

## **CHAPTER TWO**

### **BATTLE SUPPORT**

#### **SECTION I. MAINTENANCE SUPPORT CONCEPT**

##### **2-1. INTRODUCTION**

Combat makes heavy demands on equipment. Weapons systems and other items are subjected to severe use. Even though time may be limited, the continued availability of equipment demands that the operator/crew continue to perform essential checks and services.

Support organizations are tailored to respond to changes in the units and weapon systems. Maintenance managers throughout divisions must coordinate to make maximum use of available resources. Maintenance work is performed as far forward as practical within the limitations of the commander's priorities, resources and time available, the tactical situation, and other factors. Recovery or evacuation moves inoperable equipment to the maintenance activity best suited for the repair, or to balance the work load of forward elements so that they can meet new requirements. Maintenance operations throughout the division must be mutually supportive for maximum effectiveness.

Maintenance support planning must anticipate requirements for personnel, equipment, and repair parts and the effective use of these resources. Sup-

port planning must also recognize the limitations maintenance units have in armor protection, mobility, and communications. These severely restrict the ability of maintenance support teams (MST) to keep up with combat elements and to survive in the forward areas. Specific maintenance support planning considerations include--

- Tactical situation.
- Time and distance factors.
- Backup support responsibilities.
- Command priorities for support.
- Critical weapons systems and repair availability.
- Proposed locations of maintenance control points.
- Changes in maintenance time guidelines.
- Changes in the cannibalization/controlled substitution policies.
- Overall work load.
- NBC defense and decon requirements.

## MAINTENANCE BATTLE SUPPORT MANAGEMENT

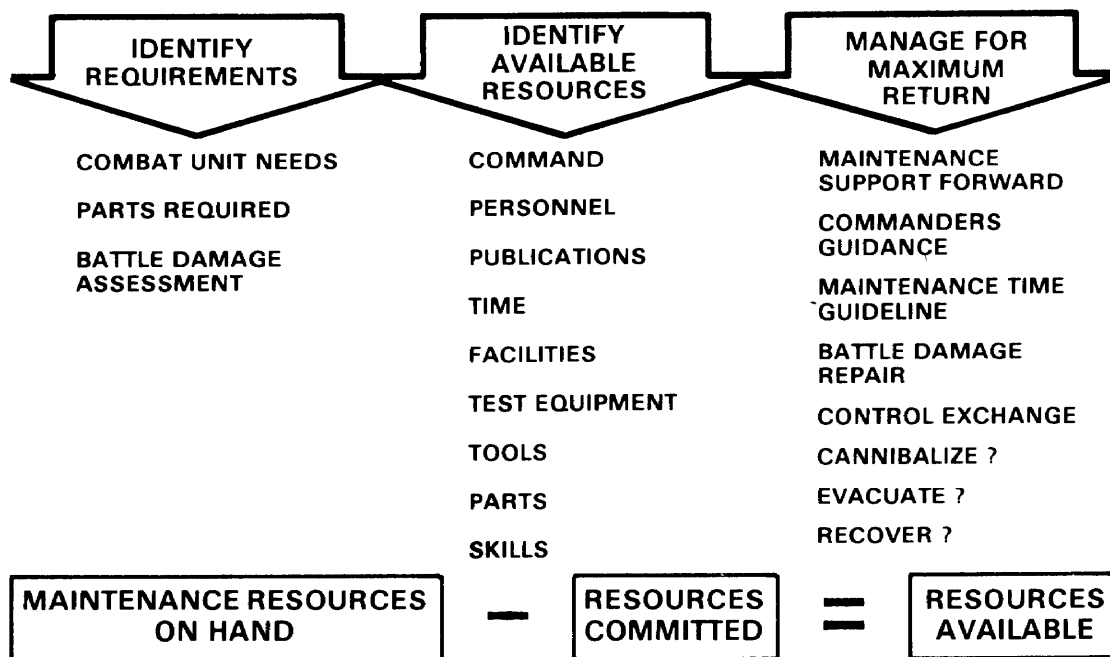


Figure 2-1. Battle support management

Figure 2-1 shows the basic concept for managing battle support maintenance. Before support can be provided, the requirement must be identified. When requirements have been identified, the maintenance manager must identify the resources on hand and the resources already committed. Available resources are then managed within the established support framework to return the maximum number of critical items to the battle. When a shift or change in priorities could provide a greater overall return, the maintenance manager takes appropriate action or makes recommendations through the chain of command.

### 2-2. CENTRALIZED CONTROL OF DECENTRALIZED OPERATIONS

Maintenance managers at all levels must retain control over the maintenance operations within their responsibility, even though the support is decentralized. This provides support as far forward as possible and focuses available maintenance resources on the work to be done.

The manager must be aware of both the maintenance work load and available resources in order to make good decisions. Since the situation may change rapidly, information must be as near real time as possible.

The manager must direct the application of maintenance resources or shift the work load to the maintenance elements best suited to do the repair. Damaged equipment awaiting repairs on one part of the battlefield, while maintenance personnel are idle on another, must be avoided.

Communications and accurate reporting are essential. The maintenance reporting systems provide responsive information, but must have timely and accurate input to make them work. In addition, automated information systems are subject to EW countermeasures and disruption by electromagnetic pulse (EMP). Alternative means of communication and reporting must be available to maintain continuity of operations.

Maintenance personnel must be prepared to act independently in the absence of instructions caused

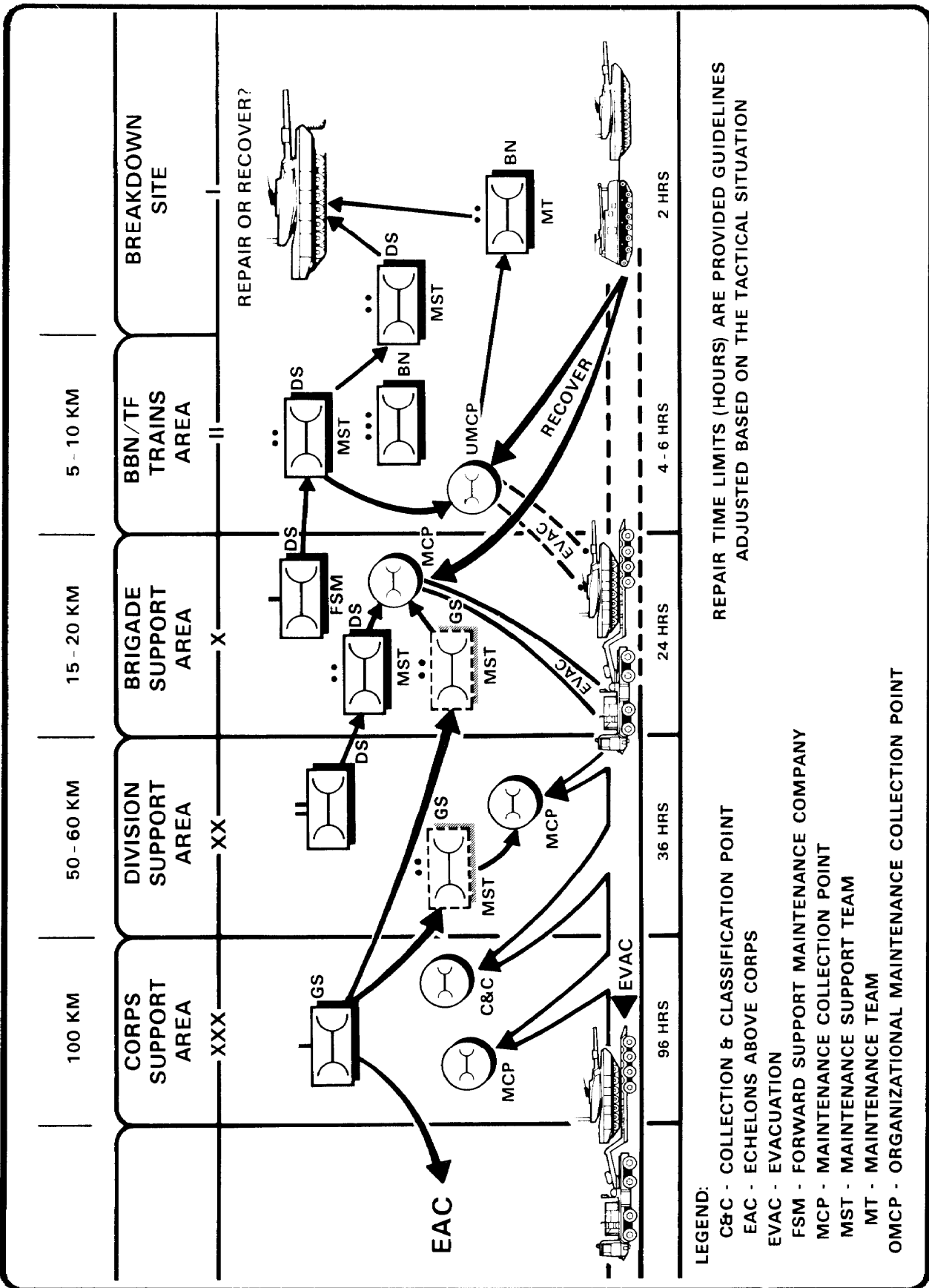


Figure 2-2. Maintenance on the battlefield.

by lack of communications. They must use professional judgment, guided by experience, to respond to changes in the maintenance situation and the needs of the supported unit.

### 2-3. REPAIR VERSUS RECOVERY

When equipment becomes inoperable, the applicable manager must decide whether to repair it on site or to recover it to a maintenance activity.

Whenever possible, repair equipment on site. This uses the least amount of resources and gets the equipment back to the user in the least amount of time. On-site repair, however, may not always be practical. The tactical situation; extent of damage; availability of personnel, tools, and repair parts; and other factors may make it more advantageous to recover the equipment. The repair versus recovery decision must be made on a case-by-case basis.

### 2-4. SELECTING REPAIR LOCATION

MACs and past experience provide estimated repair times. The estimated time can be compared to maintenance time guidelines for an indication of the location best suited for the repair.

Other factors, including the tactical situation, criticality of the equipment, work load, and possibility of MST repair further forward, should also be considered. Figure 2-2 on the previous page displays the repair, recovery, and evacuation decision process.

### 2-5. MAINTENANCE TIME GUIDELINES

Maintenance Repair Time Guidelines. Time guidelines are established to assist maintenance leaders in deciding where to repair equipment. This

prevents equipment from accumulating in the forward area and aids in distributing the maintenance work load. Repair/ recover/evacuate decisions are made at all levels based on the time required to repair.

Times are based on command policy and the factors of METT-T. The guidelines are considered flexible and not restrictive. They begin with the completion of the diagnosis made by operator and crew and end when the equipment is returned to battle. They do not include evacuation, preparation, and movement time. Table 2-1 illustrates maintenance repair time guidelines.

### 2-6. MAINTENANCE IS A COMMAND RESPONSIBILITY

Commanders must ensure that equipment issued to their units is serviceable and combat ready and that it is properly used, maintained, and accounted for. Commanders are responsible for:

- Advising higher commanders of their equipment replacement and maintenance support requirements.
- Complying with instructions and procedures for preventive maintenance checks and services (PMCS), training, and allocating sufficient time for performing PMCS.
- Maintaining equipment to the Army's -10/-20 maintenance standard [AR 750-1].

Table 2-1. Maintenance time guidelines.

LOCATION	HOURS
ON SITE .....	2
COMBAT TRAINS/UNIT MAINT COLLECTION .....	6
BRIGADE SUPPORT AREA (BSA) .....	24
DIVISION SUPPORT AREA (DAS) .....	36

## 2-7. MISSION ESSENTIAL MAINTENANCE OPERATIONS (MEMO)

During combat, only maintenance needed to return equipment to mission capable status is performed. This concentrates the maintenance effort on those areas which affect the outcome of the battle. Nonmission essential maintenance is deferred until after the battle. Sometimes a weapon system may contain redundant systems which enable it to operate even when one or more of these systems are damaged. Commanders may decide to keep a weapon system in the battle at a reduced capability rather than to lose it entirely while the faulty system is repaired.

## 2-8. WEAPON SYSTEM REPLACEMENT OPERATIONS (WSRO)

The maintenance effort in support of combat operations is closely coordinated with WSRO. The aim of WSRO is to place a crewed, fueled, armed, ready-to-fight weapon system in the hands of the user. To do this the maintenance, supply, personnel replacement, and transportation activities must be coordinated. This is done by weapon systems managers (WSM) from each level of command as follows.

**Battalion.** The battalion/task force executive officer (XO) is normally the WSM. The battalion WSM allocates weapon systems to companies based on unit losses, assets available, and the commander's priorities. After cross leveling surviving crews and combat vehicles at the lowest level, the company and battalion WSMs forward their requirements using the weapon system status report.

**Brigade.** The XO maintains weapons systems information. However, because the brigade is a tactical rather than administrative headquarters, the brigade's operational involvement is usually limited to establishing priorities.

**Division.** A WSM is appointed within the DMMC and works with a personnel warrant officer or NCO designated by the division G-1. The WSM must coordinate with the materiel officer in the DMMC to obtain the number of weapons systems in DS maintenance units.

## 2-9. IMPLEMENTING BATTLE DAMAGE ASSESSMENT AND REPAIR

As discussed in Chapter 1, BDA involves inspecting damaged equipment to determine the extent of damage, classifying the equipment according to the

type of repairs required, and developing a plan of action for each item. Priorities for repair of battle damaged systems are usually as follows:

- Most essential to completion of the immediate mission.
- Can be repaired in the least time.
- Repairable, but not in time to continue the immediate mission.
- Damaged beyond repair; possible candidate for cannibalization,

Battle damage repair (BDR) uses emergency expedient repairs to return the system to a fully or partial mission capable status. Under combat conditions BDR may sometimes be performed on fueled and/or armed systems. Other precautions may be waived by the commander.

## 2-10. CONTROLLED EXCHANGE

Controlled exchange is the systematic removal of serviceable parts from unserviceable, economically repairable equipment, in strict compliance with the division commander's published guidance, for immediate use to restore a like item to combat serviceability. It expedites a repair-and-return-to-user operation in support of materiel readiness or operational effectiveness.

During periods of combat or transition to combat, major Army commanders may modify the peacetime provisions of AR 750-1 to best meet the command's mission requirements.

## 2-11. CANNIBALIZATION

During combat, cannibalization is an important source of supply of critical repair parts. Cannibalization provisions for periods of combat and transition to combat must be developed by major Army and subordinate commanders. In general, these provisions should outline the circumstances, items of equipment, and the level of repair at which cannibalization will be practiced. Since prime cannibalization candidates are items damaged beyond repair, and since this determination is made at the DS level, routine cannibalization operations should be controlled at the support level. Cannibalization during peacetime is performed only by authorized activities IA WAR 710-1, AR 710-2, and DA Pam

710-2-2. Cannibalization of organic equipment by using units operating in a peacetime environment is not authorized,

#### **2-12. REPAIR AS FAR FORWARD AS POSSIBLE**

To maximize unit combat readiness, equipment must be repaired and returned to the user. Evacuation of equipment to maintenance points removes equipment from using units and increases the time equipment is not available. Repairing equipment as far forward as possible reduces transportation requirements and time, and increases equipment availability.

#### **2-13. ENSURE UNIT EQUIPMENT IS AVAILABLE**

Materiel readiness is the direct product of an effective maintenance program. The commander's goal must be to have an operational ready unit capable of its wartime mission.

#### **2-14. ORGANIZATIONAL FLEXIBILITY**

Unit maintenance managers must be aware of changing support requirements and must tailor maintenance resources to ensure support is provided as required. Restructuring maintenance teams or requesting assistance from supporting maintenance units should be made as required.

#### **2-15. REPAIR ONLY AS NEEDED**

Commanders must ensure that the degree of maintenance performed is consistent with technical and tactical requirements.

#### **2-16. USE MAINTENANCE RESOURCES PROPERLY**

Assigned personnel, tools, equipment, and other resources must be used according to standard Army supply and maintenance procedures. Diversion of resources and deviation from standard procedures reduces maintenance effectiveness.

### **SECTION II. ORGANIZATION FOR SUPPORT MAINTENANCE FORWARD OF THE BRIGADE SUPPORT AREA (HEAVY DIVISION)**

Maintenance managers, at all levels within heavy divisions as well as all CSS operators and planners, must understand task force organization and functions in order to provide timely support. CSS func-

**COMMANDERS MUST ENSURE THAT THE DEGREE OF MAINTENANCE PERFORMED IS CONSISTANT WITH TECHNICAL AND TACTICAL REQUIREMENTS.**

tions are consolidated at task force level. This allows company/team commanders to concentrate their efforts on fighting. Companies will receive CSS assets only as needed to accomplish a specific task. Otherwise, CSS assets will be kept under the control of the battalion/task force maintenance section.

## 2-17. UNIT LEVEL MAINTENANCE

The battalion maintenance officer (BMO) controls the maintenance assets within the battalion. Class IX and The Army Maintenance Management System (TAMMS) operations are centralized at the battalion maintenance section within most maneuver battalions.

Unit integrity of repair parts and records is maintained. Each company's prescribed load list (PLL) is uploaded. High usage items in support of major weapons systems are positioned in the unit maintenance collection point (UMCP) and sent forward with the company maintenance team. The remainder of the PLL remains at the field trains.

As the battalion task organizes, the BMO releases maintenance assets for those companies that are detached and accepts maintenance assets from attached companies. It is imperative that the BMO ensures that adequate personnel, tools, maintenance

and recovery vehicles, test equipment and manuals are on hand so that he can task organize the maintenance platoon to support the task force combat requirements. The BMO is concerned with providing maintenance support at three locations: the maneuver company, the UMCP, and the battalion field trains. Normally, the BMO will attach a company maintenance team with authorized personnel and equipment to each company. This attached company maintenance team provides recovery and quick-fix capability to the maneuver company. The intent is to provide on-site repair capability for those repairs requiring less than two hours and recovery capability back to the UMCP or other maintenance collection points for those items requiring more extensive repairs,

At the UMCP, repairs that require four to six hours are accomplished. A goal is to repair all but the most severely battle-damaged weapons systems, either on site or at the UMCP, Figure 2-3 presents a method of organizing a UMCP.

Since the majority of the battalion's wheeled vehicles will be located in the field trains, units may choose to operate a split PLL section. This means holding wheeled vehicle repair parts in the field trains along with some quantities of tracked vehicle repair parts items.

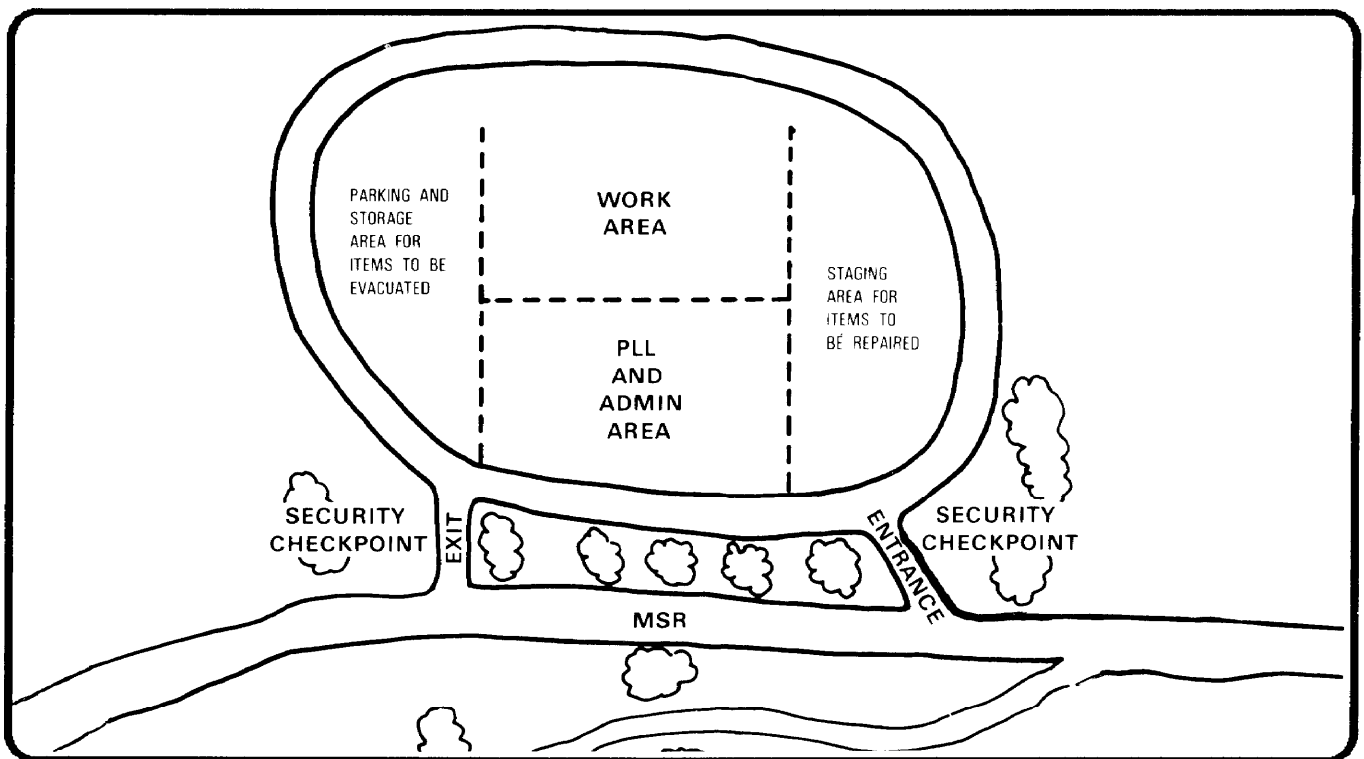


Figure 2-3. Layout of the UMCP.

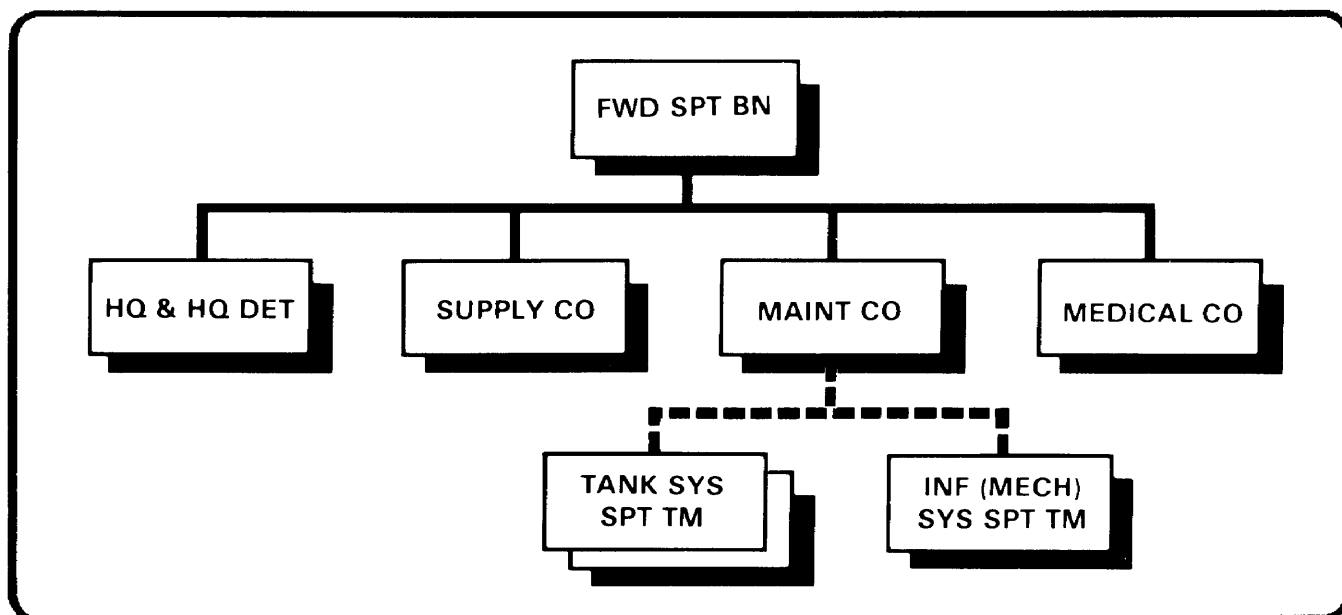


Figure 2-4. FSB organization.

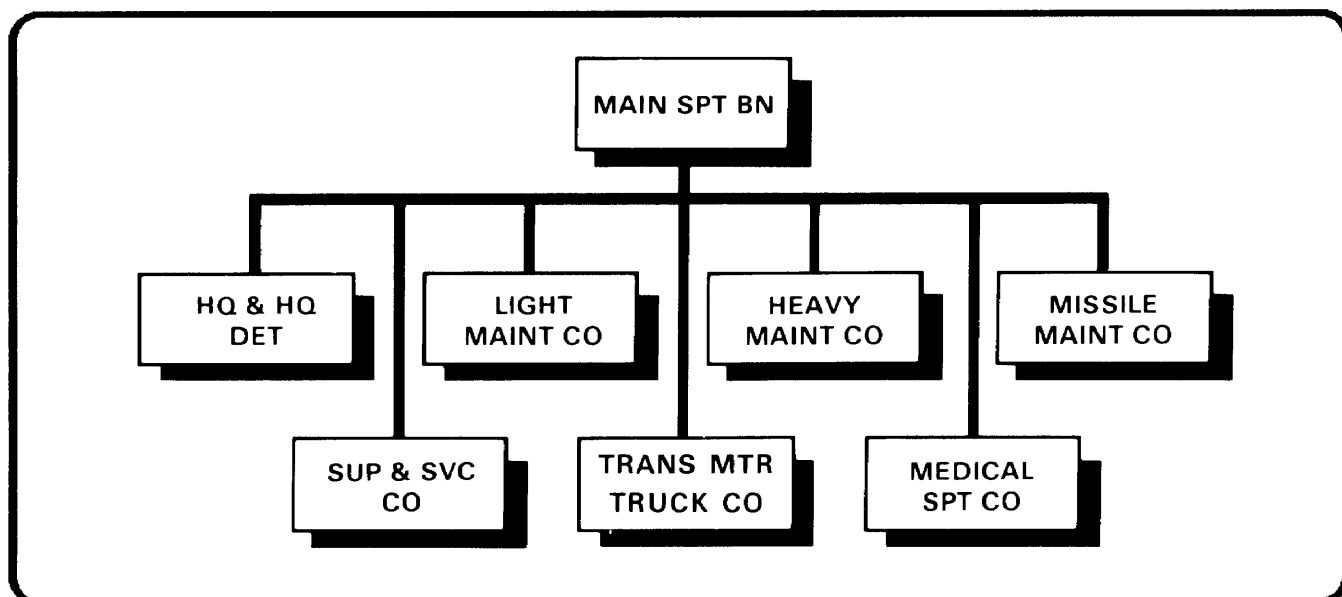


Figure 2-5. MSB organization.

## 2-18. DIRECT SUPPORT MAINTENANCE

Direct support maintenance within the heavy division is provided by forward support battalions (FSB, Figure 2-4) and the main support battalion (MSB, Figure 2-5) assigned to the DISCOM (Figure 2-6).

Battlefield maintenance support integrates unit and direct support level maintenance. This integration occurs at the UMCP and is accomplished using MSTs assigned to the forward support maintenance

company. The mission of the forward support maintenance company is to provide dedicated DS maintenance to a maneuver brigade. The maintenance company TOE provides mobile system support teams that are authorized on the basis of one per maneuver battalion. The authorization is based on supporting a pure battalion (armor or infantry). As the battalions task organize, the maintenance company commander task organizes his system- support team assets into an MST capable of supporting a task force. This MST is sent forward to the UMCP. The



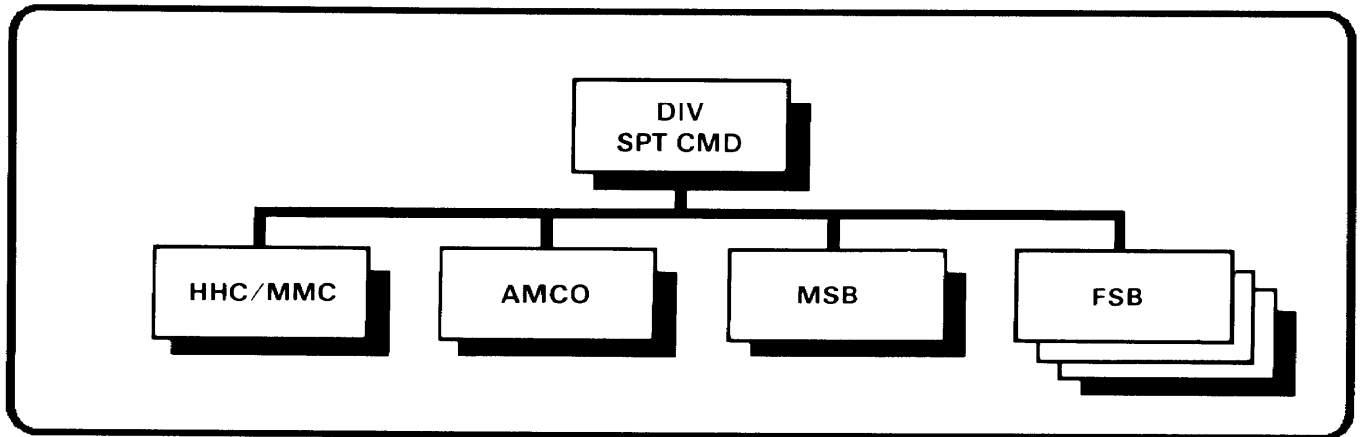


Figure 2-6. DISCOM organization.

team remains with the UMCP, is integrated into the UMCP defense plan, and receives routine administrative logistics support from the task force. Elements of the team may be sent forward to the breakdown site and, while the team is capable of performing more extensive repairs than the company maintenance team, they adhere to the same time limitations, that is, 2 hours on site and 4 to 6 hours at the UMCP. Figure 2-7 shows how SST assets can

be task organized into MSTs to support task force operations.

#### 2-19. MAINTENANCE IN THE BRIGADE SUPPORT AREA (HEAVY DIVISION)

The BSA consists of battalion task force field trains, the brigade S1/S4 administrative/logistic center, and the FSB. A maintenance collection point (MCP) is established at each of the field trains sites.

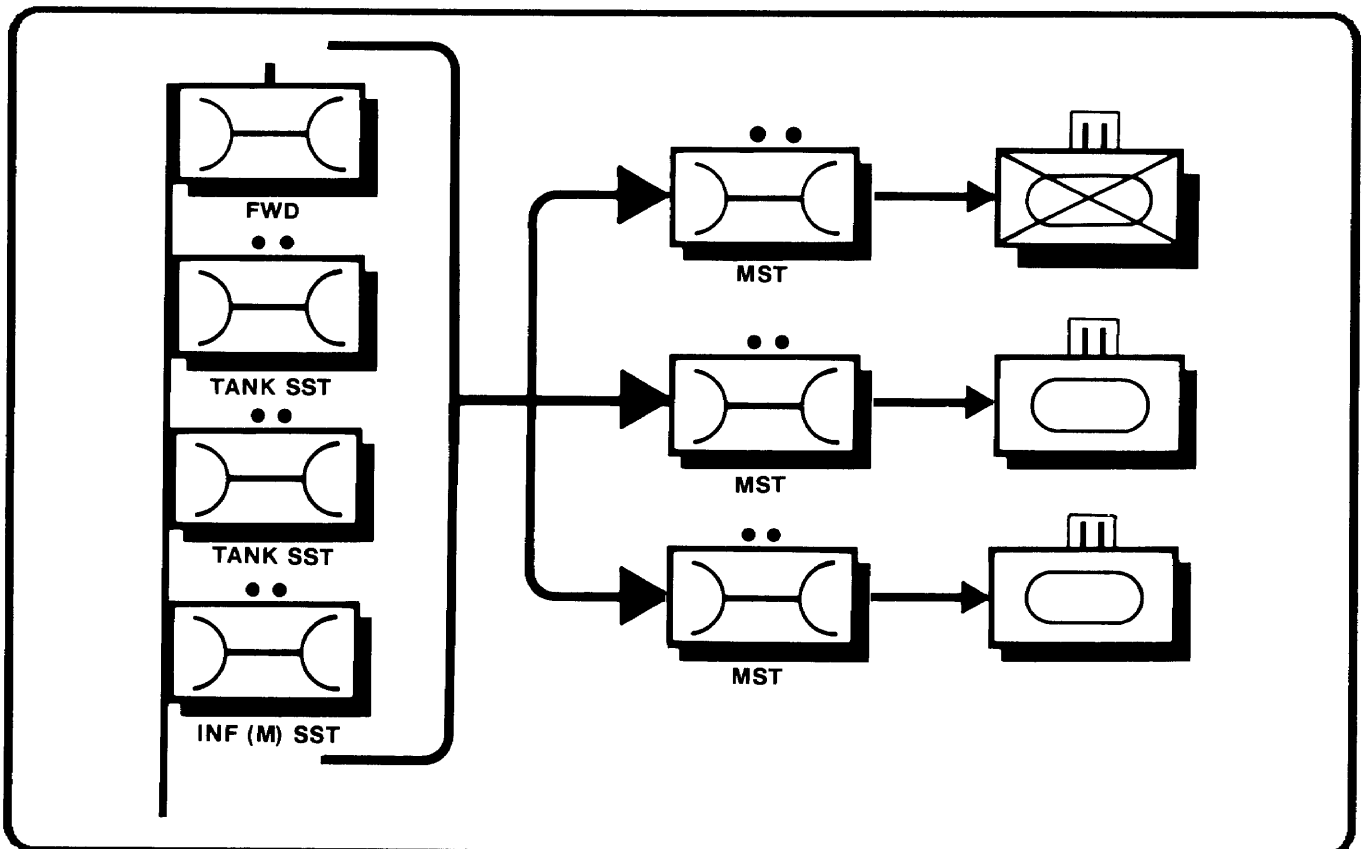


Figure 2-7. SST's task organized into MST's.

**THE FORWARD SUPPORT MAINTENANCE  
COMPANY RETAINS AN AUTOMOTIVE  
REPAIR SECTIONAL WELL AS AN  
ARMAMENT REPAIR SECTION, GROUND  
SUPPORT EQUIPMENT REPAIR SECTION,  
ELECTRONIC EQUIPMENT REPAIR  
SECTION, AND A MISSILE MAINTENANCE  
REPAIR SECTION.**

Again, unit level and DS level maintenance personnel work together to accomplish repairs within time guidelines. Repairs that can be completed within 24 hours are accomplished in the BSA. The majority of work on both wheel and track vehicles performed by the forward support maintenance company is performed at the MCPs either in the combat trains or the field trains.

The forward support maintenance company retains an automotive repair section as well as an armament repair section, ground support equipment repair section, electronic equipment repair section, and a missile maintenance repair section. The company also maintains an authorized stockage list (ASL), Figure 2-8 depicts a BSA.

The remainder of the battalion maintenance platoon is located at the field trains, normally working under the direction of the battalion motor sergeant. The focus of the field trains maintenance personnel is the repair of wheel vehicles, support equipment, and tracked vehicles requiring extensive repairs.

**2-20. MAINTENANCE IN THE DIVISION  
SUPPORT AREA (HEAVY DIVISION)**

The MSB provides DS maintenance support for units operating in the division rear. To provide a one-stop operation for supported units, MSB maintenance companies should be collocated as much as possible IAW dispersion requirement based on METT-T.

The maintenance companies in the MSB operate on the TOC/LOC concept, meaning the maintenance control section is the command, control and communications center for the companies. The maintenance control sections will have wire and FM communications to the support operations office [S00] and the S2/3 in the MSB.

The maintenance units in the MSB are 70-percent mobile and require transportation augmentation in order to relocate. The maintenance companies retain an emergency repair capability while moving, but technical supply operations for the division will be disrupted for a minimum of 24 hours.

Maintenance companies in the MSB should be able to break down, upload, and prepare to move within 4 to 6 hours after receiving the order. The companies should be able to receive work requests immediately upon arrival into a new area, and all maintenance and Class IX operations should be fully

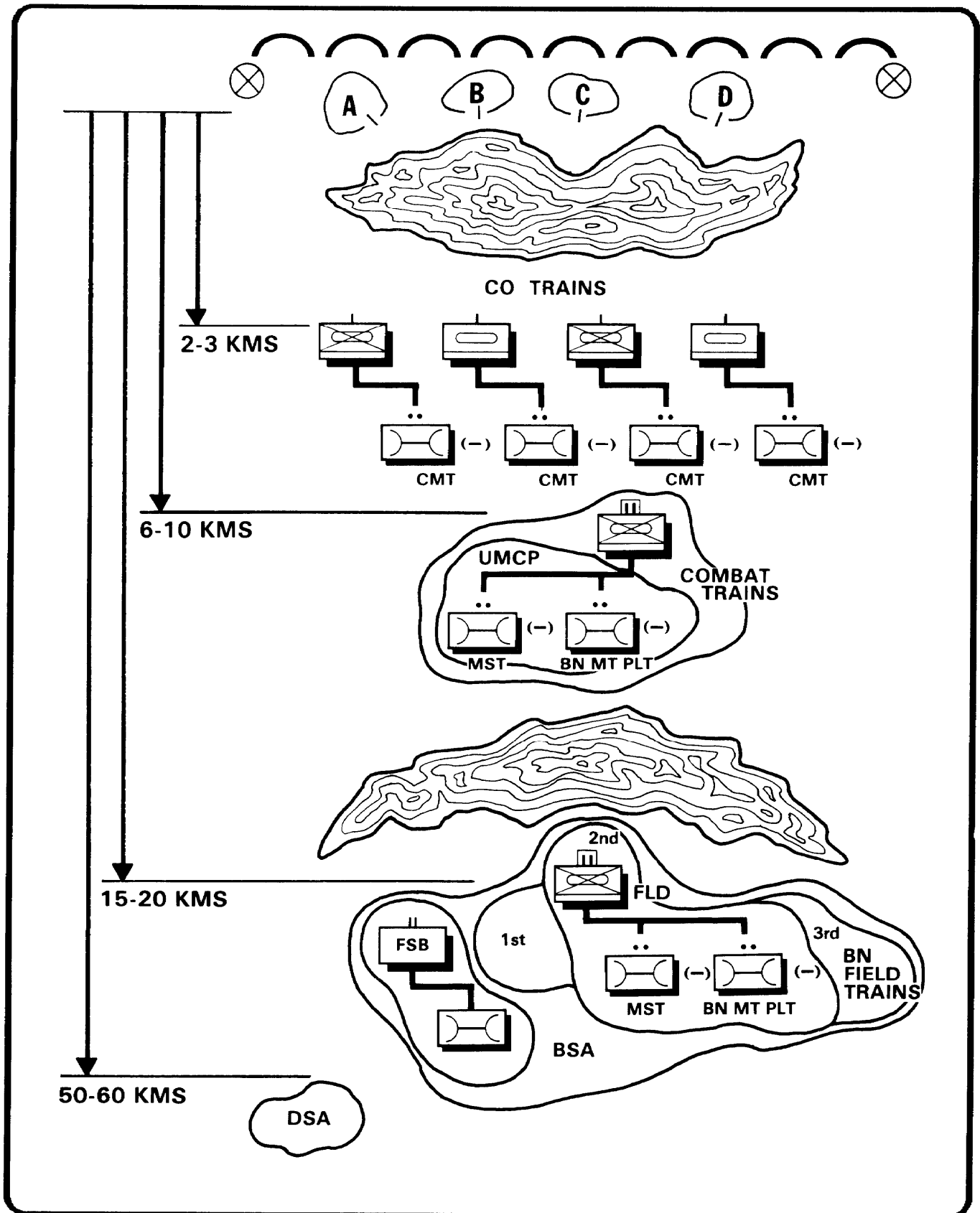


Figure 2-8. Brigade support area.

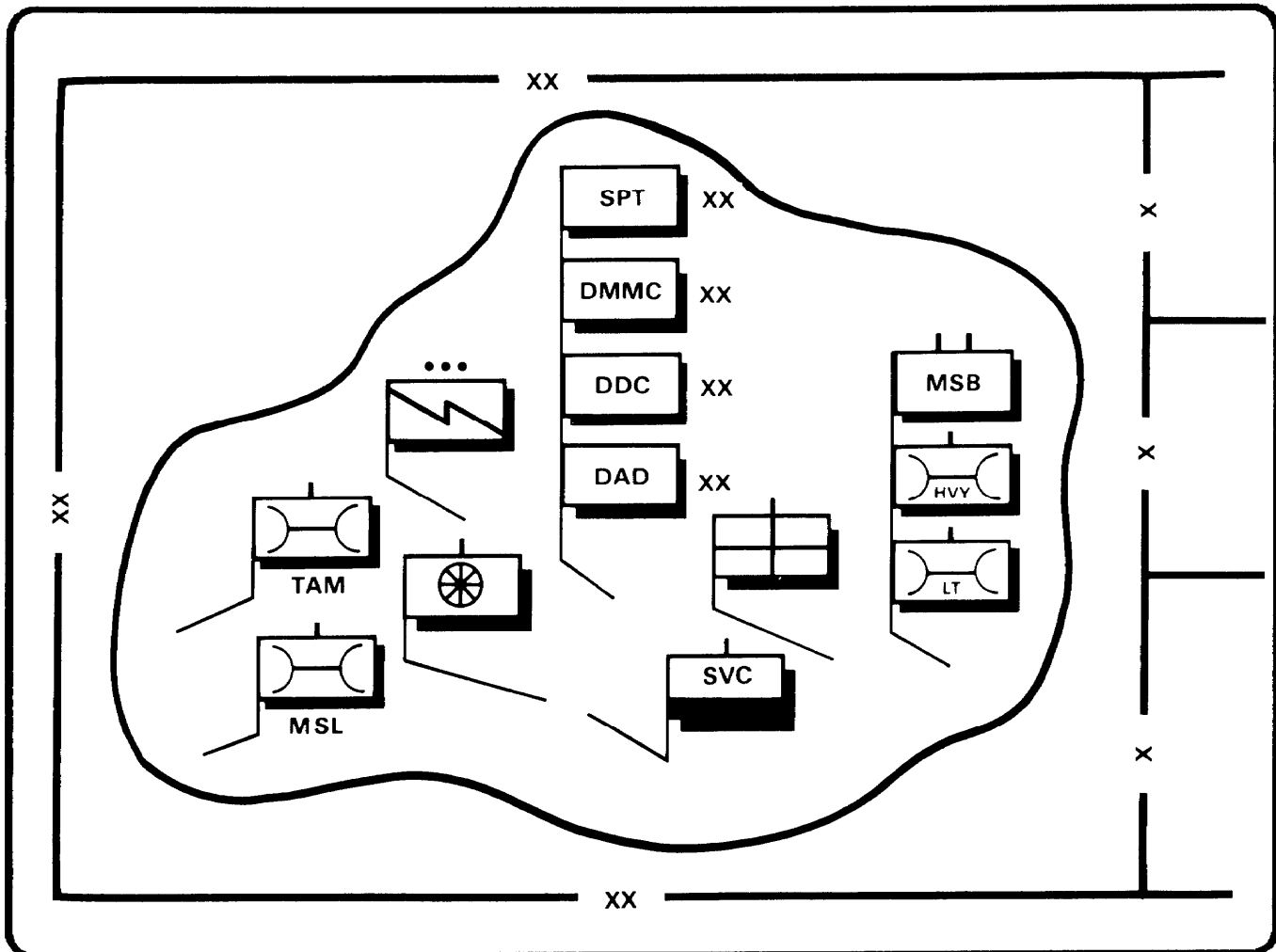


Figure 2-9. Division support area

operational 12 hours after arriving at a new site. Figure 2-9 depicts a DSA.

## 2-21. MAINTENANCE MANAGEMENT WITHIN THE DIVISION

THE MANAGEMENT OF MAINTENANCE AND SUPPLY OPERATIONS BEGINS WITH THE BMO.

The management of maintenance and supply operations begins with the BMO. The BMO controls all unit level mechanics and coordinates support from the DS maintenance mechanics assigned to the MST. The MST NCOIC establishes a mini-maintenance control section at the UMCP, capable of tracking work requests and repair parts requirements and resupply. The MST NCOIC reports information and requirements to the maintenance control section in the BSA. The MST is also the quality control for all DS level maintenance performed in the UMCP and on site. The MST NCOIC is also the primary link between the BMO and the shop officer. Class IX requirements are received on DA Form

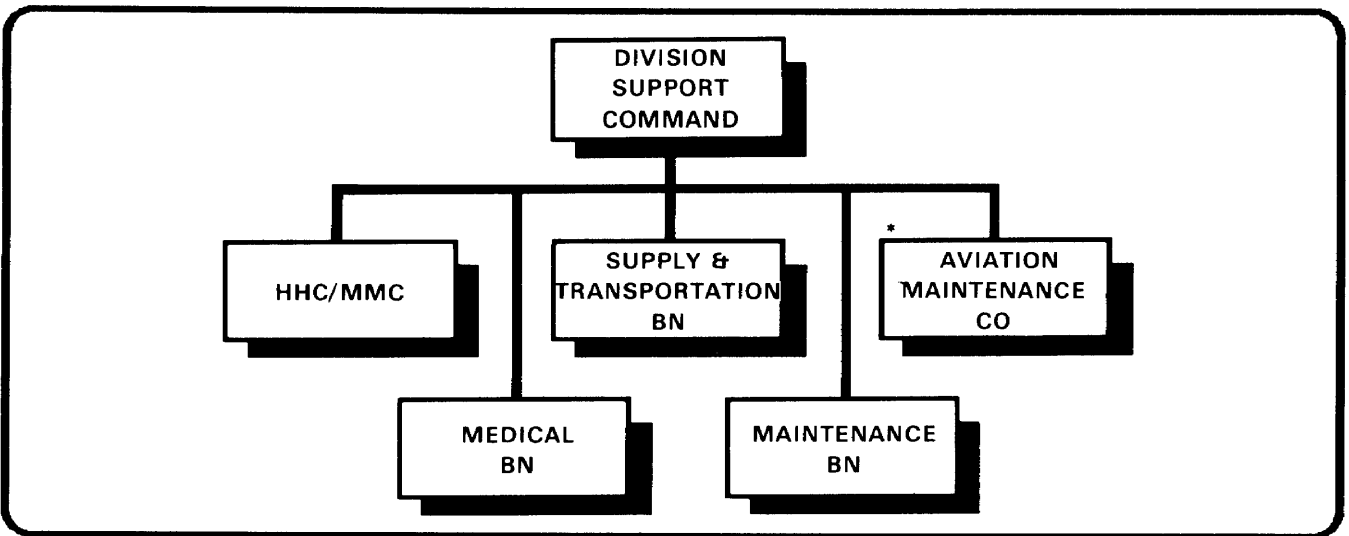


Figure 2-10. Airborne/Air Assault DISCOM.

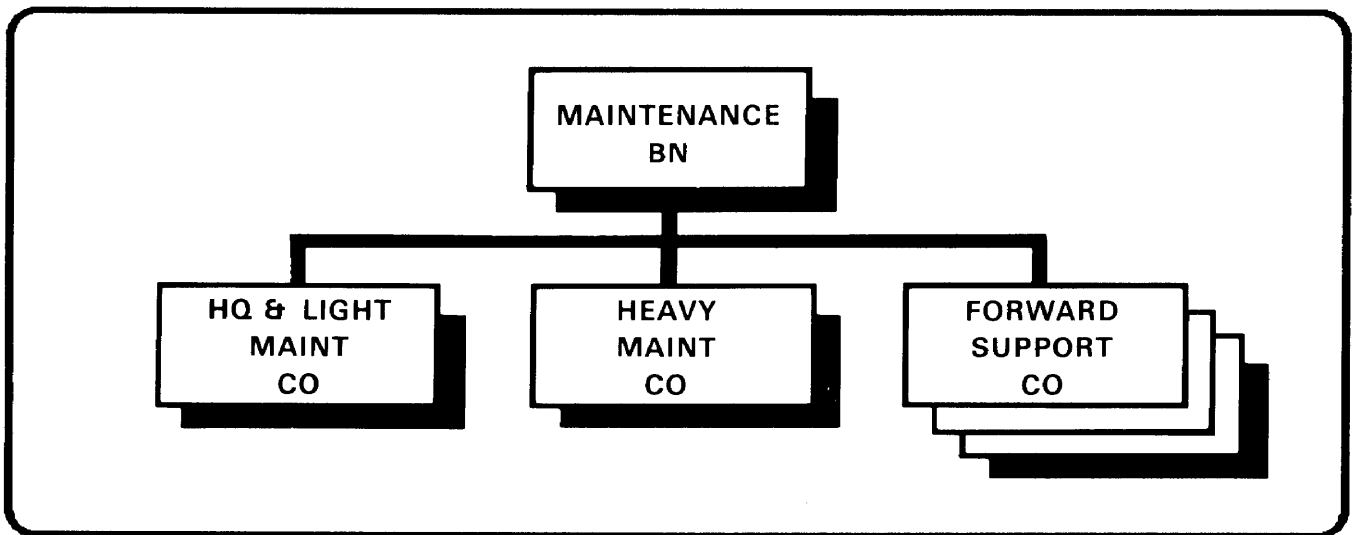


Figure 2-11. Maintenance battalion (Airborne/Air Assault DISCOM).

2404 from the operator/crew company maintenance team. DA Forms 2404 are consolidated by the company first sergeant and are brought to the UMCP. At the UMCP, requests are entered on the unit level computer (DA Form 2765 used for units not operating with the unit level logistics system). The floppy disc from the ULLS computer is then brought to the Tech Supply in the maintenance company and entered into the Tactical Army Combat Service Support Computer System (TACCS). Requests for serviceable repairable will be accompanied by the unserviceable part as well as a request for issue and a request for turn-in, unless the item is for initial issue. If the unserviceable repairable is not available, procedures in AR 735-5 apply.

## 2-22. AIRBORNE/AIR ASSAULT DIVISION MAINTENANCE

Air assault and airborne divisions have functional battalions that provide CSS to the division. Figure 2-10 provides the organization of the DISCOM. Figure 2-11 provides the organization of the Maintenance Battalion. Forward area support teams (FAST) are established that provide dedicated CSS to the brigades. The forward area support team (FAST) consists of a medical company, a maintenance company, and elements from the supply and transportation battalion. A Forward Area Support Coordination officer (FASCO) serves as the single point of contact to coordinate brigade CSS.

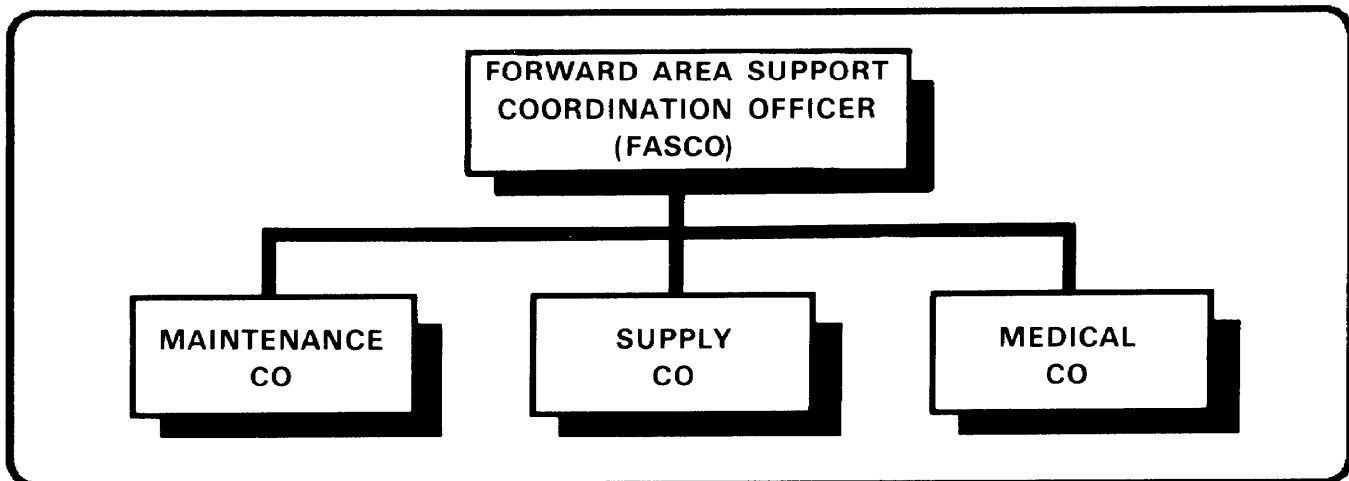


Figure 2-12. Forward area support team.

A typical FAST is shown in figure 2-12. DS maintenance and Class IX support are provided to the brigade by the forward support maintenance company. The company supports from the BSA and dispatches contact teams forward as needed. Because the support teams operate out of the BSA, the BSA is established as far forward as possible (approximately 15 km from the FEBA).

Because of the close proximity to the FEBA, the BSA must be fully prepared to engage and defeat enemy forces. The FASCO normally establishes the TOC/LOC for the FAST at the maintenance control section of the forward support maintenance company. The maintenance company commander **develops defense plans for the FAST and commands the reaction force (drawn from all elements in the FAST). The FAST has to remain mobile and be capable of displacing within one hour after receiving the order to move.** Repair parts, vans, and maintenance shops remain uploaded.

**BECAUSE OF CLOSE PROXIMITY TO THE FEBA, THE BSA MUST BE FULLY PREPARED TO ENGAGE AND DEFEAT ENEMY FORCES.**

## 2-23. DIVISION SUPPORT AREA

The remainder of the maintenance battalion is located in the DSA. The maintenance battalion normally establishes operations approximately 40-50 km from the FEBA. Units in the DSA are 70-percent mobile and require two to four hours to move.

## 2-24. LIGHT INFANTRY DIVISION MAINTENANCE

The light infantry division [LID] is organized for rapid deployment and presents planners with multiple employment options. The division may deploy in support of contingency operations into areas where there may not be US or allied bases. Thus, planners

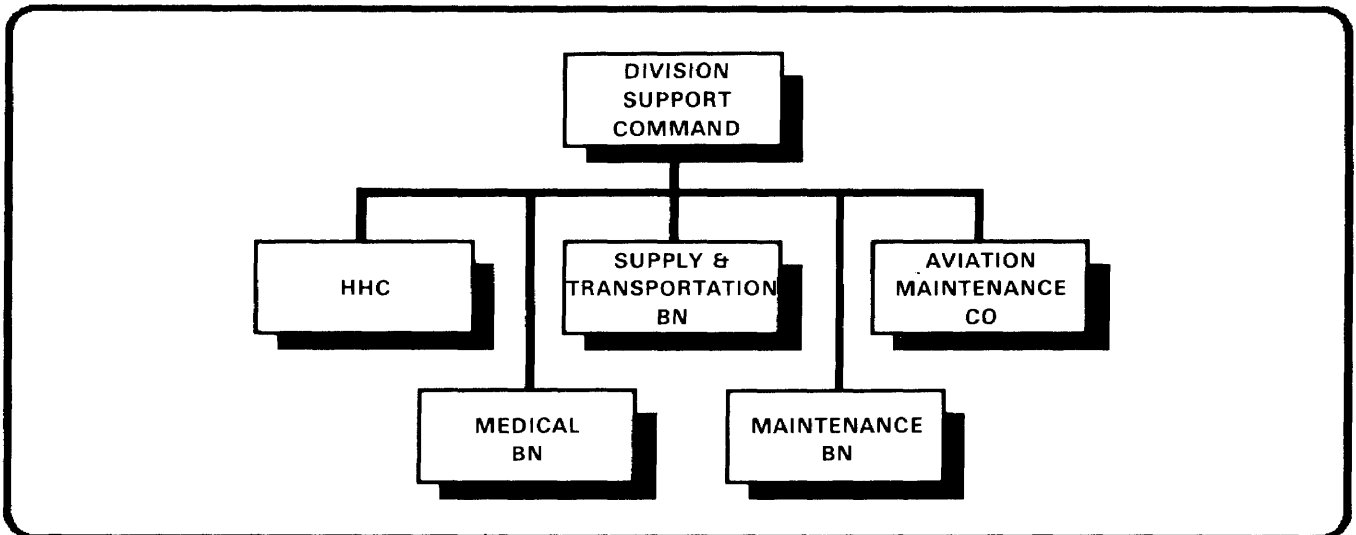


Figure 2-13. LID 131 SCOM.

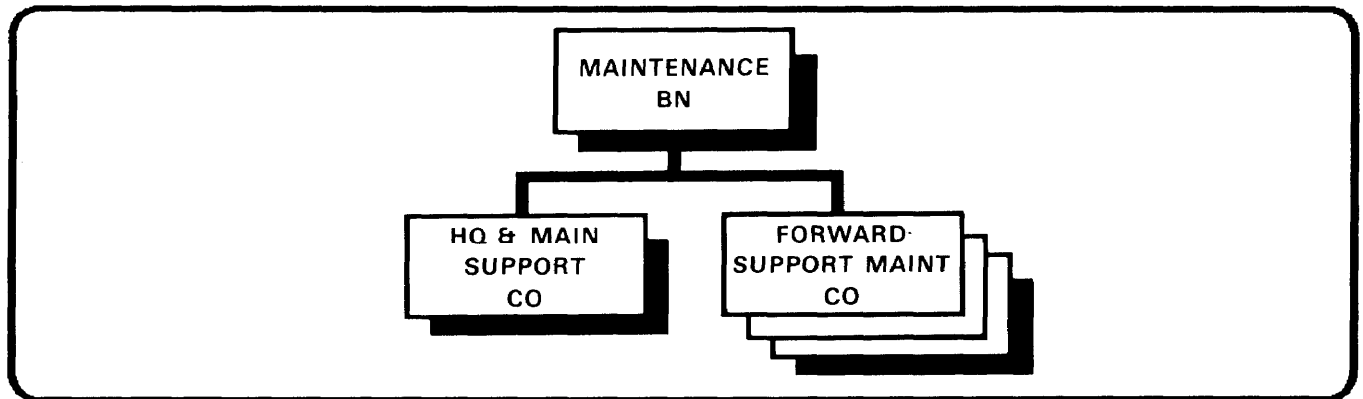


Figure 2-14. LID maintenance BN.

in the contingency deployment have to look at the most probable type of operation while retaining the ability to change organization and tailor the force to meet the mission.

To enhance the deployability of the LID, the division uses commonality of vehicles, weapon systems, and equipment. This streamlines maintenance operations and simplifies repair parts management. The LID also depends on exchange of repairable components.

The LID DISCOM is depicted in figure 2-13. The LID maintenance battalion [Figure 2-14] consists of the headquarters and main support company and three forward support maintenance companies. Each forward company is designed to operate as part of the forward area support team.

Like all other divisions, the LID relies on reinforcing support from nondivisional maintenance units to overcome shortfalls in maintenance capability. However the austerity of maintenance assets in the LID requires greater reliance on nondivisional support than other units.

To handle the workload, two maintenance teams are specifically designed to provide support to a LID. The nondivisional LID support team [43-509LP] is assigned to the supporting nondivisional maintenance company, and may be attached to the LID main support company. A nondivisional missile maintenance support team is also required to reinforce LID.

## 2-25. AIRCRAFT MAINTENANCE

Divisional aircraft maintenance policies, procedures, and units are discussed in FM 1-500.