before releasing it from control. If nothing is visible, the ISSO shall apply power to the visual display; then vary the intensity from low to high. If sensitive information is visible on any part of the visual display face, the visual display is destroyed before it is released from control.

Printer Platens and Ribbons

Printer platens and ribbons are removed from all printers before the equipment is released. One-time ribbons and inked ribbons are destroyed as sensitive material. Wiping the surface with alcohol shall sanitize the rubber surface of platens.

Laser Printer Drums, Belts, and Cartridges

Laser printer components containing light-sensitive elements (for example, drums, belts, complete cartridges) are sanitized before release from control.

Elements containing information that is classified, but is not intelligence information, can be considered sanitized after printing three printer-font test pages.

Elements containing intelligence information are sanitized in accordance with the policy contained in DCID 1/21.

RELEASE OF SYSTEMS AND COMPONENTS

The ISSM, or designee, shall develop equipment removal procedures for systems and components and these procedures are stated in the accreditation support documentation. When such equipment is no longer needed, it can be released if—

- The ISSM, or designee, inspects it. This inspection will assure that all media, including internal disks, have been removed or sanitized.
- A record is created of the equipment release indicating the procedure used for sanitation and to whom the equipment was released. The record of release is retained for a period prescribed by the DAA/SCO.
- Procedures specified by the DAA/SCO are used.

Following release, administratively notify the DAA/SCO. The NSA/Central Security Service (CSS) Form G6522 or similar form or documentation will be used to document the local release or disposal of any information system or component.

Refer to AR 380-19, AR 25-IA, and AR 380-5 for procedures on information assurance.

Glossary

A2C2	Army Airspace Command and Control
ABCS	Army Battle Command System
ACUS	Area Common User System
ADA	Air Defense Artillery
ADDS	Army Data Distribution System
ADPE	automated data processing equipment
AFATDS	Advanced Field Artillery Tactical Data System
AIS	automated information system
AIT	automated information technology
AMC	Army Materiel Command/Area Maintenance Company
AMD	Air and Missile Defense
AMDPCS	Air and Missile Defense Planning and Control System
AMSS	Army Materiel Status System
AO	Automation Officer
AOE	Army of Excellence
AR	Army regulation
ASAS-RWS	All Source Analysis System-Remote Workstation
ASG	area support group
ASL	authorized stockage list
BCT	brigade combat team
BFA	battlefield functional area
BSA	brigade support area
BSC	base support company
C2	command and control
CAISI	Combat Service Support Automated Information System Interface
CAISI-E	Combat Service Support Automated Information System Interface-Enhanced
CASCOM	U.S. Army Combined Arms Support Command
CECOM	Communications-Electronics Command
CD-ROM	compact disk-read only memory
CHS	common hardware/software
COMSEC	communications security

CONUS	continental United States
CofS	Chief of Staff
COSCOM	Corps Support Command
COTS	commercial-off-the-shelf
CRT	combat repair team
CSB	corps support battalion
CSG	corps support group
CSS	combat service support
CSSAMO	Combat Service Support Automation Management Office
CSSCS	Combat Service Support Control System
CSLA	Communications Security Logistics Activity
CTA	common table of allowances
CTSF	Central Technical Support Facility
DAA/SCO	designated approval authority/service certifying organization
DAMMS-R	Department of the Army Movement Management System-Redesign
DASB	division aviation support battalion
DBMS	Database Management System
DC	District of Columbia
DCID	Director of Central Intelligence Directive
DDN	Defense Data Network
DISCOM	Division Support Command
DISN	Defense Information System Network
DIVARTY	division artillery
DMS	Defense Messaging System
DS	direct support
DSA	division support area
DSB	division support battalion
DTSS	Digital Topographic Support System
EAC	echelons above corps
EAD	echelons above division
ECB	echelons corps and below
ESSC	Electronic Sustainment Support Center
ETM	electronic technical manual
EW	electronic warfare
FA	functional area/field artillery
FAADC3I	Forward Area Air Defense Command, Control, Computer, and

Intelligence System

FBCB2	Force XXI Battle Command-Brigade and Below
FDD	first digitized division
FRA	forward repair activity
FS	fire support
FSB	forward support battalion
FSC	forward support company
FSCOORD	fire support coordinator
G4	Assistant Chief of Staff, G4 (Logistics)
G6	Assistant Chief of Staff for Information Management-G6
GBS	Global Broadcast Service
GCCS	Global Command and Control System
GCCS-A	Global Command and Control System–Army
GCSS-A	Global Combat Support System-Army
GMC	ground maintenance company
GOTS	government-off-the-shelf
GS	general support
GTE	General Telephone and Electronics
HCLOS	high-capacity line-of-sight
HSC	headquarters and supply company
IA	information assurance
IEW	intelligence and electronic warfare
IMETS	Integrated Meteorological System
IMO	information management officer
INE	inline network encryption
INFOSEC	information security
IP	Internet Protocol
ISS	information system security
ISSM	information system security manager
ISSO	information system security officer
ISYSCON	integrated systems control
JCDB	joint common database
LAN	local area network
LAR	logistics assistance representative
LEN	large extension node
LOGSA	logistics support activity

LOS	line-of-sight
LRU	line replaceable unit
LSE	logistic support element
MAA	mission application administrator
MACOM	major Army command
MAU	mission applications user
MCS	Maneuver Control System
METT-TC	mission, enemy, terrain, troops, time and civilian considerations
MI	military intelligence
MLRS	Multiple Launch Rocket System
MODEM	modulator/demodulator
MOS	military occupational specialty
MP	military police
MSB	main support battalion
MSE	mobile subscriber equipment
MST	maintenance support team
NC	node center
NDI	nondevelopmental items
NSA	National Security Agency
NTDR	Near Term Data Radio
OSC	objective supply capability
PC	personal computer
PEO	Program Executive Office
PMO	Project/Product/Program Management/Manager Office
PMCS	preventive maintenance checks and services
QM	quartermaster
RSC	Regional Support Center
S2	Intelligence Officer (Army)
S3	Operations and Training Officer (Army)
S4	Supply Officer (Army)
S6	Communications Staff Officer
SAAS-MOD	Standard Army Ammunition System-Modernization
SAMS	Standard Army Maintenance System
SARSS	Standard Army Retail Supply System
SCI	sensitive compartmented information
SCX	STAMIS Computer Exchange

SDS	Standard Depot System
SEN	small extension node
SINCGARS	Single-Channel Ground and Airborne Radio System
SINCGARS-ASIP	Single-Channel Ground and Airborne Radio System-Advanced System Improvement Plan
SICPS	Standardized Integrated Command Post System
SIDPERS	Standard Installation/Division Personnel System
SNMP	Simple Network Management Protocol
SME	Subject Matter Expert
SOP	Standard Operating Procedure
SPBS-R	Standard Property Book System-Redesign
SRU	shop replaceable unit
SMART-T	Secure Mobile Antijam Reliable Terminal-Tactical
SSA	supply support activity
ST	Special Text
S&T	supply and transportation
STAMIS	Standard Army Management Information System
TACSAT	tactical satellite
TAIS	Tactical Airspace Information System
TASO	terminal area security officer
TAMMIS	The Army Medical Management Information System
TCAIMS-II	Transportation Coordinator Automated Information for Movements System-II
TCIM	Tactical Communications Interface Module
TCP/IP	Transmission Control Protocol/Internet Protocol
TDA	tables of distribution and allowances
TFSA	task force support area
TI	Tactical Internet
TMDE	test, measurement, and diagnostic equipment
TOC	tactical operations center
TOE	table(s) of organization and equipment
TP	Transfer Protocol
TPN	Tactical Packet Network
TRADOC	Training and Doctrine Command
TSC	Theater Signal Command
TYAD	Tobyhanna Army Depot
ULLS-A	Unit Level Logistics System- Aviation

ULLS-G Unit Level Logistics System-Ground
ULLS-S4 Unit Level Logistics System-S4
U.S. United States
VIC3 vehicle internal command, control and communications
XO Executive Officer
WAN wide area network
WIN Warfighter Information Network
WIN-T Warfighter Information Network-Tactical

GLOSSARY

1SG	First Sergeant

A

AA	Assemble Area
AACG	Arrival Airfield Control Group
AAFES	Army and Air Force Exchange Service
AAIS	Army Automation Information System
AB	Aviation Brigade
ABCS	Army Battle Command Systems
ABE	Assistant Brigade Engineer
ACDB	ABCS Common Database
ACK	Acknowledge
ACUS	Area Common-User System
AD	Air Defense
ADA	Air Defense Artillery
ADACP	Alcohol and Drug Abuse Prevention Control
ADC	Area Damage Control/Assistant Division Commander
ADDS	Army Data Distribution System
ADO	Air Defense Officer
ADP	Automated Data Processing
AFAPD	Air Force Application Program Development
AFFS	Army Field Feeding System

AFSP	Army Food Service Program
AGR	Active Guard and Reserve
AI	Area of Interest/Authorized Items
AIMI	Aviation Intensively Managed Items
AIS	Automated Information System
AIT	Automatic Identification Technology
ALOC	Administration and Logistics Center
AM	Amplitude Modulation
AMC	Aviation Maintenance Company/Army Materiel Command/Air Mobility Command
AMC-LSE	Army Materiel Command-Logistics Support Element
AMDPCS	Air and Missile Defense Planning and Control System
AMEDD	Army Medical Department
AMO	Automation Management Office
AMPS	Aviation Mission Planning System
AMSS	Army Materiel Status System
AO	Area of Operations
AOAP	Army Oil Analysis Program
AOE	Army of Excellence
AOR	Area of Responsibility
APO	Advance Planning and Optimization
AR	Army Regulation/Armor
ARNG	Army National Guard
A2C2S	Army Airborne Command and Control System
ASA	Aviation Support Area
ASAS	All Source Analysis System

ASAS-RWS	All Source Analysis System-Remote Work Station
ASCC/ARFOR	Army Service Component Commander/Army Forces Commander
ASL	Authorized Stockage List
ASMC	Area Support Maintenance Company
ASP	Ammunition Supply Point
ASWBL	Armed Services Whole Blood Processing Laboratory
ATCCS	Army Tactical Command and Control System
ATHS	Airborne Target Handover System
ATM	Advanced Trauma Management
ATP	Ammunition Transfer Point
AUEL	Automated Unit Equipment List
AUTODIN	Automatic Digital Network
AVIM	Aviation Intermediate Maintenance
AVUM	Aviation Unit Maintenance
AXP	Ambulance Exchange Point

B

B	Bulk
BAS	Battalion Aid Station
BCC	Battlefield Circulation and Control
BCOC	Base Cluster Operations Center
BCT	Brigade Combat Team
BD	Battlefield Distribution
BDA	Battle Damage Assessment
BDAR	Battle Damage Assessment and Repair
BDCST	Broadcast Systems
BDE	Brigade

BDR	Battle Damage Repair
BF	Battle Fatigue
BFSA	Brigade Forward Support Area
BFVS	Bradley Fighting Vehicle System
BII	Basic Issue Items
BIT	Built-In Test
BITE	Built-In Test Equipment
BLAST	Blocked Asynchronous Transmission
BMO	Battalion Maintenance Officer
BMT	Battalion Maintenance Technician
BN	Battalion
BOS	Battlefield Operating System
BRAT	Blue Force Reporting and Tracking System
BRIL	Baseline Resource Item List
BRT	Brigade Reconnaissance Team
BSA	Brigade Support Area
BSC	Brigade Support Company
BSS	Brigade Surgeon Section
BVTC	Battlefield Video Teleconferencing

C

C2	Command and Control
C3	Command, Control, and Communications
C4ISR	Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance
CA	Civil Affairs
CASI/NES	CSS Automated Information Management Interface/Network Encryption System

CANTCO	Can’t Comply
CAS	Close Air Support
C2R	Command and Control Registry
CCI	Controlled Cryptographic Items
CCIR	Commander’s Critical Information Requirements
CCL	Combat Configured Load
CCS2	Command, Control, and Subordinate Systems
CDR	Commander
CD-ROM	Compact Disc-Read Only Memory
CE	Communications-Electronics
CEB	Clothing Exchange and Bath
CFS	Call for Support
CHE	Container Handling Equipment
CHL	Combat Health Logistics
CHS	Combat Health Support
CHSII	Common Hardware/Software II
CHU	Container Handling Unit
CMP	Common Message Processor
CMT	Combat Medical Team, Contact Maintenance Truck
CNR	Combat Net Radios
CO	Company
COAs	Courses of Actions
COE	Common Operating Environment
COMSEC	Communications Security
C of S	Chief of Staff
CONOPS	Continuity of Operations/Contingency Operations

CONUS	Continental United States
COSCOM	Corps Support Command
COTS	Commercial Off the Shelf
CP	Command Post
CRC	Central Reporting Center/Control and Reporting Center
CROP	Containerized Roll-In/Roll-out Platform
CRP	Common Relevant Picture
CRT	Combat Repair Team
CS	Combat Support
CSA	Corps Storage Area
CSB	Corps Support Battalion
CSC	Combat Stress Control
CSCC	Combat Stress Control Coordinator
CSG	Corps Support Group
CSM	Command Sergeant Major
CSR	Controlled Supply Rate
CSS	Combat Service Support
CSSCS	Combat Service Support Control System
CSST	Cavalry System Support Team
CTA	Common Table of Allowances
CTCP	Combat Trains Command Post
CTIL	Commander's Tracked Items List
CTIS	Central Tire Inflation System/Combat Terrain Information System
CTO	Corps Transportation Officer
CTS	Contact Test Set
CUCV	Commercial Utility Cargo Vehicle

CULT	Common Use Land Transportation

D

DA	Department of the Army
DACG	Departure Airfield Control Group
DA DCSPER	Department of the Army Deputy Chief of Staff for Personnel
DAMMS-R	Department of the Army Movement Management System-Revised
DAO	Division Ammunition Officer
DA PAM	Department of the Army Pamphlet
DASB	Division Aviation Support Battalion
DCE	Distributed Computing Environment
DHCP	Dynamic Host Configuration Protocol
DISCOM	Division Support Command
DIT	Digital Interactive Training
DIVARTY	Division Artillery
DMAIN	Division Main
DMC	Distribution Management Center
DMLSS	Division Medical Logistics Standard Support
DMOC	Division Medical Operations Center
DMS	Defense Message System
DNBI	Disease, Non-battle Injury
DNS	Domain Name Server
DNVT	Digital, Non-secure Voice Telephone
DOD	Department of Defense
DODAAC	Department of Defense Activity Address Code
DODAC	Department of Defense Ammunition Code
DODIC	Department of Defense Identification Code

DPD	Deployed Personnel Database
DS	Direct Support
DSA	Division Support Area
DSB	Division Support Battalion
DSESTS	Direct Support Electrical System Test Set
DSS	Division Surgeon Section
DSMC	Division Support Medical Company
DSVT	Digital, Secure Voice Telephone
DTG	Date Time Group
DTO	Division Transportation Officer
DTSS	Digital Topographic Support System
DVE	Driver Vision Enhancer
DZ	Drop Zone

E

EAB	Echelons Above Brigade
EAC	Echelons Above Corps
EAD	Echelons Above Division
ECB	Echelons Corps and Below
ECCM	Electronic Counter-Counter Measures
EEFI	Essential Elements of Friendly Information
EEI	Essential Elements of Information
EMT	Emergency Medical Treatment
EO	Equal Opportunity
EOD	Explosive Ordnance Disposal
EOH	Equipment on Hand
EPLRS	Enhanced Position Location Reporting System

EPW	Enemy Prisoner of War
ESE	Engineer Support Element
ESSC	Electronic Systems Support Center
ETA	Estimated Time of Arrival
ETM	Electronic Tech Manual
EW	Electronic Warfare
	F
FA	Field Artillery
FAAD	Forward Area Air Defense
FARP	Forward Arming and Refueling Point
FAS	Forward Aid Station
FBCB2	Force XXI Battle Command Brigade & Below System
FDRP	First Destination Reporting Point
F & E	Fuel & Electrical
FDRP	First Destination Reporting Point
FFIR	Friendly Forces Information Requirement
FLC	Force Level Concept
FLE	Forward Logistics Element
FM	Field Manual, Frequency Modulation
FMC	Fully Mission Capable
FPF	Final Protective Fires
FPL	Final Protective Line
FRAGO	Fragmentary Order
FRCP	Flatrack Collection Point
FRS	Forward Repair System
FS	Fire Support

FSB	Forward Support Battalion
FSC	Forward Support Company
FSMC	Forward Support Medical Company
FSO	Fire Support Officer
FSSP	Fuel System Supply Point
FST	Forward Surgical Team
FUPP	Full-Up Power Pack

G

GBS	Global Broadcast System
GCCS-A	Global Command and Control System-Army
GCSS-ARMY	Global Combat Support System-Army
GMC	Ground Maintenance Company
GMLR	Guided Missile & Large Rockets
GOTS	Government off the Shelf
GPS	Global Positioning System
GS	General Support
GSE	Ground Support Equipment
GTN	Global Transportation Network

H

HAVECO	Have Complied
HAZMAT	Hazardous Materiel
HCP	Health Comfort Package
HE	High Explosive
HEMTT	Heavy Expanded Mobility Tactical Truck
HERCULES	Heavy Equipment Recovery Combat Utility Lift and Evacuation System

HET	Heavy Equipment Transporter
HF	High Frequency
HHC	Headquarters and Headquarters Company
HDC	Headquarters and Distribution Company
HHD	Headquarters and Headquarters Detachment
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HNS	Host Nation Support
HQ	Headquarters
HSC	Headquarters and Supply Company
HSMO	Health Service Materiel Officer
HSSO	Health Service Support Officer
HTAR	Hot Tactical Aircraft Refueling System
HVY	Heavy
HZ	Hertz

I

IAW	In Accordance With
IDM	Improved Data Modem
IETM	Interactive Electronic Technical Manual
IEW	Intelligence and Electronic Warfare
IFTE	Integrated Family of Test Equipment
IFV	Infantry Fighting Vehicle
IHFR	Improved High Frequency Radio
IMETS	Integrated Meteorological System
INE	Inline Network Encryptor
INMARSAT	International Maritime Satellite Telephone
INTSUM	Intelligence Summary

IPB Intelligence Preparation of the Battlefield

ISO International Standardization Organization

ISYSCON Integrated System Control

ITO Installation Transportation Office

ITV In Transit Visibility

J

JCDP Joint Common Database

JP-8 Jet Propulsion Fuel, Type 8

JSTARS Joint Surveillance Target Attack Radar System

JTIDS Joint Tactical Information Distribution System

JTMIP Joint Theater Medical Information Program

K

KCLFF Kitchen Combat Level Field Feeding

KHZ Kilohertz

KIA Killed In Action

KW Kilowatt

L

LAN Local Area Network

LAR Logistical Assistance Representative

LEN Large Extension Node

LHS Load Handling System

LIN Line Item Number

LMCS Land Missile Combat System

LMTV Light/Medium Tactical Vehicles

LNO Liaison Officer

LOC	Line of Communication
LOD	Line Of Duty
LOGCAP	Logistics Civil Augmentation Program
LOGPAC	Logistics Package
LOGSA	Logistics Situation Awareness/Logistics Support Agency
LOGSITREP	Logistics Situation Report
LOS	Line of Sight
LOTS	Logistics Over The Shore
LP	Listening Post
LPB	Logistics Preparation of the Battlefield
LPXMED	Logistics Processor External-Medical Module
LRP	Logistics Release Point
LRU	Line Replaceable Unit
LTF	Logistics Task Force
LTO	Logistics Task Order
LZ	Landing Zone

M

MA	Mortuary Affairs
MACOM	Major Command
MACP	Mortuary Affairs Collection Point
MAS	Main Aid Station
MC	Movement Control
MC4	Medical Communications for Combat Casualty Care
MCL	Mission Configured Load
MCM	Multi-Capable Maintainer
MCO	Movement Control Office

MCOO	Modified Combined Obstacle Overlay
MCS	Maintenance Control Section, Maneuver Control System, Master Control Station, Maintenance Control Supervisor
MCSR	Mission Condition Status Report
MCT	Movement Control Team
MDT	Medical Detachment -Telemedicine
MEDEVAC	Medical Evacuation
MEDLOG	Medical Logistics
MES	Medical Equipment Set
METL	Mission Essential Task List
METT-TC	Mission, Enemy, Terrain, Troops, Time Available, and Civilian
MH	Mental Health
MHE	Materials Handling Equipment
MHZ	Megahertz
MI	Military Intelligence
MIDS	Multi-functional Information System
MIG	Metal Inert Gas (Welding)
MIA	Missing In Action
MILVAN	Military Van
MKT	Mobile Kitchen Trailer
MLRS	Multiple Launch Rocket System
MMMB	Medical Materiel Management Branch
MO	Magneto Optical
MOPMS	Modular Packed Mine System
MOPP	Mission Oriented Protection Posture
MOS	Military Occupation Specialty

MP	Military Police
MPL	Mandatory Parts List
MRE	Meal, Ready To Eat
MRM	Maintenance Reporting and Management
MRO	Materiel Release Order
MSE	Mobile Subscriber Equipment
MSR	Main Supply Route
MSRT	Mobile Secure Radio Telephone Terminal
MST	Maintenance Support Team
MTF	Medical Treatment Facility
MTOE	Modified Table of Organization and Equipment
MTS	Movement Tracking System
MTV	Medium Tactical Vehicles
MWR	Morale, Welfare, and Recreation

N

NAI	Named Area of Interest
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, Chemical
NC	Node Center
NCA	National Command Authority
NCO	Noncommissioned Officer
NCS	Net Control Station
NGO	Non-government organizations
NID	Network Intrusion and Detection
NIMA	National Imagery and Mapping Agency

NLT	No Later Than
NMC	Non Mission Capable
NMF	Node Management Facility
NMT(B2)	Network Management Tool (Brigade and Below)
NRTS	Not Repairable This Station
NRT	Near Real Time
NSL	Non-stockage List
NSN	National Stock Number
NTDR	Near-Term Digital Radio

O

OCIE	Organizational Clothing and Individual Equipment
OCOKA	Observation, Concealment and Cover, Obstacles, Key Terrain, and Avenues of Approach
OCONUS	Outside Continental United States
OEG	Operational Exposure Guidance
OP	Observation Post
OPCON	Operational Control
OPLAN	Operation Plan
OPLOGPLAN	Operations Logistics Plan
OPORD	Operations Order
OPSEC	Operations Security
OPTEMPO	Operational Tempo
ORGWON	Organization Work Order Number
OST	Order Ship Time

P

P	Package

P & A	Personnel and Administration
PA	Physician Assistant
PAM	Pamphlet
PARC	Principal Assistant Responsible for Contracting
PASR	Personnel Accounting and Strength Reporting
PBO	Property Book Officer
PDF	Protective Defensive Fires
PERSITREP	Personnel Situation Report
PIC	Personal Information System
PIR	Priority of Information Requirements
PL	Phase line
PLGR	Precision Lightweight Global Position Receiver
PLL	Prescribed load list
PLS-E	Palletized Load System-Enhanced
PM	Provost Marshall/Program Manager
PMCS	Preventive Maintenance Checks and Services
PMM	Preventative Medicine Measures
PND	Position/Navigation Device
POC	Point of Contact
POD	Port of Debarkation
POE	Port of Embarkation
POL	Petroleum, Oils and Lubricants
POM	Preparation for Overseas Movement
PSD	Personnel Service Detachment
PSG	Platoon Sergeant
PUMA	Pocket Unit Maintenance Aid

PVNTMED Preventive Medicine

PVO Private Volunteer Organization

Q

QC Quality Control

QM Quartermaster

QRF Quick Reaction Force

QSS Quick Supply Store

R

R&S Reconnaissance and Surveillance

RBM Receive Broadcast Manager

RC Reserve Components

RDD Required Delivery Date

RECON Reconnaissance

RF Reaction Force/Radio Frequency

RFID Radio Frequency Identification Tag

RMC Remote Multiplexer Combiner

ROC Rear Operations Center

ROE Rules of Engagement

ROM Refuel on the Move

RP Release Point

RPC Remote Procedure Call

RS Religious Support

RSOI Reception, Staging, Onward Movement, and Integration

RSR Required Supply Rate

RSSP Ration Supplement/Sundries Pack

RTCH Rough Terrain Container Handler

RTD	Return to Duty
RX	Reparable Exchange

S

S1	Adjutant (US Army)
S2	Intelligence Officer (US Army)
S3	Operations, Plans, Security, and Training Officer (US Army)
S4	Supply Officer (US Army)
S6	Communications Officer
S&S	Supply and Services
S&T	Supply and Transport
SA	Situational Awareness
SAAS-MOD	Standard Army Ammunition System-modernized
SALUTE	Size, Activity, Location, Unit, Time, Equipment
SAMS	Standard Army Maintenance System
SARSS-O	Standard Army Retail Supply System –Objective
SATCOM	Satellite Communications
SCAMP	Single Channel Anti-Jam Manpack Terminal
SCL	Strategic Configured Load
SEAD	Suppression of Enemy Air Defense
SEN	Small Extension Node
SHORAD	Short Range Air Defense
SIDPERS	Standard Installation/Division Personnel System
SINCGARS	Single-Channel Ground and Airborne Radio System
SIP	Systems Improvement Program
SIPRNET	Secret Internet Protocol Network
SJA	Staff Judge Advocate

SMART-T	Secure Mobile Anti-Jam Reliable Tactical Terminal
SMFT	Semi-Trailor Mounted Fabric Tank
SO	Special Operations
SOI	Signal Operation Instructions
SOP	Standing Operating Procedure
SP	Start point
SPBS-R	Standard Property Book System-Revised
SPORT	Soldier Portable-System Repair Tool
SPT OPS	Support Operations
SRC	Standard Requirement Code
SRP	Soldier Readiness Processing
SSA	Supply Support Activity
SST	System Support Team
STAMIS	Standard Army Management Information System
STANAG	Standardization NATO Agreement
STAR-T	SHF Tri-Band Advanced Range Extension Terminal
STE	Simplified Test Equipment
STE ICE	Simplified Test Equipment/Internal Combustion Engine
STON	Short Ton

T

TAA	Tactical Assembly Area
TACAIR	Tactical Air
TACCS	Tactical Army Combat Service Support Computer System
TACSAT	Tactical Satellite
TAMMIS-D	Theater Army Medical Management Information System-Division

TAMMS	The Army Maintenance Management System
TAV	Total Asset Visibility
TB	Technical Bulletin
TC	Training Circular/Tank Commander
TC-ACCIS	Transportation Coordinator's-Automated Command and Control Information System
TC-AIMS II	Transportation Coordinator's- Automated Information for Movements Systems II
TCF	Tactical Combat Force
TCMD	Transportation Control and Movements Document
TCN	Transportation Control Number
TCP	Traffic Control Point
TCU	Tactical Computer Unit
TDA	Table of Distribution and Allowances
TDD	Time Definite Delivery
TED	Turbine Engine Diagnostic
TF	Task Force
TFE	Tactical Field Exchange
TFM	Tactical Field Maintenance
TFSA	Task Force Support Area
TI	Tactical Internet/Technical Inspection
TIBS	Tactical Information Broadcast System
TIGER	Tactical Interactive Ground Equipment Repair
TM	Technical Manual/Team
TMDE	Test, Measurement, and Diagnostic Equipment
TMEP	Theater Mortuary Evacuation Point
TMIP	Theater Medical Information Program

TMG Tactical Multinet Gateway

TMT Transportation Motor Transport; Treatment Team

TMTC Transportation Motor Transport Company

TO Task Order

TOC Tactical Operations Center

TOE Table of Organization and Equipment

TOW Tube-launched, Optically Tracked, Wire-guided

TPS Tactical Personnel System

TPU Troop Program Unit

TQG Tactical Quiet Generator

TRADOC Training and Doctrine Command

TRP Target Reference Point

TSCMMC Theater Support Command Materiel Management Center

TSOP Tactical Standing Operating Procedure

TTP Tactics, Techniques, and Procedures

TWV Tactical Wheeled Vehicles

U

UAV Unmanned Aerial Vehicle

UCL Unit Configured Load/Unit Commander's Report

UGR-A Unitized Group Ration-A

ULLS-(A/G/S4) Unit Level Logistics System- (Air/Ground/Logistics)

UCMJ Uniform Code of Military Justice

UMCP Unit Maintenance Collection Point

UMO Unit Movement Officer

UMT Unit Ministry Team/Unit Maintenance Technician

UN United Nations

US	United States
USACASCOM	United States Army Combined Arms Support Command
USAF	United States Air Force
USAR	United States Army Reserve
UTO	Unit Task Organization

V

VHF	Very High Frequency
VMF	Variable Message Format

W

W	Watt
WAN	Wide Area Network
WIA	Wounded In Action
WILCO	Will Comply
WIN	Warfighter Information Network
WSM	Weapon System Manager
WSRO	Weapon System Replacement Operations

X

XO	Executive Officer

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