

Chapter 6

Maintenance Support

Maintenance support improves and sustains the readiness of weapon systems and materiel systems. Maintenance optimizes the quantity and quality of materiel available for use. It maintains materiel in an operational status, restores it to a serviceable condition, or improves its performance or reliability. Since replacement equipment is scarce on the battlefield, the repair and reissue of an item is often the most expedient way to make equipment available.

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ASG MAINTENANCE MISSION AND ORGANIZATION

ASG maintenance resources concentrate on repair and return of weapon systems to operational condition. ASGs provide DS maintenance on an area support basis to units in or passing through their AO. They provide GS maintenance in support of the theater supply system. They also provide reinforcing DS maintenance to one or more corps.

A given ASG may provide GS maintenance for some commodities or it may concentrate exclusively on DS maintenance. The maintenance support organization is tailored to maintenance man hour requirements. Within an ASG AO, it may consist not only of TOE commodity maintenance organizations but also of allied or HN maintenance support organizations and forward-deployed LSE/AMC civilian or contract maintenance elements. LSE elements, described in Chapter 9, provide technical assistance to maintenance organizations within the area and work load all sustainment maintenance capability.

ASG MAINTENANCE MISSION

ASG maintenance units provide DS/GS maintenance support to units in and passing through the COMMZ. Following is information on the mission of ASG maintenance units and augmenting maintenance teams.

DS Maintenance Mission

DS maintenance focuses on repair and return to the user. Units turn in unserviceable items to their supporting DS maintenance unit. They request replacement items from the Supply Support Activity. Items that can be repaired by the DS maintenance unit are returned to the SSA. Items that cannot be repaired are evacuated to the GS maintenance level for repair.

Each ASG provides DS maintenance on an area basis. DS maintenance includes all maintenance functions beyond the limits of unit maintenance and within the restrictions placed on DS maintenance units' METT-T. The DS maintenance organization is based on the repair requirements of units supported by the ASG. All units located in, or temporarily in, the ASG's AO are eligible to receive DS maintenance support from the ASG.

Typical operations performed by DS maintenance units include —

- Diagnosing and isolating materiel or module malfunctions. This includes repair, adjustment, and alignment of modules that can be readily completed with assigned tools and TMDE.
- Repairing unserviceable, economically reparable materiel needing services beyond unit maintenance lids, but within parameters established in maintenance documentation for DS maintenance.
- Providing repair parts to supported units to replenish their PLLs and repair parts to support the DS maintenance operations.
- Providing assistance to supported units to help them inspect and appraise unserviceable equipment.
- Evaluating unserviceable assets and providing disposition recommendations. This includes assistance in performing preliminary battle damage assessment.
- Backup recovery assistance beyond the owning unit's capability, though recovering equipment is the owning unit's responsibility.

ASG DS maintenance units also provide DS maintenance support to reinforce the corps. DS maintenance work load that cannot be accomplished by corps DS maintenance units' METT-T is reported to the CMMC. The CMMC then reports the status of major end items to the MMC. If the items are urgently required, the unserviceable assets may be routed to an ASG maintenance unit.

All DS maintenance units also have a repair parts supply mission. Their ASL supports the PLLs of units in their area. They maintain a shop stock to support their base and MST operations. DS maintenance units obtain their repair parts from the GS repair parts supply company. GS maintenance units do not provide repair parts to support DS maintenance units.

GS Maintenance Mission

GS maintenance returns items to the theater supply system for issue. ASG GS maintenance units are introduced into a theater when necessary to preserve the required levels of specific commodities or weapon systems. They concentrate repair efforts on the items identified by the EAC support command. The MMC identifies GS maintenance requirements and coordinates the work load with the LSE. Depending upon the type of equipment to be repaired and the facilities available, GS maintenance units may use bay shop, job shop, and production-line methods.

Typical operations performed by GS maintenance units include —

- Repairing end items and modules for return to the supply system.
- Diagnosing and isolating malfunctions.
- Repairing modules involving significant technical procedures.
- Repairing heavy bodies, hulls, turrets, and frames.
- Fabricating or manufacturing repair parts, assemblies, components, jigs, and fixtures with prior approval from the EAC support command MMC.
- Performing limited depot-level maintenance on selected items when directed by the LSE.
- Performing DS maintenance when directed by the LSE.

ASG MAINTENANCE SUPPORT ORGANIZATION

The ASG maintenance organization depends on the availability of maintenance resources that can be provided by allied or HN maintenance organizations and civilian contractors. The forces in the theater, tactics being used, geographic features, services available from HNs, and other variables must be assessed before a maintenance structure can be recommended. Certain types of Army deployments may not require GS maintenance at all. If justified by work load, a DS/GS maintenance battalion may be attached to an ASG to command and direct three to seven maintenance units. DS maintenance units and augmentation teams may be attached to a DS/GS maintenance battalion or to a multifunctional ASB.

PLANNING AND COORDINATING MAINTENANCE SUPPORT

ASG maintenance branch personnel focus on tailoring maintenance resources to support the initial stages of an operation and then expanding those resources to performing the detailed maintenance required as the operational force matures.

It may be necessary to establish maintenance facilities in a third country support base. Equipment requiring GS maintenance could be transported by backhaul air or sea carrier to the third country support base.

AR 750-1 prescribes Army maintenance policy. Table 6-1 provides a useful maintenance support planning checklist.

MAINTENANCE BRANCH

Maintenance branch personnel assigned to the ASG support operations directorate develop estimates

and plans to ensure efficient accomplishment of current and future maintenance missions. They are responsible for detailed planning and accomplishment of ASG maintenance support programs and nonroutine procedures. They monitor SAMS-2 status reports concerning production and project trends in maintenance work load and future taskings.

Maintenance branch personnel routinely inspect maintenance shops to evaluate shop facilities, operations, and adherence to maintenance procedures. They provide technical guidance and assistance to ensure that critical work orders are completed on time and maintenance is accomplished as programmed. They measure customer satisfaction and investigate instances of dissatisfaction.

Table 6-1. Maintenance support planning checklist.

- **What are requirements and capabilities for DS maintenance, missile maintenance, and AVIM?**
- **Which units are to receive priority of support?**
- **How does weather impact on repair requirements?**
- **How will NBC threats impact on repair capabilities?**
- **What will be the DS level repair time limit?**
- **How will TMDE repair be provided?**
- **How will classification and collection be performed?**
- **How will reparable be evacuated?**
- **What major critical shortages exist?**
- **What will be the cannibalization policy?**
- **Have special power requirements been identified for maintenance facilities (voltage, phase, frequency, anticipated load)?**
- **How will salvage collection, evacuation, and disposal be covered?**
- **How will hazardous materiel, such as lithium batteries, be disposed of?**
- **Who takes care of recycling lithium batteries?**

As required, maintenance branch personnel resolve maintenance problems or discrepancies not resolved at the battalion level. Maintenance branch personnel may recommend redistribution of maintenance resources. They may shift maintenance assets from one battalion to another in response to shifts in work load.

The attachment of a maintenance unit performing specialized maintenance may necessitate a corresponding change in the staff of the maintenance branch.

SUPPLY AND SERVICES BRANCH

Personnel assigned to the supply and services branch, support operations directorate, ensure that critical repair parts are available to ASG maintenance units. They

monitor consumption of repair parts and components. They resolve problems or conflicts at maintenance units related to repair parts availability.

HN SUPPORT LOGISTICS DIRECTORATE

HN support logistics directorate personnel work with attached CA teams in coordinating the military acquisition of civilian property, facilities, and maintenance service for military use. They coordinate with the CA public works team on utilities operations. They also provide advice and assistance to engineer elements on the construction, operation, and maintenance of public works and utilities.

COMMODITY MAINTENANCE

A maintenance battalion and units are attached to an ASG to provide maintenance support for ground equipment. In addition, specialized maintenance units and teams may be attached to perform AVIM, missile maintenance, airdrop equipment maintenance, and TMDE maintenance.

GROUND EQUIPMENT MAINTENANCE

Conventional support ground equipment maintenance is accomplished by maintenance battalions assigned or attached to ASG. A maintenance battalion can command and direct three to seven maintenance units. It is cost effective to combine administrative support for DS and GS maintenance units. Two types of maintenance companies can be assigned to these battalions—

- Maintenance company (DS) (EAC support command).
- Maintenance company (GS).

Maintenance Battalions, DS or GS

The maintenance battalion's HHD provides command and tactical, training, administrative, and technical operational supervision. Refer back to Figure 2-12 on page 2-16. All ASGs have a DS maintenance mission.

Battalion staff officers exercise staff supervision over the battalion's technical maintenance support mission and resources. They provide advice and assistance in their commodity specialties to the maintenance staff of subordinate units relative to maintenance problems, procedure, and requirements. They inspect maintenance activities and recommend ways to alleviate excessive

backlogs, low production ratio, repair parts shortages, and maintenance personnel shortages in subordinate units.

Maintenance Companies (DS)

DS maintenance companies provide maintenance on an area support basis. They also provide repair parts to units located in or passing through the ASG's AOR. To do this, they must maintain an ASL that encompasses supported unit requirements. DS maintenance units also provide backup recovery for supported units. As requested, they provide technical assistance and on-site maintenance.

DS maintenance units provide support by receiving items, repairing them, and returning them to the user. Controlled exchange, cannibalization, battlefield damage repair, and other field expedients may be used to complete repairs within the guidelines on maintenance allocation charts. Excess backlog may be redirected by the EAC support command MMC to another DSU. It may be redirected to a GSU by EAC support command MMC, in coordination with the LSE. The LSE may coordinate with the EAC support command MMC to pass forward excess GS work load to a DSU, providing the DSU has the capacity and is provided the necessary tools, TMDE, and repair parts.

Four organic mobile maintenance teams provide on-site customer support. Additional maintenance teams may be attached as required. Additional allocation of these teams can be made based on known or projected maintenance requirements of units passing through or scheduled to pass through the DS maintenance unit's AOR.

Teams that may be attached to DS maintenance companies include the—

- Turbine engine repair team LA.
- Engineer equipment repair team LB.
- Track vehicle repair team LC.
- Radar repair team LF.
- Wheel vehicle repair team LG.
- Communications-electronics repair team LH.
- Tank turret repair team LI.
- Thermal sight bottle charging and cleaning station repair team LJ.
- NICAD battery charge team LK.
- ORF maintenance team LL.
- Controlled cryptographic equipment repair team LM.
- Fabric repair team LN.
- Mobile maintenance repair team LO.
- Light infantry division support team LP.
- TACFIRE repair team LQ.
- Unattended aerial vehicle equipment repair team LR.
- Towed artillery support team LS.
- Self-propelled artillery support team LT.
- MLRS support team LU.

Ordnance (Maintenance) Company, GS

The GS Maintenance Company provides GS maintenance commensurate with stated capabilities for conventional equipment end items and components for return to the supply system. The end items and components repaired are dependent upon the type of repair platoons assigned to the base company. The base company is composed of the Company Headquarters, Maintenance Control Section, Service/Lift Section, and a Supply Section. Any combination of up to five platoons may be assigned to a company. A requirement for more than five platoons results in the need for an additional company.

The platoons attached to the base company are TOEs 43549LB-LK and areas follows:

- Track vehicle repair platoon.
- Wheeled vehicle repair platoon.
- Construction equipment repair platoon.
- Armament equipment repair platoon.

- Power generation equipment repair platoon.
- Quartermaster chemical equipment repair platoon.
- Signal communications equipment repair platoon.
- Radar, digital equipment, special electronic devices, and automatic test equipment repair platoon.
- Communications security and intelligence electronic warfare equipment repair platoon.
- Theater communications security office of record/inventory control platoon.

AVIATION MAINTENANCE

AVIM units are assigned to the EAC support command and attached to ASGs based on aircraft density. They provide AVIM on an area basis throughout the COMMZ. FM 1-500 describes Army aviation maintenance.

Army AVIM support may be performed in a third country support base by a cross-service arrangement with USAF elements located in the third country. Support may also be provided as a result of a contract with commercial aircraft maintenance facilities or the HN.

Aviation Maintenance Battalion, OLS

An AVIM battalion HHD could be attached to an ASG to command and control AVIM units when more than one AVIM unit is required. The battalion organization is shown in Figure 2-13.

AVIM Companies

AVIM companies perform aviation intermediate level aircraft maintenance on an area support basis. They perform maintenance on Army aircraft, aircraft armament, and avionics components. AVIM units also provide aviation unique repair parts to supported units. They provide reinforcing aircraft recovery preparation rigging and nonstandard rigging for air or ground recovery.

AVIM units dispatch MSTs on call to supported units when their AVUM/AVIM maintenance capability is exceeded and when necessary to support aircraft recovery. The EAC support command MMC controls overload work flow from corps AVIM units. The MMC controls the work flow and priorities for AVIM units. It provides disposition instructions for jobs requiring repair time in excess of the prescribed limit. Unserviceable repairable components that exceed AVIM capability or which exceed time/cost limits are evacuated to a retrograde processing point.

AMC Aviation Classification Repair Activity Depot

An aviation classification repair activity depot could deploy to a third country support base to provide selected depot-level support and reinforcing AVIM level support. Depending upon terrain availability, it could collocate with an ASG.

MISSILE MAINTENANCE

ASGs maintain POMCUS and Army reserve stocks. POMCUS and Army reserve stocks contain missile systems to enable HAWK ADA battalions and PATRIOT ADA battalions to employ in the corps and at OLS.

A GS missile support company and system-unique missile maintenance elements may be attached to an ASG maintenance battalion or ASB to provide missile maintenance and missile repair parts for air defense and surface-to-surface missile systems. As required, DS missile maintenance units and MSTs specifically tailored for HAWK or PATRIOT missile systems may also be attached. Refer back to Figures 2-7 and 2-12 on pages 2-16 and 2-23. MSTs perform on site maintenance. Base shops repair major items. FM 9-59 and AR 750-1 describe maintenance organizations developed to maintain and provide missile repair parts for air defense and land combat weapon systems.

Missile Support Company (GS)

The missile support company provides GS missile system support for the entire theater. It provides GS maintenance for AD and land combat weapon systems. It also provides repair parts support to missile support units. It can be augmented with DS and GS augmentation teams to provide support to missile systems not normally found in the theater.

Augmentation Teams

Missile system specific or unit specific MSTs perform on-site maintenance. They deploy to maintenance collection points to replace subassemblies on AD and land combat missile systems. These teams are allocated on the basis of one team per missile systems battalion.

Maintenance Company (DS) PATRIOT

The PATRIOT maintenance company provides DS maintenance and missile repair parts supply to one PATRIOT ADA battalion. It is normally augmented by a PATRIOT DS/GS missile system augmentation

team. The augmentation team provides limited base shop and two MSTs for PATRIOT-peculiar equipment, Stinger air bottle recharging, and limited Class IX missile repair parts.

Ordnance Company (DS) HAWK

The Ordnance Company (DS) HAWK provides maintenance for the HAWK missile system. It also maintains associated identification friend or foe, power generation, and air conditioning equipment assigned to one HAWK ADA battalion. This company also provides missile-system peculiar repair parts to that battalion. It may be augmented by a HAWK GS augmentation team.

AIRDROP EQUIPMENT MAINTENANCE

The airdrop equipment repair and supply unit assigned to the ASG's S&S battalion repairs airdrop equipment for return to theater stock. An airdrop equipment repair and supply team may be attached to the S&S battalion to provide additional DS and GS maintenance of airdrop-peculiar equipment. Using units recover airdrop equipment. Recovered equipment is then evacuated to the airdrop equipment repair and supply unit for classification, repair, and return to theater stock. FM 10-500-9 describes airdrop equipment maintenance.

TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT

TMDE is essential to maintaining equipment readiness. Modern weapon systems are designed with features such as built-in test equipment and removable modules that facilitate repair. TMDE maintenance support is prescribed in AR 750-43, FM 9-35, and TBs 43-180 and 750-25. TB 43-180 lists calibration and repair requirements.

Command of the TMDE support activities remains with the AMC or LSE. TMDE support is provided by the element designed in TB 43-180 as responsible for calibration support.

TMDE Users

TMDE owners or users perform unit level maintenance on organic TMDE as listed in the maintenance allocation chart. Using units may turn in unserviceable TMDE to nearby DS maintenance units. These DS maintenance units act as collection and distribution points for TMDE. Area TMDE support teams normally perform TMDE support at DS maintenance unit locations.

Area TMDE Support Teams

Mobile area TMDE support teams may deploy with OLS maintenance units to provide TMDE calibration and repair support capability. An area TMDE support team may be attached to the ASG to support its maintenance mission as warranted by TMDE repair work load. For example, an automatic test equipment team may be assigned to an ASG light equipment GS maintenance company to perform GS maintenance on C-E replaceable units, subassemblies, modules, and printed circuit boards. Equipment requiring support beyond the capabilities of area TMDE support teams is evacuated to a parent TMDE maintenance company.

TMDE Maintenance Companies

TMDE maintenance companies provide calibration or repair support for general purpose and special purpose TMDE designated in TB 43-180. Each TMDE maintenance company has an area calibration laboratory. An area calibration and repair center coordinates calibration and repair priorities.

ASG Special Purpose TMDE Support

ASG DS/GS units provide calibration and repair support for organic and supported units' special purpose TMDE. Special purpose TMDE refers to TMDE designed specifically for support of one system or end item. TB 43-180 determines whether a special purpose TMDE item is supported by the DS/GS maintenance unit or the area TMDE support team. Maintenance of special purpose TMDE not identified in TB 43-180 as requiring US Army TMDE Activity support is the mission responsibility of the system dedicated DS/GS maintenance unit. DS/GS maintenance companies—

- Establish and maintain an instrument master reference file.
- Provide supported units with a recall schedule.
- Provide calibration and repair support.
- Inform supported units of delinquent special purpose TMDE.

MAINTENANCE MANAGEMENT

Maintenance management is the process of setting maintenance objectives and goals and ensuring that they are met. Management actions are taken when necessary to ensure that customer demands are satisfied and that maintenance resources are used efficiently. AR 750-1 provides the principles, concepts, and objectives of maintenance management.

ASGs and battalions manage maintenance through their maintenance branches. Routine day-to-day maintenance support is managed by battalion and ASG maintenance branch personnel. The EAC support command headquarters manage maintenance programs in the theater through their MMC. The maintenance work load is managed by the EAC support command MMC in support of the supply and maintenance program. GS maintenance is performed in response to directions from the EAC support command MMC. The MMC monitor evacuation and change evacuation priorities as necessary.

The MMC provides centralized maintenance management. The MMC has theaterwide visibility of assets and requirements. It apportions the theater GS maintenance work load among the EAC support command. GS level maintenance units concentrate on repairing weapon systems and items specified by the LSE. In coordination with the LSE, the MMC may direct

evacuation of Class VII assets to a GS maintenance unit for DS repairs.

EAC SUPPORT COMMAND MMC

The EAC support command MMC provides centralized control and maintenance management for all maintenance activities, except medical equipment, within the EAC support command' geographic areas of responsibility. It is the central data collection and analysis element for all maintenance activities belonging to the EAC support command. It gathers, maintains, analyzes, and acts on maintenance management information system data. The EAC support command MMC manages its assigned portion of the repair program. It estimates the quantities of repair parts required for each repair program and forwards the parts to GS maintenance units before the work begins. The EAC support command MMC advises the EAC support command commander and staff on significant trends and deviations from established standards and recommends necessary actions. It transfers workload that exceeds the capacity of a DS maintenance unit to another DS maintenance unit or to a GS maintenance unit in coordination with the LSE.

ASG MAINTENANCE BRANCH

ASG maintenance branch personnel coordinate maintenance support operations within the group. They

evaluate the GS work load directed by the MMC. They provide guidance on maintenance priorities and set objectives for production. This branch also coordinates with the MMC for workloading of the GSU through the LSE. ASG and maintenance battalion/ASB maintenance branch personnel set maintenance objectives and goals and ensure that they are met. They do this by-

- Forecasting maintenance work load and planning for the accomplishment of the mission.
- Obtaining, organizing, directing, coordinating, controlling, and evacuating resources used to accomplish the maintenance mission.
- Providing technical data and management information to help maintenance units accomplish their work load within the guidelines established.
- Determining the training, tools, TMDE, calibration equipment, facilities, funds, spares, repair parts, and other supplies needed to support maintenance technicians.

STANDARD ARMY MAINTENANCE SYSTEM

SAMS is the management information system for maintenance management. It automates basic maintenance forms, records, and reports and provides maintenance performance information and equipment readiness status.

MMC, ASGs, and battalion maintenance branch personnel use SAMS-2 to obtain status information and review the performance of subordinate maintenance units. SAMS-2 reports enable them to monitor the status of major items undergoing repair in maintenance support facilities. SAMS-2 produces management information related to work orders, shop capabilities, backlogs, manpower and parts costs, and inoperative equipment status.

DS and GS maintenance units use SAMS-1 to schedule equipment maintenance and calibration. SAMS-1 produces work order numbers and requisitions parts. It manages bench stock, shop work load, and shop stock.

ARMY WARRANTY PROGRAM

A warranty decal identifies items and components, parts, or assemblies of end items covered by manufacture warranty. The acquiring command must develop procedures to put the warranty in effect. Warranty actions are suspended during combat.

Supporting maintenance units are the point of contact between the unit originating the warranty claim action and the NICP serving as the DA representative with the contractor. They process approved claim actions back to the originator. They also process funds reimbursed for cost of labor required to replace the defective components, parts, or assemblies.

AR 700-139 provides details on the Army warranty program. DA Forms 2407/5504 are used to submit warranty claims in accordance with DA Pamphlet 738-750 to obtain reimbursement for maintenance work hours required to replace the defective items.

ARMY OIL ANALYSIS PROGRAM

The AOAP maintains the operational readiness of Army equipment. It helps detect impending component failures and conserve lubricating and hydraulic oils through application of on-condition oil changes. Oil is changed based on oil quality instead of a fixed time or mileage interval. AOAP operations are suspended in combat.

AOAP policies and responsibilities are prescribed in AR 750-1. AOAP is mandatory at all levels of maintenance operations for the materiel identified in DA Pamphlet 738-750. TB 43-0210 and DA Pamphlet 738-750 detail analysis intervals and operating procedures.