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Maintenance of Supplies and Equipment

Army Materiel Maintenance Procedures

By Order of the Secretary of the Army:

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History. This publication is a major revision. The portion affected by this revision are listed in the summary of change.

Applicability. This pamphlet applies to the Regular Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve, unless otherwise stated. During mobilization, the proponent may modify chapters contained in this pamphlet.

Proponent and exception authority. The proponent of this pamphlet is the Deputy Chief of Staff, G–4. The proponent has the authority to approve exceptions or waivers to this pamphlet that are consistent with controlling law and regulations. The proponent may delegate this approval authority, in writing, to a division chief within the proponent agency or its direct reporting unit or field operating agency in the grade of colonel or the civilian equivalent. Activities may request a waiver to this pamphlet by providing justification that includes a full analysis of the expected benefits and must include formal review by the activity's senior legal officer. All waiver requests will be endorsed by the commander or senior leader of the requesting activity and forwarded through their higher headquarters to the policy proponent. Refer to AR 25–30 for specific requirements.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Deputy Chief of Staff, G–4 via email at usarmy.pentagon.hqda-dcs-g-4.mbx.publications@army.mil.

Distribution. This pamphlet is available in electronic media only and is intended for electronic medial only for the Regular Army, the Army National Guard/ Army National Guard of the United States, and the U.S. Army Reserve.

*This pamphlet supersedes DA Pam 750–1, dated 04 December 2013.

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Chapter 1
Introduction

1–1. Purpose
This pamphlet provides an overview of the broad spectrum of maintenance topics required for daily maintenance operations. The pamphlet offers guidance, assistance, and procedures to support Army units with a two-level allocation of maintenance tasks. This pamphlet helps commanders, staff, leaders, and Soldiers at the division level and below achieve and sustain the Army maintenance standard for assigned and attached equipment as prescribed in AR 750–1.

1–2. References, forms, and explanation of abbreviations
See appendix A. The abbreviations, brevity codes, and acronyms (ABCAs) used in this electronic publication are defined when you hover over them. All ABCAs are listed in the ABCA database located at https://armypubs.army.mil/abca/.

1–3. Associated publications
Policy associated with this pamphlet is found in AR 750–1.

1–4. Records management (recordkeeping) requirements
The records management requirement for all record numbers, associated forms, and reports required by this publication are addressed in the Records Retention Schedule–Army (RRS–A). Detailed information for all related record numbers, forms, and reports are located in Army Records Information Management System (ARIMS)/RRS–A at https://www.arims.army.mil. If any record numbers, forms, and reports are not current, addressed, / published correctly in ARIMS/RRS–A, see Department of the Army Pamphlet (DA Pam) 25–403 for guidance.

1–5. Purpose of Army maintenance operations
a. Army maintenance operations aim to generate and regenerate combat power and preserve the capital investment in combat systems and equipment over its life cycle.

b. Preventive maintenance operations is performed by Soldiers in field organizations that preserve the operational condition and reliability of equipment. Operator/crew-level preventive maintenance checks and services (PMCS) is the most critical element in the Army maintenance system. The maintenance team achieves success when the organization sustains organizational equipment with operational readiness rates at required levels while achieving the Army maintenance standard for assigned and attached equipment.

1–6. Army maintenance standard
The Army maintenance standard is prescribed in AR 750–1 and is mandatory for all Army organizations. The Army maintenance standard is the foundation of the maintenance program. It is the required end state for Army equipment, enabling Army combat and combat support forces to generate combat power to accomplish assigned missions.

1–7. Commander and leader self-test for maintenance management competence
Commanders and leaders must answer “yes” to the following questions to ensure that field maintenance operations achieve the mission. Positive answers to these questions serve as benchmarks and metrics for successful management.

a. Are junior leaders and Soldiers aware of their responsibility to achieve the Army maintenance standard for assigned and attached equipment?

b. Do junior leaders and Soldiers provide feedback on the success of their mission?

c. Do maintenance personnel have the appropriate training and resources to accomplish assigned missions and tasks?

d. Have maintenance operations integrated maintenance activities to provide maintenance and supply assistance as required with U.S. Army Materiel Command (AMC), Defense Logistics Agency (DLA), or the local National Guard/ Army Reserve?

e. Do Soldiers and leaders use maintenance enablers, The Army Maintenance Management System (TAMMS), and automated information systems to manage operations and record and report maintenance data?

f. Are the standard operating procedures (SOPs) up to date?

g. Are unserviceable reparable items promptly returned through retrograde channels or to the designated addressee or source of repair (SOR)?

h. Are maintenance leaders technically competent to supervise Soldiers and inspect equipment? If not, what corrective action will be taken?

i. Do Soldiers with special skills fill the appropriate military occupational specialty (MOS) positions? Have they attended schools current with their skill sets (for example, H8 recovery training; Army Oil Analysis Program (AOAP) training; or test, measurement, and diagnostic equipment (TMDE) monitoring training)?

j. Does the commander, supervisor, or small-unit leader visit the motor pool or equipment storage area daily or during scheduled training and inquire about maintenance operations?

k. Do the Soldiers have a positive ownership relationship with their equipment?

l. Do maintenance personnel expend a minimum of 50 percent available time on direct labor tasks for man-hour accounting and proficiency?

m. Do Soldiers know the maintenance system within the organization and comply with requirements to accomplish tasks and objectives?

n. Do Soldiers have the necessary resources (including access to TMs) to perform maintenance?

o. Does the maintenance program include incentive awards and similar recognition initiatives?

1–8. Equipment maintenance and evaluation by equipment users, operators, and Soldiers

a. Observation of equipment performance and condition is the basis of PMCS. The purpose of scheduled / preventive maintenance is to avoid premature failure of equipment and sustain the inherent reliability designed and manufactured into the equipment. PMCS is crucial to the success of unit maintenance operations and is required by TMs (printed electronic technical manuals (ETMs) and interactive electronic technical manuals (IETMs)) before, during, and after operating the equipment. Through observation, an operator compares equipment performance and condition against an established technical standard, and reports problems before they inhibit equipment performance. The operation and maintenance standards found in the TM 10– and TM 20–series specify the technical standards applicable to Army equipment.

b. Unit leaders must supervise maintenance operations to ensure that operators, crews, and maintenance Soldiers work unified to sustain equipment to standard.

c. The operator (or crew) is often the first to detect changes to equipment condition and performance and is the basis for the new Army program called condition-based maintenance plus (CBM+). The CBM+ approach provides that feeder data to enable prognostic and predictive maintenance (PPMx) and allowing unit maintenance to intercept failure before it occurs.

1–9. Essential Army programs for effective maintenance management

The Army has developed numerous solutions to typical field maintenance problems and management challenges. Headquarters, Department of the Army (HQDA) develops programs and provides enablers, policies, and resources based on input from the field. Army programs, enablers, and policies critical to the success of maintenance operations are found in chapter 10 of this pamphlet.

Chapter 2
Maintenance Overview

2–1. Overview

a. The four core maintenance processes to manage equipment during its useful service life include:

(1) *Performance observation.* Performance observation is the foundation of the Army maintenance program and is the basis of PMCS required by all equipment TMs in the before, during, and after operation checks. Through observation, the operator documents observed performance against established standards and reports problems that degrade equipment before they become catastrophic. The TM 10– and TM 20–series and the appropriate technical data plan(s) designate the standards for all equipment. PMCS includes validating the software installation remains up-to-date and the cyber posture remains

secure. When possible, identify and document the cause of failure through fault notification codes and work order processing codes. The Army will automate the recording and transmitting of PMCS data appropriately captured by operator observation and embedded sensors to conduct diagnostics or prognostics enabling CBM/CBM+. (See ADS–79–HDBK for aircraft/aviation maintenance.)

(2) *Equipment Services.* Equipment services are specified maintenance actions consisting of routine checks, adjustments, changes, analysis, and lube to equipment, components, and systems according to the designer and engineer specifications. Services on equipment include more than the application of a lubrication order (LO) or performance of service tasks.

(a) They include repair of faults and deficiencies as determined by performance observations, system and component checks, analysis, updates, and Army equipment safety and maintenance message notification system messages required actions. Other messages include, SOUMs, maintenance advisory messages, safety of flight messages, aviation safety action messages, software/cyber updates, and MWOs.

(b) The single entry point for all Army Enterprise System Integration Program (AESIP) and U.S. Army Materiel Command Logistics Data Analysis Center (LDAC) applications (https://login.aesip.army.mil/). Maintenance personnel should use information from AESIP/LDAC applications as well as reliability analysis, engineering documentation and maintenance histories to identify and replace faulty items during services.

(c) MATDEVs will develop strategies to conduct services based on the condition of the equipment or evidence of need. These strategies will eliminate current time-based intervals where possible and enable CBM/CBM+.

(3) *Fault repair.* Fault repair seeks to restore an equipment item to full functionality. Full functionality is the original design or engineering used trained personnel, such as mechanics/technicians, who diagnose equipment, component, assembly, and subassembly malfunctions, order the correct repair parts, and install them immediately. Fault repair requires trained personnel, calibrated TMDE, technical information, and tools. Commanders, leaders, and maintenance managers prioritize repair of deficiencies based upon mission requirements. The standard is to correct deficiencies as they occur.

(4) *Single-standard repair.* Single-standard repair seeks to ensure that a single standard is applied to the repair of all end items, secondary items, and components that are to be returned to supply. The single standard of repair is consistent with the Army maintenance standard, see AR 750–1. Single-standard repair seeks to ensure that a single standard is applied to the repair of all end items, secondary items, and components that are to be returned to supply.

b. Commanders apply manpower, tools, test equipment, repair parts, maintenance kits, equipment, facilities, other resources, allocated dollars, and TAMMS/TAMMS–Aviation to perform maintenance on Army equipment and maintain prescribed readiness levels.

c. The maintenance procedures described in this pamphlet are not intended, nor should they be construed, to preclude compliance with the policies and responsibilities for type Classification, material release, fielding, and transfer process in accordance with AR 770–2 and AR 770–3.

d. Aircraft maintenance must be performed in accordance with approved TMs. Any deviation from standard maintenance will be handled in accordance with AR 70–62.

2–2. Maintenance priorities

a. Army maintenance tasks and operations will be conducted in mission priority sequence based. In the Army's overall logistics management system, relevance and importance are expressed based on the urgency of need. Requesting organization commanders will determine the maintenance priority on work requests based upon the organization’s urgency of need designator (UND). Once the UND has been identified use table 2–1 to select the correct maintenance priority designator (MPD). Units can locate their force activity designator in the Structure and Manpower Allocation System or contact Deputy Chief of Staff, G–3/5/7(DCS, G–3/5/7) (DAMO–FM). Table 2–2 indicates the Army maintenance turnaround time (TAT) standard (upper limit) that is associated with the customer MPD entered on a work order.

Table 2–1
Maintenance priority designators (relating force/activity designator to urgency of need)

Force activity designators	Urgency of need designators		
	A	B	C

Table 2–1
Maintenance priority designators (relating force/activity designator to urgency of need)—Continued

I	01	04	11
II	02	05	12
III	03	06	13
IV	07	09	14
V	08	10	15

Table 2–2
Maintenance priority designators and turnaround time (calendar days) Compo 1 and mobilized Compo 2 and 3

MPD	TAT standard
01–03	10 days
04–08	20 days
09–15	30 days

Note. Customer organizations may specify a required delivery date that is longer than 30 days when mission schedules permit.

Table 2–3
Turnaround time standard non-mobilized Component 2 and 3

MPD	TAT stand
01–03	30 days
04–08	60 days
09–15	90 days

b. UND A will be assigned to unserviceable equipment under the following circumstances:

(1) The unit/activity is unable to perform its assigned operational or training mission.

(2) Materiel to be repaired is authorized in current authorization documents — modification table of organization and equipment (MTOE)/ table of distribution and allowances (TDA) — and readiness reportable as written in AR 700–138 and listed in the current maintenance master data file (MMDF).

(3) Repair of essential facilities of an industrial/production activity manufacturing, modifying, or maintaining mission-essential materiel is required.

(4) The materiel is an intensively managed or critical item.

c. UND B is used in assignment of maintenance priorities for repair of materiel when:

(1) The unit/activity's ability to perform its assigned operational mission is impaired. Without such materiel, the unit/activity may temporarily accomplish assigned missions, but at reduced effectiveness and efficiency below the level of acceptable readiness.

(2) The materiel is equipment readiness code (ERC) A or ERC P. It is not reportable under AR 220–1, AR 700–138, or listed on the current MMDF. For example, not reportable on DA Form 2406 (Materiel Condition Status Report), DA Form 3266–1 (Army Missile Materiel Readiness Report), or Enterprise Materiel Status Reporting (EMSR) including Army aircraft inventory, readiness status, and flying time.

(3) U.S. Army Reserve (USAR) and Army National Guard (ARNG) TDA maintenance activities are authorized to upgrade the UND when a not mission capable (NMC) deficiency is found. Only NMC parts are requisitioned when upgraded.

d. UND C is used in assignment of maintenance priorities for all other materiel not listed in paragraph 2–2. All ERC references will be in accordance with AR 700–138.

2–3. Maintenance records

a. Accuracy and completeness of records are fundamental for the Army to manage maintenance programs and to validate the configuration of maintenance manpower resources in its force structure. This

responsibility lies with Commanders who will verify maintenance records in the tactical enterprise logistics systems (TELS) or on manual forms.

(1) Manual forms will be used only when the use of TELS is not possible.

(2) Resource requirements submitted in accordance with AR 750–1 will be based upon command historical records and Army information resources such as the Enterprise Logistics Portal (ELP), AESIP, and Operating and Support Management Information System (OSMIS).

(3) Records from TELS such as Global Combat Support System–Army (GCSS–Army), Logistics Modernization Program (LMP), Aircraft Notebook (ACN) or other DCS, G–4 approved systems may also be used.

b. Maintenance information will be maintained and accessible to various users Army wide for planning, programming, budgeting, program execution, and logistics management purposes.

c. Historical information on sustainment maintenance operations will be archived by AMC and provided on demand to appropriate users.

d. Historical documentation will be maintained at the appropriate levels of maintenance and repair (field and sustainment) in accordance with DA Pam 750–8, DA Pam 738–751, TELS end-user manuals, and other applicable publications or directives.

e. For Army aviation assets, all maintenance engineering calls (MECs) written against a specific airframe will be retained in aircraft historical records and the aircraft logbook as long as the deviation is in effect and in accordance with AR 70–62. For cartridge actuated devices and propellant actuated devices, DoD identification code (DoDIC), lot numbers, shelf life (expirations dates per DoDM 4140.27, Volumes 1 and 2), and install date information is required to be maintained in the electronic aircraft logbook in accordance with AR 5–13.

2–4. Army maintenance management metrics

a. For Army-level maintenance management performance, the primary metrics used at HQDA are shown in table 2–4. Commanders will use the metrics in table 2–4, the metrics described in appendix B, and the summary reports in AESIP to assist in isolating problem areas and initiating corrective action. Maintenance personnel will be trained to complete maintenance tasks assigned to them.

Table 2–4
Primary metrics

Metric	Description
Total logistics response time–maintenance (TLRT–M).	The period that elapses between: 1. The time an item of equipment or component becomes unserviceable and 2. The time that the item or component is returned to a serviceable status after receiving requested maintenance repair or services.
Turnaround time (TAT)	The period that elapses between: 1. 1. The time that a maintenance organization accepts a unit work order, followed by accomplishment of the work and 2. 2. The time at closeout of the work order.
Operational Readiness (OR) Rate	1. Determined by LIN on-hand/availability status of designated critical equipment items (pacing items) and the on-hand availability status of the other mission essential equipment items (ERC A) listed on the units MTOE or TDA. 2. OR rate goal for defense satellite communication systems is 99% 3. OR rate goal for ground and missile equipment is 90%. 4. OR rate goal for unmanned aircraft is 80% 5. OR rate goal for aviation equipment is 75%.

Notes:

TLRT–M is the primary metric for monitoring how quickly maintenance support at any/all levels responds to a commander's mission requirements. TLRT–M affects equipment availability, reportable under AR 700–138 and is visible to DCS, G–3/5/7 staffs using GCSS–Army, EMSR, and the Strategic Readiness System. The item or component may undergo some or all the status changes as outlined in DA Pam 750–8.

TLRT–M is a DoD-recognized and Armywide metric that recognizes that warfighter support requirements have the highest priority.

(1) Ensure that shop and bench stocks (combat spares, as applicable) are readily available to support maintenance operations. Shop stocks and bench stocks provide repair parts and supplies that fully support TAT standards and customer total logistics response time–maintenance (TLRT–M) standards. Policies for managing shop and bench stocks are found in AR 710–2:

(a) Bench stocks will be made available during maintenance operations.

(b) Repair parts needed for repair, but are not available from shop stocks will be requested following policies in AR 710–2; include issue priority designators consistent with the MPDs on the work orders.

(2) Ensure that Army maintenance regeneration enabler items are restored to serviceability using the same MPD as the end items for which they were exchanged. Also, ensure the items are properly managed. See AR 750–1 for Army maintenance regeneration enabler management policy.

(3) Ensure that maintenance facilities adequately support mission operations. Commanders will review, at least annually, the adequacy of garrison/installation maintenance facilities per the standards in AR 210–14.

b. Figures 2–2 through 2–4 provide sample reports for the following metrics:

(1) TLRT–M:

(a) MTOE TLRT–M status.

(b) TDA TLRT–M customer wait time status.

(c) Contractor TLRT–M status.

(2) TAT status:

(a) MTOE maintenance organization TAT.

(b) TDA maintenance organization TAT.

(c) Contract maintenance organization TAT.

UIC: WXXXXX

TLRT–M = customer response time (CRT) + field maintenance TAT

CRT = customer work order (CWO) submission time (2 days) and customer pick-up time (1 day)

WO submission time = date NMC status reported on EMSR to date WO is accepted at field maintenance.

Customer pick-up time = date customer notified of WO completion to date customer returns item to FMC status on EMSR.

TAT = date of acceptance of customer WO to date maintenance is completed and WO is closed.

TLRT–M = CRT (3 days) + TAT standard for customer-assigned MPD.

TAT Standard Compo 1 and Mobilized Compo 2 & 3	
MPD	**Time**
0-03	5 days
04-08	8 days
09-15	30 days
TAT Standard Non-Mobilized Compo 2 & 3	
MPD	**Time**
0-03	30 days
04-08	60 days
09-15	90 days

Figure 2–1. Maintenance priority designators

TLRT–M status report			
Criteria	Last reporting period	Last quarter	FY to date
Number of CWOs in period.	105	365	470
Number of CWOs in period that met the Army maintenance TLRT–M standard.	65	275	340
Number of CWOs in period that failed to meet the Army maintenance TLRT–M standard.	40	90	130
Number of CWOs in period that failed to meet the Army maintenance TLRT–M standard because of excessive CRT.	22	55	77
Number of CWOs in period that failed to meet the Army maintenance TLRT–M standard because of excessive TAT.	18	45	53

Figure 2–2. Sample of total logistics response time–maintenance status report

Force Element selected: STANDARD FORCE						From: 2018-10-01		
ACOM, ASCC, and/or DRU: Eighth U.S. Army						To: 2018-10-01		
Total items selected: (insert number)						Date grouping method: Year		
Report: Maintenance summary						UIC Type: Field maintenance		
Unit Type: MTOE								
Total Number of CWOs								
ACOM	**Organization**	**UIC**	**MATCAT**	**# WOs**	**MPD 01-03**	**MPD 04-08**	**MPD 09-15**	**Other**
EUSA	B Co, BSB, 2ID	WUV1C9	ALL	74	22	30	20	2
Number of WOs closed within MPD timeframe								
MATCAT	**#WOs**	**MPD 01-03**	**MPD 04-08**	**MPD 09-15**	**Other**			
ALL	70	20	28	20	2			
Organizational rating (based on total work orders): **GREEN**								
Rating Metrics								
Rating	**Description**							
GREEN	Percentage of work orders closed within MPD timeframe equals 90%.							
AMBER	Percentage of work orders closed within MPD timeframe equals 70% to 89%.							
RED	Percentage of work orders closed within MPD timeframe equals 69% or lower.							

Figure 2–3. Sample of modified table of organization and equipment maintenance organization turnaround time report

Force Element selected: STANDARD FORCE						From: 2018-10-01		
ACOM, ASCC, and/or DRU: Eighth U.S. Army						To: 2018-10-01		
Total items selected: (insert number)						Date grouping method: Year		
Report: Maintenance summary						UIC Type: Sustainment maintenance		
Unit Type: Contractor								
Total Number of CWOs								
ACOM	**Organization**	**UIC**	**MATCAT**	**# WOs**	**MPD 01-03**	**MPD 04-08**	**MPD 09-15**	**Other**
USAMC	URFIXED, INC.	WB4Z1V	ALL	208	52	98	54	4

Number of WOs Closed within MPD Timeframe					
MATCAT	**#WOs**	**MPD 01-03**	**MPD 04-08**	**MPD 09-15**	**Other**
ALL	150	30	72	44	4

Organizational rating (based on total work orders): **AMBER**

Rating Metrics	
Rating	**Description**
GREEN	Percentage of work orders closed within MPD timeframe equals 90%.
AMBER	Percentage of work orders closed within MPD timeframe equals 70% to 89%.
RED	Percentage of work orders closed within MPD timeframe equals 69% or lower.

Figure 2–4. Sample contractor maintenance organization turnaround time report

2–5. Materiel status data flow reporting policy

a. GCSS–Army consolidates derivative unit identification codes into a reportable parent unit identification code (UIC) AA and is the required method of readiness reporting at the lowest level. GCSS–Army feeds AESIP readiness data for EMSR and reports at the readiness UIC level. EMSR data includes equipment from Ground, Missile, Manned and Unmanned Aviation, and APS. AESIP pulls EMSR data automatically from GCSS–A on a scheduled date and time, but not before 0001 on the 16th of the report month and not after 2400 hours on the 19th of the report month per AR 700–138. The LDAC, a subordinate command of AMC, is responsible for the AESIP EMSR common operating picture. The data contained in this report provides EMSR data/metrics necessary for analyzing Army readiness trends and projections.

b. Aviation units utilizing ACN systems continue reporting readiness data using the current procedures until directed differently by HQDA or modifications, to the appropriate TELS, are applied. Aviation units that do not use ACN systems must manually enter their readiness data into the EMSR data entry tool on the EMSR module on AESIP. The Army's goal is to support integrated enterprise aviation readiness reporting. In the interim, ACN and EMSR data will continue to be processed on the 16th of the reporting month and immediately uploaded into the EMSR upload applications (file upload or manual entry) on the EMSR module in the AESIP portal before 2400 hours on the 19th of the month.

c. To report readiness status, the supporting unit property book officer (PBO) must enter reportable equipment into the TELS, equipment data file. PBO personnel will also use the subsystem configuration process to configure major end items with associated subsystems to report readiness for a complete

system (for example, subsystems of an M1A2 tank system would consist of the tank, a radio, and machine guns).

d. The EMSR application automatically tracks maintenance and supply actions for equipment. Unit personnel update maintenance faults associated with specific items using TELS. Digital status records are available through their field-level maintenance providers. These records contain information on maintenance and supply actions. Unit personnel will ensure the accuracy of fault notifications, work orders, and requisitions from TELS to ensure the system of record captures the equipment's operational readiness. Using manual reporting procedures is only authorized when the automated EMSR capability is not available.

e. The TELS references the MMDF to identify reportable items, system configurations, authorized substitutes, and relevant maintenance and supply information. LDAC maintains the MMDF in coordination with the DCS, G–4.

Chapter 3
The Army Maintenance System

3–1. General
The Army maintenance system is comprised of two levels of maintenance—field and sustainment.

3–2. Field maintenance
Field maintenance is the first operation in the Army maintenance system. Field maintenance is the performance of maintenance tasks "on system" in a tactical environment using trained personnel, tools, and TMDE. Field maintenance is typically operator/crew maintenance and repair and returns to user maintenance operations. See DA Pam 750–3 for field-level maintenance process and program procedures.

3–3. Sustainment maintenance
Sustainment maintenance is the second operation of the Army Maintenance System. Sustainment maintenance performs maintenance tasks "off-system" in a secure environment using trained personnel, tools, and TMDE. Sustainment maintenance is typically repaired and returned to stock and depot maintenance operations.

3–4. Modular maintenance strategy
a. The Modular maintenance strategy was designed to ensure the proper execution of maintenance operations within the Army from tactical to a strategic level. Following Field Manual (FM) 4–30, multiple modular organizations range from detachment to battalion size at echelons above brigade. Types of modular units include military police, engineer, chemical, air defense, quartermaster, ordnance, transportation, signal, and others. The assigned maintenance and Class IX support capability within these organizations varies widely based upon the size and type of organization and the density of its equipment. In many instances, the maintenance capability is limited to wheeled vehicles and other common commodities such as small arms or signal equipment. Units that have limited or no maintenance capability or limited to no maintenance capacity rely on designated support maintenance companies operating on an area basis to augment the organization's assigned maintenance capability and capacity. Army Techniques Publication (ATP) 4–33 for an explanation of modular maintenance.

b. MTOE performs internal organic maintenance support authorized field-level maintenance (FLM) personnel. Commanders at all levels will ensure soldiers are properly trained, and equipment is maintained in the proper state of readiness at all times per AR 600–20. Commanders will emphasize the conduct and supervision of PMCS performed at unit level per AR 750–1.

c. External Maintenance Support Operations are a support concept to ensure units without HQDA Authorized FLM Capability or units lacking the tools or personnel to perform FLM have the means to accomplish repair of equipment. Units must maximize all organic maintenance capability and capacity utilization within their logistics footprint (Support Maintenance Company, EAB, etc.); includes coordinating support agreements to perform FLM before forwarding work for external maintenance support LRC/AFSBn, MSC–K, TLSC–E, or other FLM operations as outlined in DA Pam 750–3. The senior mission commander on the installation will establish the installation maintenance support plan that will outline support relations between tactical FLM EAB activities and external maintenance activities.

d. Inter-Service support agreements are documented arrangements between organization officials of different military services to provide support from a designated provider in one Service to a recipient organization in another Service. As we continue to deploy as a Joint force, we will continue to rely on other Services for logistics support from non-Army providers. When this occurs, follow Army policy found in AR 5–10 to establish and maintain support agreements with organizations from other military Services.

3–5. Understanding forecasting and resourcing of maintenance operations and external support

a. Resource planning for maintenance operations happens at MACOMs, but Army commanders at all levels should understand how resource planning works and can locate available resources. Resource planning and forecasting clarifies the implications of decisions on external maintenance support. This clarification ensures fluidity and continuity of operations. See figures 3–2 and 3–3.

b. FLM capability is defined as skills, expertise, and specialized repair shops and tools necessary to conduct the required maintenance task. This capability is identified on the units MTOE document as authorized personnel and equipment or by a FLM dependency statement in the MTOE narrative. Support Maintenance Company/Division Support Maintenance Company performs area support maintenance. The senior commander on the installation will ensure the establishment of installation maintenance support plans which outline support relations between tactical FLM EAB activities and external maintenance activities to include establishment of Support Agreements.

(1) Army commands (ACOMs), Army service component command (ASCCs), and direct reporting units (DRUs) will program field-level maintenance requirements in their POM submission and conduct coordination planning with AMC/ASC. Additionally, ACOMs, ASCCs and DRUs will provide updated projection of requirements by second quarter each FY of the maintenance workload that they anticipate evacuating to the LRC. This prior planning will enable the LRCs to properly plan to support the required level of reimbursable workload.

(2) AMC will program FLM requirements, CLVIII/ CLIX parts and labor, in the SS PEG POM to support garrison TDA unit BASOPS equipment.

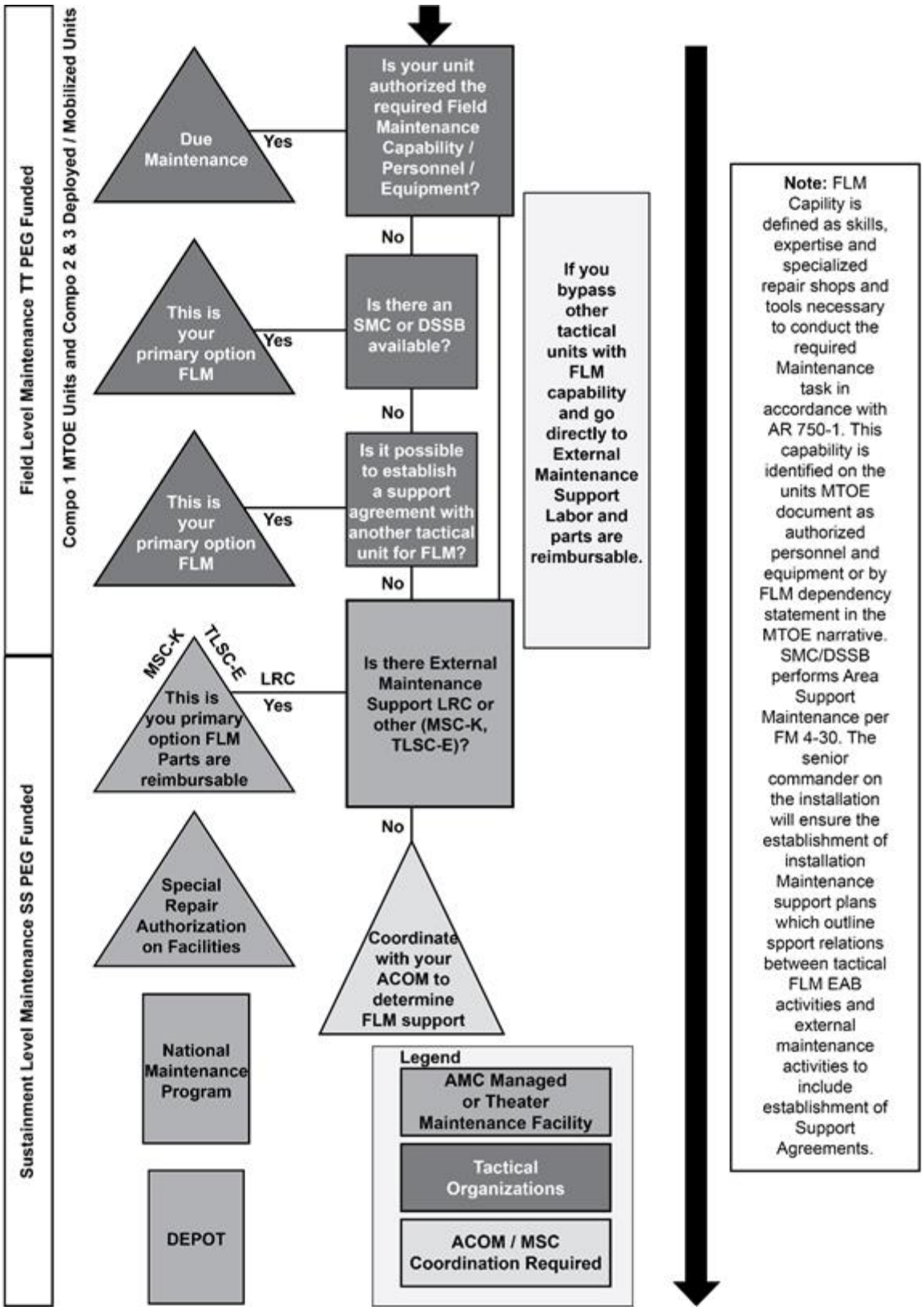

Figure 3–1. Field-level maintenance flow to external support

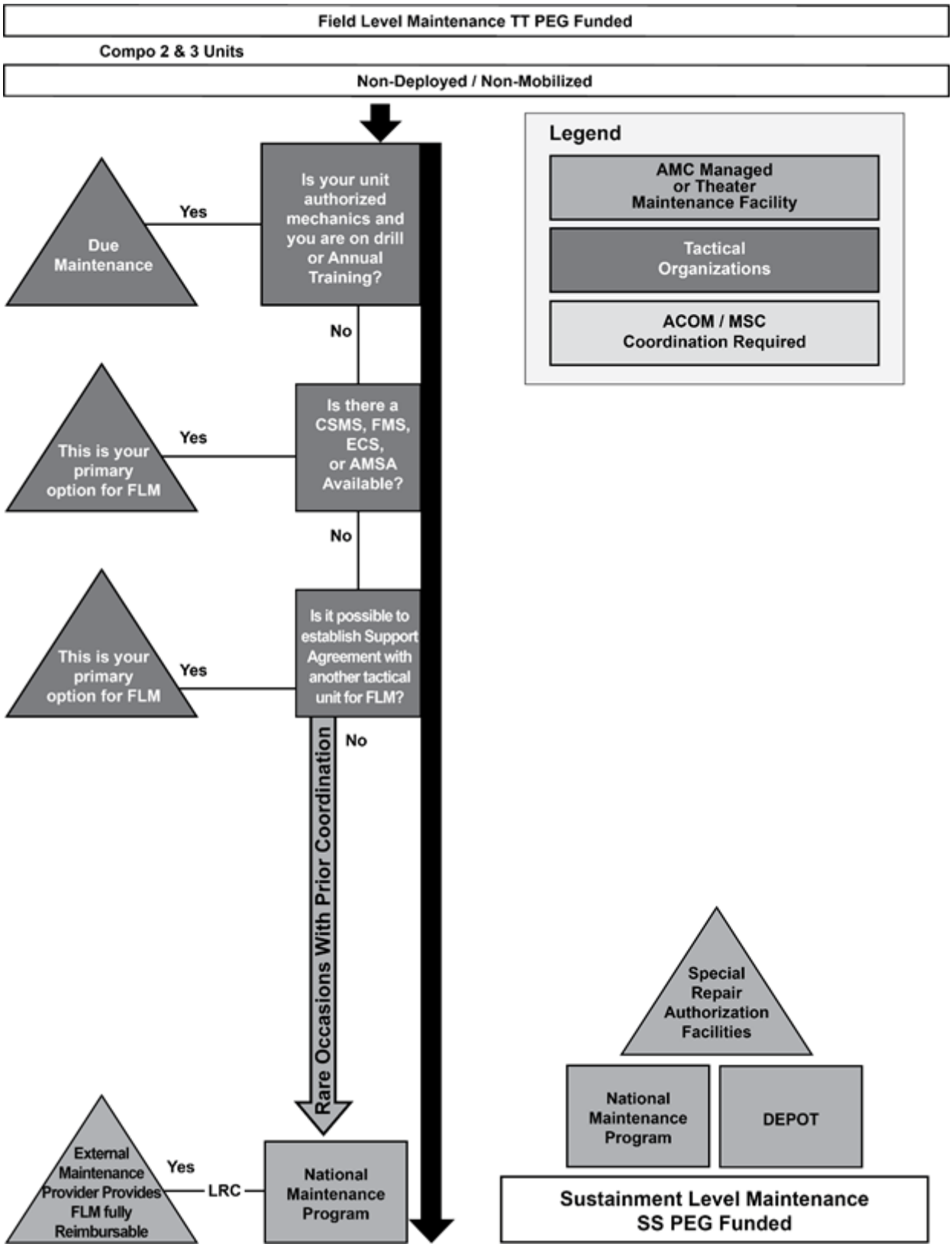

Figure 3–2. Field-level maintenance flow to external support non-deployed Component 2 and 3

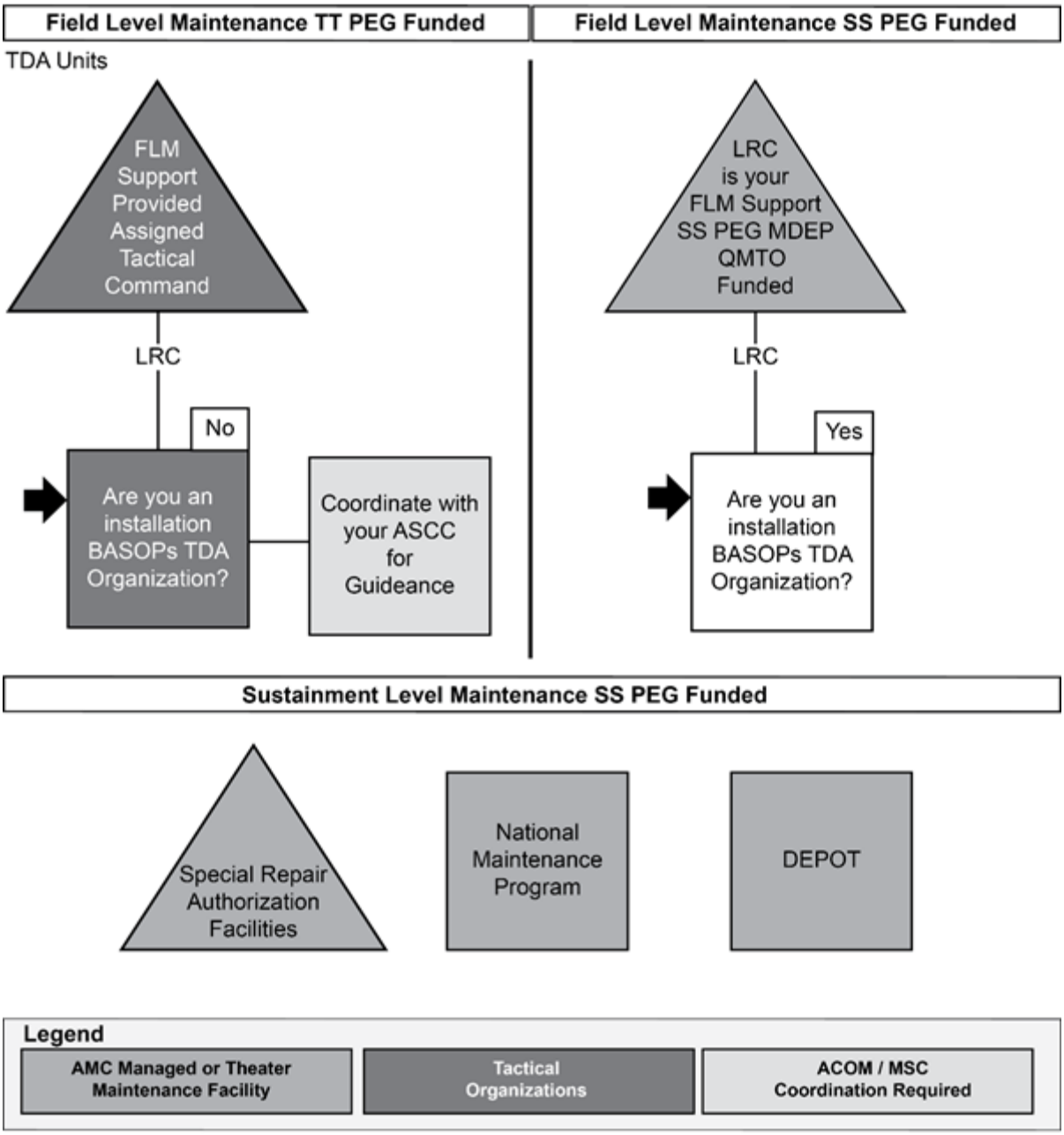

Figure 3–3. Field-level maintenance flow to external support table of distribution of allowance units

Chapter 4
Field Maintenance

4–1. Field maintenance principals

a. The fundamental element of field maintenance is the requirement for PMCS.

b. Operator/crew maintenance is the foundation of Army maintenance and is critical to Army readiness requiring prioritization and continuous emphasis from commanders and leaders. Operator/crew/unit maintenance personnel conduct a PMCS to verify the latest software version to comply with cyber security standards in MMIS.

(1) Commanders must establish a command climate ensuring maintenance is performed on assigned equipment per AR 750–1. Commanders are responsible for providing resources, assigning responsibility, and training Soldiers to achieve this standard.

(2) The Command Maintenance Discipline Program (CMDP) should be used to ensure the established command climate meets standards (see chap 11).

(3) Operator/crew performing PMCS must follow the TM 10–series. NCOs are responsible for ensuring operator/crew proficiency in the use and care of their assigned equipment. Commanders must provide adequate time for NCOs to train and achieve required levels of proficiency.

(a) Deficiencies detected during before-operations checks that make the equipment not FMC or violate a safety directive must be corrected before the mission.

(b) Deficiencies detected during the mission affecting FMC must be corrected during the mission.

(c) Faults detected before or during the mission not affecting FMC should be corrected immediately, if time permits, but must be recorded and/or reported for correction after the mission.

(d) After-operations checks detect faults resulting from the mission and ensure the identification and correction of faults to maintain the equipment to the maintenance standard after the mission is complete.

(4) Maintenance operations normally assigned to operator and/or crew include the following:

(a) Performance of TM 10–series operator and/or crew PMCS.

(b) Inspections by sight and touch of accessible components per the TM 10–series and CBM indicators or instrumentation.

(c) Lubricate, clean (including corrective actions repairing corrosive damage), preserve (including spot painting and the application of corrosion inhibiting compounds (CIC)), tighten, replace, and make minor adjustments as authorized by column C of the MAC.

(d) Replace unserviceable parts, modules, and assemblies as authorized by column C of the MAC.

1. Replacement tasks are limited to mission essential on-board spares (see AR 700–18).

2. Non-essential replaceable parts that are within the operator's maintenance capability (see ATP 4–33) utilizing tools in the equipment's BII.

(e) Identify and annotate corrosion and failures caused by corrosion on DA Form 5988–E (Equipment Maintenance and Inspection Worksheet) (available in GSCC-Army) for ground equipment or DA Form 2408–13–1 ((Aircraft Inspection and Maintenance Record) for aviation equipment and take corrective actions (spot painting, proper washing, and application of CIC) within the operator's capability per AR 750–59, TB 43–0213 and TM 43–0242. Aviation systems and subsystems shall annotate corrosion and failures caused by corrosion per DA Pam 738–751 and TM 1–1500–328–23.

c. Maintenance operations normally assigned to field maintenance include the following:

(1) Performance of TM 20–series unit maintenance PMCS.

(2) Inspections by sight and touch of accessible components in accordance with published TMs.

(3) Lubrication, cleaning, preserving (including spot painting) and applying CIC, tightening, replacement, and minor adjustments authorized by the MAC. Identify and annotate corrosion and failures caused by corrosion on DA Form 5988–E for ground equipment or DA Form 2408–13–1 for aviation equipment and take corrective actions (spot painting, proper washing, and application of CIC) within the unit capability per AR 750–59, TB 43–0213 and TM 43–0242.

(4) Complete repainting as it is written in TM 43–0139. Painting may be completed in an Occupational Safety and Health Administration (OSHA) approved facility pending availability.

(5) Troubleshoot, diagnose, adjust, and replace unserviceable parts, modules, and assemblies as authorized by the MAC.

(6) Requisition, receipt, storage, issue of repair parts and major assemblies.

(7) Verification of faults and level of repair of unserviceable materiel.

(8) If beyond the MAC authorization, escalate to the next level (sustainment) or turn-in to the appropriate supply support activity (SSA) per AR 710–2.

(9) Recovery or coordination for transportation of equipment to and from the support unit of action. See AR 750–1 for military member requirements. Field-level civilian mechanics conducting recovery operations must be trained as an H8, H9, or the equivalent.

(10) Accomplishment of all actions directed by the AOAP.

(11) Materiel readiness reporting per AR 700–138 and current MMDF.

(12) Ensuring FLM modification applications are applied in accordance with AR 750–10.

(13) Based on the Classification of the MWO, annotate MWOs in the applicable maintenance TELS with an appropriate code.

(14) Providing maintenance support to sustainment maintenance activities, for example, Class VII repair.

(15) Performance of light body repair, including straightening, welding, sanding, and painting of skirts, fenders, body, and hull sections when required to prevent or control corrosion or restore structural integrity. The use of corrosion mobile work center, forward repair system, shop equipment contact maintenance, shop equipment welding, metal working and machine shop set equipment or performing welding operations using any welding device on weapons systems or their components by other than MOS trained or appropriate certified personnel, is not authorized.

(16) Turn-in maintenance repair code (MRC) F, D, H, and L recoverable components to the supporting supply activity.

(17) Providing field maintenance support to other field maintenance units and requesting support from other field maintenance units, as required.

(18) Fabrication as identified by the appropriate TM.

(19) Operation of cannibalization points, when authorized (see AR 710–2).

(20) Operator/crews identify equipment deficiencies and maintainers verify faults reported on the DA Form 5988–E. Unit maintenance personnel validate corrosion condition. The Equipment Records Parts Specialist annotates corrosion deficiencies with Cause Code 170 and object part code as applicable per AR 750–59 when creating a notification in the fault details cause code section in the GCSS–Army work order process. Units will take corrective actions within the organization's capability to prevent or repair corrosion damage to Army materiel. FLM is responsible for corrosion repairs per the applicable MAC.

d. Performance of FLM will be documented using DA Form 2407 (Maintenance Request), DA Form 5990–E (Maintenance Request (EGA)), or DA Form 5988–E and records in the TELS according to AR 700–138, DA Pam 750–8, and DA Pam 738–751. This information is used to assist commanders in establishing, monitoring, and evaluating their maintenance program.

e. Field maintenance personnel will perform TIs of Class II, VII, VIII, and IX materiel to determine items are serviceable and complete. All items will be inspected to—

(1) Verify serviceability of the item as outlined in AR 750–1.

(2) Determine if unserviceable items were rendered unserviceable because of other than fair wear and tear. In the event negligence or willful misconduct is suspected, repair will not be made until a commander's release statement is received in accordance with AR 735–5.

(3) Determine economic reparability of excess and accident-damaged equipment.

f. See DA Pam 750–3 and ATP 4–33 for depictions of typical modular maintenance structures.

4–2. The preventive maintenance checks and services process

a. The commander will appoint, in writing, maintenance, readiness, and CMDP officers. The TM 10– and TM 20–series designate the maintenance standards for all equipment. DA Pam 750–8 establishes the elements of the process. An abbreviated version is described below.

b. Operators/crews will use the TM to perform PMCS before, during, and after operation.

c. During before-operation checks, correct all repairable faults. Enter uncorrected faults not already recorded on a previously completed DA Form 5988–E and update GCSS–Army accordingly.

d. Make operational checks during actual operation of the weapon system, vehicle or other equipment, using the TM. If during the equipment mission, an opportunity is not presented for corrective action, the operator/crew chief will report the fault to the leadership at the dispatch point.

e. During after-operation checks, the operator/crew and mechanic will correct all known new faults. The commander's representative will decide if any remaining faults require recording on the uncorrected fault section of DA Form 5988–E or DA Form 2408–14 (Uncorrected Fault Record). The nature of any

uncorrected faults may dictate that the equipment may or may not be cleared for future use until the faults are corrected.

f. Leaders and Soldiers will use the TAMMS and TELS procedures to record equipment faults.

g. Ensure equipment using software is up-to-date with most current version and cyber compliant.

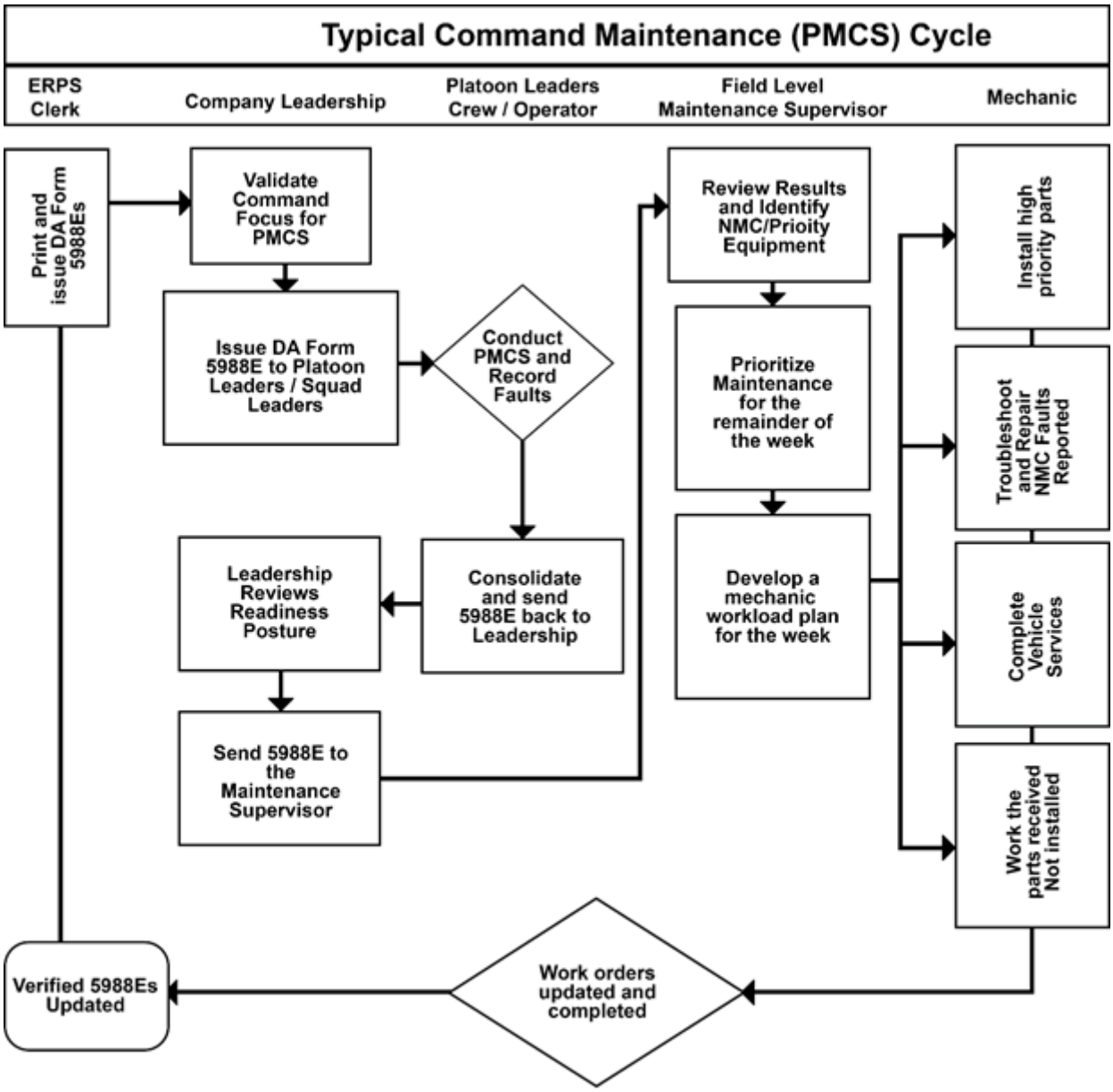

Figure 4–1. Command maintenance (preventive maintenance checks and services) cycle

4–3. Maintenance and supply procedures at organization or unit level

a. Commanders, leaders, and supervisors must emphasize the importance of establishing and implementing effective maintenance and supply procedures in all Army units. In order to do this effectively, they must understand the relationship between the policies in ARs and the procedures in DA Pams and local SOPs.

b. Army policies found in AR 710–2, AR 750–1, and similar publications are expressed in general language and often establish broad goals and objectives. Army procedures found in DA Pams and similar

publications are more specific and help Soldiers implement policies. DA Pams and SOPs provide detailed, step-by-step guidelines and successful methods for achieving policy objectives. In order for a unit or organization to have a successful and effective maintenance program, the unit must have successful and effective maintenance and supply procedures along with local SOPs to implement them.

c. In addition to this pamphlet, DA Pam 738–751 (aviation materiel), DA Pam 750–3, and DA Pam 750–8 provide important procedural guidance for maintenance. The TELS described in terms, and the detailed procedural manuals that support them will enable implementation of policies and procedures in a faster, more complete and precise manner. DA Pam 710–2–1 and TM 38–8145–709, care of supplies in storage (COSIS) for Army material, provides detailed procedural guidance for unit supply operations.

4–4. The Army maintenance management system and standard logistics information system

It is critical that all commanders, leaders, Soldiers, and their supervisors know how the Army maintenance system works. Two pamphlets describe TAMMS, DA Pam 738–751 for aviation materiel and DA Pam 750–8 for ground equipment. This procedural guidance provides information and assistance to Soldiers in a systematic format. TELS are enablers to assist commanders in accomplishing their mission and achieving the maintenance standard. See figures 4–1 and 4–2.

a. Using the TELS, leaders may track a large number of maintenance actions that are on-going and require monitoring. Because Army maintenance is a technical operation, accurate records are essential to success.

b. Digital data transfer devices include optical and electromagnetic scanners, radio frequency identification devices, and electronic contact sensors. These devices use automatic identification technology (AIT) to capture data from equipment and feed the data to the TELS.

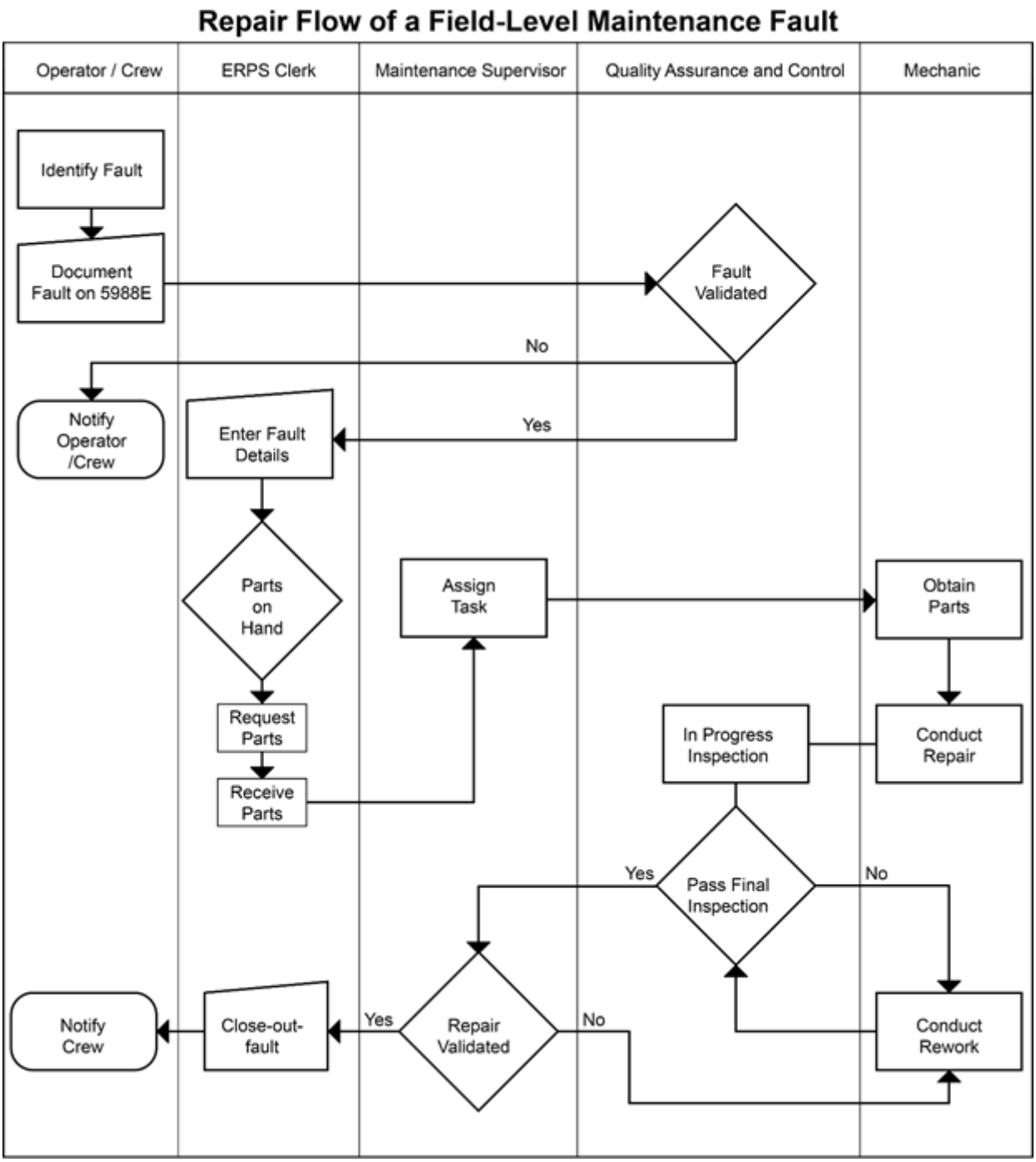

Figure 4–2. Repair flow of a field-level maintenance fault

4–5. Managing the battalion (or company) maintenance program

a. Managing maintenance operations.

(1) The TELS will provide a record of all completed daily workload by local commanders, maintenance leaders, and supervisors. These records are the foundation for directing unit maintenance priorities toward meeting operational readiness rate requirements and achieving the maintenance standards for assigned equipment. Details of these records will indicate where the priority workload is and how organization manpower and materiel assets are allocated.

(2) Commanders will use the basic mission metrics of total logistics response time-maintenance (TLRT–M) and TAT in modularized organizations in accordance with AR 750–1. Commanders will also use the metrics in paragraph 2–4 to manage exclusively the MAC code F capable element in modularized commands.

(3) On a priority basis, commanders and leaders will focus closely on uncorrected faults found on individual equipment. The maintenance TELS software records all uncorrected faults from DA Form 5988–E.

(4) GCSS–Army Plant 2000 contains business processes for field maintenance operations. Refer to the GCSS–Army End User's Manual (EUM) for job aids related to TAMMS procedures. TAMMS procedures are established to assist commanders and maintenance leaders in workload prioritization, scheduling, inspection, maintenance, and repairs. These procedures outline how to report, request outside support, and record equipment maintenance, services, and repair work. They also help determine the status of equipment for readiness, equipment use, and logistics reports. Some of the more frequently used maintenance forms and reports include the following:

(a) DA Form 5988–E.

(b) DA Form 2407.

(c) T–Code IW49N “Display Orders and Operations.”

(5) See DA Pam 750–3 for a list of commonly used Plant Maintenance (Plant 2000) GCSS–Army transaction codes.

(6) Commanders will ensure that maintenance personnel monitor and track compliance with Maintenance Messages published in MMIS.

(7) Maintenance leaders will assign all fault correction, PMCS, and other service tasks using DA Form 5988–E as a working document for the Soldier. Leaders will list all work requested on DA Form 5989–E (Maintenance Request Register) and record all work performed on DA Form 5990–E in accordance with TAMMS procedures. The DA Form 5988–E and DA Form 2404 (Equipment Inspection and Maintenance Worksheet) will serve as the equipment fault correction record for that day. DA Form 5989–E will reflect assigned maintenance tasks and status so that leaders can manage and prioritize assets.

b. Managing total logistics response time-maintenance.

(1) Commanders will use TELS to manage TLRT–M.

(2) Commanders will take expeditious action to obtain support and return equipment to serviceability. TLRT–M is the period of time that elapses between the time an item of equipment or component becomes unserviceable and the time the item or component is returned to a serviceable status, after receiving requested maintenance repair or services.

(3) The TLRT–M countdown begins when the item becomes unserviceable. The unit has 3 calendar days to deliver the item for field-level repairs or to the designated maintenance activity for repair. DA Pam 738–751 and DA Pam 750–8 requires submission of DA Form 5990–E/DA Form 2407 to a field-level capable maintenance provider.

(4) Units and organizations that have undergone transformation, and have internal field-level capable maintenance cells, have a time and capability advantage. These units will follow internal SOPs to work order equipment to internal maintenance providers. All organizational elements will follow the applicable procedures in DA Pam 738–751 and DA Pam 750–8. Once the equipment is received on a work order from the owning unit, the TAT clock starts for the field-level repairs, whether the provider is internal or external to the requesting organization. TAT standards, established in AR 750–1, depend upon which MPD the requestor lists on the work order. TAT is the period from acceptance of a work order to closeout but does not include time awaiting customer pickup. Commanders will use sound judgment when selecting MPDs because of their effect on readiness and significant impact on the maintenance provider workforce and resources. A monthly metric report provides average TATs for work orders completed by SOR. TAT metrics ratings are calculated by dividing average TATs for a SOR by the TAT national average (for national item identification numbers repaired at the SOR). The TAT cycle begins when all parts and supplies are on hand in the maintenance shop to complete a work order.

(5) TAT requirements associated with MPD are as follows:

(a) MPD 01–03: TAT standard 5 days.

(b) MPD 04–08: TAT standard 8 days.

(c) MPD 09–15: TAT standard 30 days.

(6) TAT requirements for COMPO 2 and 3 in a non-deployed or mobilized status and associated with MPDs are as follows:

(a) MPD 01–03: TAT standard 30 days.

(b) MPD 04–08: TAT time standard 60 days.

(c) MPD 09–15: TAT standard 90 days.

(7) If repairs are not required within 30 days, the requesting unit is required to specify a required delivery date on the work order.

(8) All organizational elements will follow the applicable procedures in DA Pam 738–751 and DA Pam 750–8.

c. Managing historical maintenance records.

(1) There are two primary locations for unit historical records.

(a) The first location is with the unit, in the TELS electronic files, in leadership paper files, and on the equipment. These records show the receipt, operation, maintenance, modification, transfer, and disposal of equipment. These records assist commanders in maintaining maintenance standards and achieving operational readiness rates.

(b) The second location is in the Army Enterprise Portal. AESIP is a database with the capability of storing and manipulating logistics data for Army wide or individual unit management.

d. The unit Commander's Drivers Training Program.

(1) Drivers Training is G–3/S–3 responsibility, but properly trained operators and supervisors have a direct impact on the overall unit maintenance program. Operator/crew level PMCS is the corner stone of Army Maintenance.

(2) Commanders are responsible to screen, train, license, and supervise Soldiers who are selected as trainers, examiners, operators, drivers, and users.

(3) Commanders must ensure that preventive or corrective maintenance is performed in accordance with TMs and under the supervision of trained leaders.

(4) AR 600–55 provides the basic requirements for the Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing). TC series 21–305 contain more details.

(5) Optional Form (OF) 346 (U.S. Government Motor Vehicle Operator's Identification Card) is the equipment operators permit or driver's license. The operator must carry it when operating Army equipment. Vehicle or equipment operators retain the card to identify vehicles and types of equipment they are qualified to operate.

e. The dispatch and control process.

(1) The commander will designate a TELS operator that will manage dispatch and control to track the following:

(a) Equipment usage documentation

(b) Track purpose of use, location, and duration

(c) Ensure operator is qualified for equipment

(d) Operator/Crew Supervisors are trained usage standards and safe operations

(2) Operator/Crew PMCS equipment to the Army maintenance standard.

(3) Unit maintenance personnel will conduct quality control to include pre-exercise checks as required by the NCOMP and equipment meets the Army maintenance standard.

(4) DA Form 5987–E (Motor Equipment Dispatch) or DD Form 1970 (Motor Equipment Utilization Record) (only when automated dispatch is not possible) will be utilized to identify equipment data operator supervisor assignment and capture all measuring points during operations.

(a) Miles.

(b) Hours.

(c) Fuel consumption.

(d) POL consumption.

(5) DA Form 5982–E (Dispatch Control Log)/ DA Form 2401 (Organization Control Record for Equipment)(When DD Form 1970 is used).

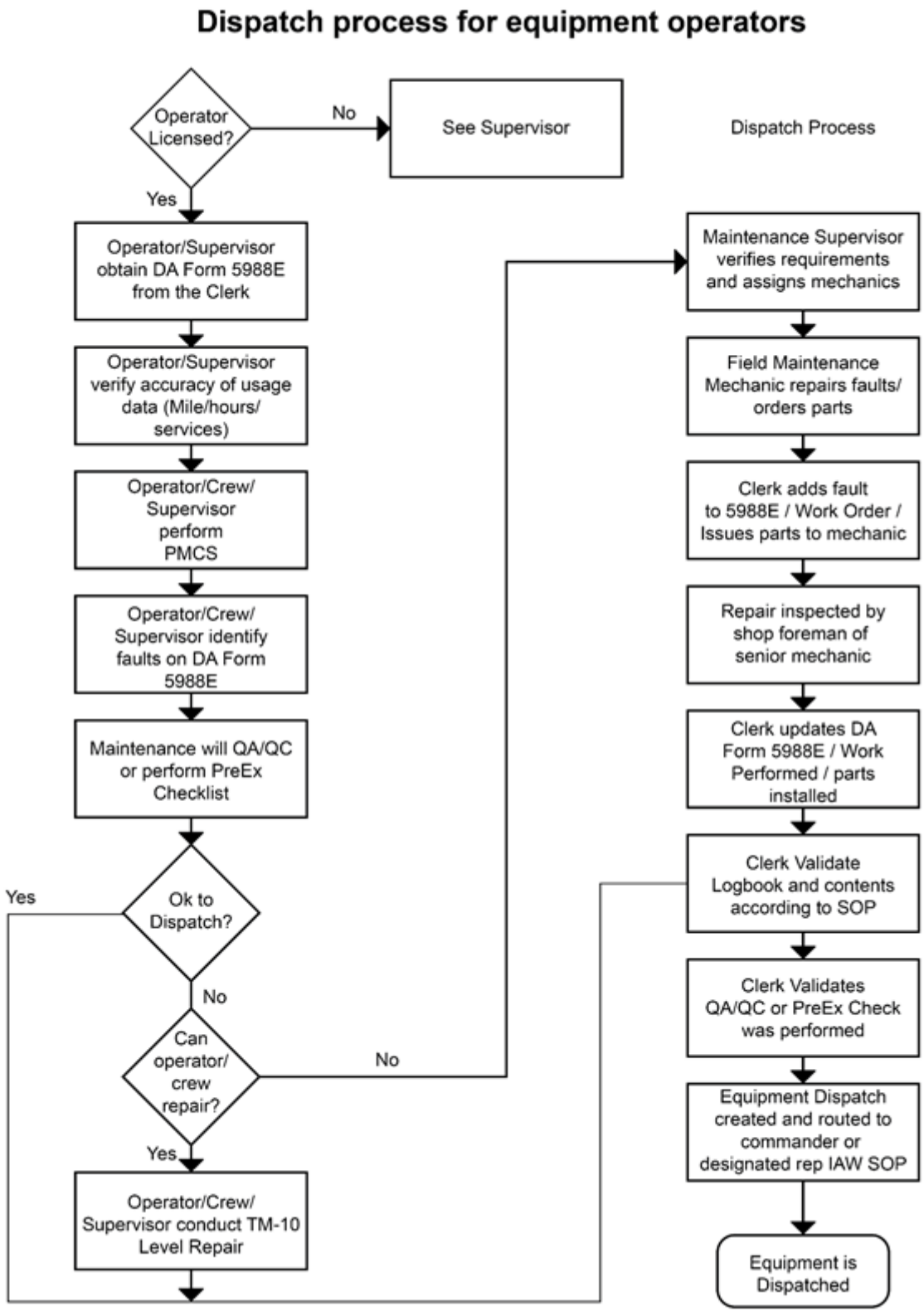

Figure 4–3. Dispatch process for equipment operators

4–6. Non-combat operations maintenance plans procedures

NCOMP (Services) will align maintenance requirements closer to the actual usage of equipment rather than time-based intervals during non-combat operations. Maintenance plans (Services) during wartime will be conducted per the TM. The Program Manager (PM) and the Life Cycle Management Command (LCMC) will approve all NCOMP through the Army Equipment Safety and Maintenance Notification System (AESMNS) per AR 750–6 and post them in MMIS.

a. General Guidance.

(1) NCOMP criteria does not relieve commanders of the responsibility to properly maintain assigned equipment or negate command maintenance responsibilities such as operator/crew PMCS or routine inspections by leaders, Soldiers, or maintenance personnel.

(2) There is no requirement to perform a higher-level service on equipment prior to implementing NCOMPs.

(3) Prior to the induction of NCOMP, units will conduct the highest interval of operator PMCS per the platform TM and unit maintenance officer will validate that any overdue services are completed. Equipment will not be inducted to NCOMP with overdue services.

(4) Units will use PPMx multi-authentication embedded sensors that provide diagnostic/prognostic data to inform and/or conduct required maintenance, if applicable to the fleet.

(5) Unit maintainers will use the appropriate NCOMP maintenance action messages (MAM) Pre-Exercise (Pre-Ex) checklist prior to dispatching equipment for the bimonthly/quarterly equipment exercise.

(6) The following equipment sets are exempt from NCOMP—

(a) Unit maintained equipment (UME).

(b) Training sets at the National training centers (NTC)/ combat training centers (CTC) used by rotational units for training.

(c) Opposing Force Sets at the NTC/CTC.

(d) Army test and evaluation equipment.

(e) U.S. Army Training and Doctrine Command (TRADOC) fleets.

(f) Other equipment sets with exception to policy approved through the HQDA, G–4.

(7) Army pre-positioned stocks (APS) are maintained by TM 38–470.

b. Commanders ensure:

(1) Reserve component units exercise tactical wheel vehicles, combat wheeled vehicles and all trailers ten miles bi-monthly (every other month). Army Reserve and National Guard units will quarterly lubricate seals, charge batteries, and ensure operational readiness of equipment per the appropriate TMs.

(2) Reserve component units exercise tracked combat vehicles five miles bi-monthly (every other month). Army Reserve and National Guard units will quarterly (every three months) lubricate seals, charge batteries, and ensure operational readiness of equipment per the appropriate TMs.

(3) All service, lubrication, spot-painting, and application of CIC tasks in the applicable equipment TMs, LO, TB 43–0242 and TB 43–0213 are performed, as needed.

(4) All hydraulic systems on vehicles, construction equipment, engineer equipment, wreckers, materiel handling equipment, and combat systems are sufficiently exercised bimonthly to reach operating temperature and ensure mission capability.

(5) Generators, air compressors, support equipment, pumps, and power-driven chemical, biological, radiological, and nuclear (CBRN) equipment are exercised to reach operating temperature and ensure mission capability (30-minutes under load) confirming systems are FMC.

(6) Completed Pre-Ex checklists will be maintained in the equipment's service packet until the next checklist is performed.

(7) Transition NCOMP equipment identified for deployment to the TM service schedule plan within 180 days before deployment or upon notification and per the next TM scheduled maintenance plan. Commanders will define combat zones based on METT–T and foreseen mission environments. Commanders will use discretion in transitioning to NCOMPs when equipment is no longer engaged in combat operations or within 30 days after deployment recovery operations.

(8) Operational rotations to Korea or Europe and CTC events at the NTC, Joint Readiness Training Center, Joint Multinational Readiness Center do not count as combat.

(9) Equipment usage matches the data in GCSS–Army.

(10) Equipment usage data in TELS matches the odometer reading monthly. Commands will validate at least 25 percent of equipment usage in TELS verses equipment actual odometer reading quarterly. Units will validate different equipment each quarter. If the quarterly validation determines that usage data

is more than 20 percent inaccurate, the unit must validate 100 percent of unit equipment usage data and make corrections as required in this pamphlet and DA Pam 750–8.

4–7. Low Usage Program procedures

a. Equipment without an approved NCOMP may be placed in the Low Usage Program (LUP) at the commander's discretion if they meet the low-usage criteria. To determine if your unit's equipment qualifies for low-use maintenance—

(1) Calculate the low usage target mileage/hours by using the criteria outlined in DA Pam 750–8.

(2) Compare the actual (accumulated mileage/hours and forecasted training or operational use miles/hours) for an individual piece of equipment against the low-use target mileage/hours calculated above. If the equipment item's forecasted actual mileage/hours will be less than or equal to low-use target mileage/hours, then it qualifies for low-use maintenance.

b. All service and lubrication tasks in the applicable equipment TMs and LOs must be performed, per DA Pam 750–8 before the equipment is placed in low-usage status. The date, miles, kilometers, or hours when the equipment was placed into low-usage status will be entered into the TELS.

c. If the equipment is identified as exceeding the specified criteria, the equipment will be immediately returned to a normal scheduled service interval per the TM/LO at the date and usage data that was entered in TELS.

d. Servicing, evaluating, and exercising recoil mechanisms and gun tubes will be done per the applicable TBs and TMs.

e. Communications and other subsystems mounted on equipment in low-usage status will be serviced when the primary system is serviced. Communications security (COMSEC) equipment must be serviced and repaired by trained and certified communication-electronic (CE) technicians, per AR 25–12.

f. Low-usage equipment service standards do not apply to armament subsystems, equilibrating systems, fire control components, sighting components of combat vehicles and missile systems, or air traffic control equipment.

g. The AOAP schedule will not be extended.

h. Specific criteria for equipment being placed in a low-usage status are—

(1) Tactical vehicles and trailers that have accumulated or are anticipated to accumulate less than listed equipment utilization rate in accordance with DA Pam 750–8.

(2) Combat vehicles (except armament, equilibrating systems, fire control components, and sighting components), missile systems (except fire control components), material handling equipment, and construction equipment anticipated to accumulate less than the listed equipment utilization rate in accordance with DA Pam 750–8.

(3) Generators, pumps, air compressors, support equipment (reverse osmosis water purification units and bath units), watercraft, rail equipment, power-driven nuclear, biological, chemical equipment, engine driven heaters, and air conditioners anticipated to accumulate fewer than 75 hours in the current year.

(4) CE equipment in communication shelters anticipated to accumulate less than 75 hours of operation in the current year. The remaining CE equipment, such as ground/vehicle mounted radios, switchboards, and individual night vision goggles, will be serviced annually, if they are anticipated to accumulate fewer than 75 hours of operation in a 12-month period.

(5) Non-power-driven CBRN equipment anticipated to accumulate fewer than 75 hours of operation in a 12-month period.

(6) Tentage and canvas items, immersion heaters, field ranges, and space heaters or stoves that are not used in a 12-month period will be serviced or assembled annually.

(7) Small arms and crew-served weapons (machine guns and mortars) that are maintained in a humidity-controlled area and not removed for any reason at any time during the year will be serviced annually.

i. All equipment, except that stated in paragraphs 4–7h(6) and 4–7h(7), will be exercised quarterly.

j. Operators and/or crews will—

(1) Perform a monthly PMCS through monthly (before, during, after, weekly, and monthly) checks, per the TM.

(2) Drive tactical vehicles, and pull trailers sufficiently (minimum 5 miles) to exercise seals and ensure mission capability.

(3) Operate construction equipment, engineer equipment, wreckers, materiel handling equipment and combat vehicles with hydraulic systems sufficiently to reach operating temperature and ensure mission capability.

(4) Operate generators, air compressors, support equipment, pumps, and power-driven chemical, biological, radiological, and nuclear equipment to reach operating temperature and ensure mission capability. Recommended duration is 30 minutes for under load or 60 minutes for no load.

(5) Inspect small arms and crew served weapons for rust and corrosion.

(6) Emphasize visual inspections to identify and remove corrosion that may have formed. Inspections may be required more frequently in geographical regions where high humidity is normally present.

(7) Remove corrosion that is found during inspections and ensure preventive measures are taken to inhibit future corrosion.

(8) Verify the equipment usage does match the data in TELS.

(9) Monthly, verify equipment usage data in TELS matches the odometer reading.

(10) Quarterly, commands will validate at least 25 percent of equipment usage in TELS against the actual equipment odometer reading. Units will validate different equipment each quarter. If the quarterly validation determines that usage data is more than 20 percent inaccurate, the unit must validate 100 percent of unit equipment usage data and make corrections as required in this pamphlet and DA Pam 750–8.

4–8. Technical inspections

A technical inspection (TI) is a visual or instrumentation driven check performed on a piece of equipment to verify it meets the specifications and conditions required by the Army maintenance standard. TIs are performed upon receipt, prior to repair, evacuation, or turn-in of unserviceable end items, or as directed to determine equipment's serviceability. See AR 750–1 for policy on TIs. The following procedures are mandatory.

a. The first step of the TI process is to determine if the piece of equipment is on the Master Divestiture List and requires mandatory turn-in. Per AR 220–1, equipment items that have been formally designated with an logistic control code (LCC) O-Obsolete will not be considered for S-level readiness. Items with an LCC of S-discontinued are no longer acceptable for Army operational use per DA Pam 708–2.

b. The TI sheet will accompany the applicable turn-in documentation to the managing LCMC.

c. Sanitization —When an inspector discovers or suspects that biohazards, including human body tissue or fluids, are in/on an equipment item, the inspector will determine the level of effort required to properly clean and return the equipment to the Army maintenance standard. This includes agricultural inspection, health, and safety standards. If the field maintenance unit has the required medical protection equipment and soap, water, or a high pressure washer or steam cleaner, the field maintenance unit will clean the equipment. Preventive medicine teams will supervise the sanitizing performed by the field maintenance units who will continue with required repairs once the equipment sanitization is complete. Do not use high pressure or steam cleaning on aircraft systems or subsystems. Refer to TM 1–1500–344–23–2 for biohazard cleaning of aeronautical systems.

d. Brigade commanders will determine how much time and how many resources to devote to sanitization efforts pending the mission, enemy, terrain and weather, civil considerations, and other factors.

(1) To accomplish this task, brigade or equivalent staffs will coordinate for mortuary affairs, preventive medicine teams, and local chaplains to augment field maintenance units, as required.

(2) If the technical inspector determines that the level of effort exceeds available time, manpower, or other resources, the work order will be closed and the equipment coded "H" or "P" then sent to the local supply distribution point for retrograde to the designated maintenance activity capable of performing equipment cleaning, disassembly, or reassembly, see paragraph 4–11.

e. When a technical inspector at the field or sustainment maintenance level detects other than fair wear and tear damage on an end item/Class VIII/IX component, the technical inspector will—

(1) Document in detail the other than fair wear and tear damage on DA Form 5988–E, DA Form 2404, or DA Form 2408–13–3 (Aircraft Technical Inspection Worksheet).

(2) Forward the form to the battalion or equivalent-level commander of the unit that ordered the work on or turned in the damaged end item/Class VIII/IX component.

(3) The commander will determine if further action will be taken under the provisions of AR 735–5. Damaged property will be released for repair or turn-in as soon as the inspector has physically examined the damaged property and the assigned investigating officer has released it. The repair or turn-in of a damaged end item or component will not be started until AR 735–5 requirements are satisfied.

f. When the owning unit suspects the damage to the end item/Class VIII/IX component was caused by negligence or willful misconduct, a work order must be completed and will accompany the end item/Class VIII/IX component to the SOR for an estimated cost of damage (ECOD) assessment. After completion of

the ECOD, the end item/Class VIII/IX component will be turned in or a work order for repair will be created as soon as possible, consistent with evidentiary requirements in AR 735–5.

g. When the TI supports an investigation of financial liability and actual costs cannot be determined, inspectors will prepare an ECOD. See AR 735–5 for basic policy guidance on preparing an ECOD in support of DD Form 200 (Financial Liability Investigation of Property Loss).

h. Use a DA Form 5988–E, DA Form 2404, or DA Form 2408–13–3 to record the results of TIs.

i. ECOD or actual cost of damage (ACOD) are processes used to estimate costs to Government-owned equipment prior to repair or turn-in of unserviceable end items or components.

j. An ACOD calculation follows if required—

(1) An ECOD may be requested by the owning unit commander or may be provided to the commander by the maintenance activity in the absence of a specific request. Upon TI by the maintainer and verified by a designated technical inspector, it is determined that damage to the equipment is other than fair wear and tear.

(2) DA Pam 750–8 gives systematic guidance on how to prepare a DA Form 2404 or DA Form 5988–E when used as an ECOD. Use DA Form 2407 or DA Form 5990–E to initiate a work order to perform an ECOD. Automated forms are available on APDs website.

(3) The commander or equivalent is the sole authority for determining the circumstances of the damage and to assess whether willful misconduct or negligence occurred. If willful misconduct or negligence is suspected, the commander will initiate a DD Form 200 to formally investigate and decide as to pecuniary liability for the damage.

(4) If the cost of repair exceeds the maintenance expenditure limit (MEL), use the MEL value to compute the amount of loss to the Government. See AR 750–1 for cost to exclude from MEL computation. The MEL is the maximum amount limit that can be spent on an items one-time repair (OTR) to return it to the Army maintenance standard.

(5) Repair costs for ECODs are based on the costs necessary to return materiel to a serviceable condition. If repairs are determined to be within the scope of the maintenance activity, serviceability standards applicable to the level concerned will be used to determine work required.

(6) Disposition of materiel is the responsibility of the using unit and the SSA accountable officer. For procedures on the disposition of uneconomically repairable materiel by supply activity, see DA Pam 710–2–1 and DA Pam 710–2–2.

4–9. Verification inspections procedures

a. Verification inspections of major end items ensure the accuracy of a TI when it results in unserviceable, uneconomically reparable CC of H or P. For policies regarding TIs see AR 750–1. The following procedures are mandatory.

b. The recording of a verification inspection will be done by typing or stamping a statement on the DA Form 2404 and/or DA Form 5988–E. The required data elements are as follows:

(1) Organization of the verifying inspector.

(2) Inspector’s name and grade.

(3) Date of inspection.

(4) Signature of inspector.

c. Major end items with CC of H or P that fail a verification inspection will be referred to the maintenance officer with the corrected Classification. The maintenance officer will determine further action required to repair the item.

d. When determining/verifying CC H (Unserviceable Condemned), technical inspectors will ensure that the item being Classified is in fact not repairable at any level of maintenance (to include depot or special repair activity), or otherwise meets the definition of CC H per AR 725–50. When the reparability of the item cannot be conclusively determined, do not use CC H.

4–10. Maintenance expenditure limit

For policy regarding MEL and process to request exception to MEL policy see AR 750–1.

a. MEL is the total acceptable one-time cost to repair an end item or reparable component to a fully serviceable condition as prescribed in the appropriate TM. Current MELs and MEL procedures are listed in the TB 43–0002 series, TB 750 series, and Army Enterprise Material Master (AEMM) or WebFLIS. The managing national inventory control point (NICP) should be contacted if unsure of the current MEL. There

may be instances when the MEL for a major end item has changed, and the change has not yet posted in either TB 43–0002 series or the TB 750 series.

b. MEL computation is only required under specific conditions. MEL is not required if the item being repaired is not excess to unit needs, has not been accidentally damaged, or is not intended to be repaired by higher level maintenance on a return-to-user basis. See paragraphs *4–10h* and 4–10i(4). The following procedures are mandatory per AR 750–1.

c. Determine the Army master data file (AMDF) and/or unit price by:

(1) For end items, use the cost from AEMM or WebFLIS for the source of the replacement asset. The AEMM or WebFLIS price used must be for the exact model of the item that is being repaired. Substituting different models is not allowed.

(2) For reparable components and repair parts, use the AEMM or WebFLIS for the source of the AMDF/unit price.

d. Include local/geographical costs when calculating overhead and labor costs.

e. Use the following direct costs to determine repair cost estimates when faults are found during TIs:

(1) *Direct labor.* Direct labor is labor (civilian or military) that can be specifically identified as the repair to be performed. Direct labor involves only personnel in direct productive contact with the item or service involved. This does not include initial inspection. To estimate direct labor costs, determine the direct labor man-hours required and multiply by the hourly labor rate.

(2) *Direct labor man-hours.* The determination of the direct labor man-hours are based on working hour requirements for maintenance tasks listed in the applicable equipment publications; commercial flat-rate manuals, historical work performed, or individual experience. The direct labor man-hours will be periodically reviewed and updated as needed.

(3) *Civilian labor rates.* The cost of civilian labor will be based on a labor rate for the work center that will perform the work. The servicing finance and accounting office, whether determined from annual salaries or hourly wage rates, will provide labor rates.

(4) *Military labor rates.* Labor rates for military personnel is the average military wage rate for the work center performing the work. The servicing finance and accounting office provides these rates.

(5) *Established labor rates.* ACOM, ASCC, and DRU commanders and directors of agencies can establish and use standard hourly rates for direct and indirect labor if such rates are consistent with DFAS–IN Manual 37–100. Once the standard rates are identified, create different rates for each category of supportable materiel, commodity group of equipment, and weapon system. A separate standard labor rate will be established for each major geographical area where wage levels vary significantly.

(6) *Materiel.* The cost to repair includes all materiel, including procurement appropriations funded materiel directly applied to the equipment undergoing repair—

(a) The cost of consumable items received from the supply system may be set as billed by the supply agency. If billing information is unavailable, the cost of consumables is set at the standard inventory price as published the supply manuals, AEMM, or WebFLIS. Items procured from local sources are priced at the latest invoice cost. Cost of items fabricated will be based on actual cost. If the actual cost is unavailable, engineering estimates, including indirect expenses, will be used.

(b) The cost of Government-furnished materiel expended by a contractor in performing all or part of the repair will be the standard inventory price.

(c) The cost of replacement components and assemblies used in the repair process will be set at the standard inventory price. Credit is taken for the return of the reparable component in the amount equal to the current standard inventory price less the estimated cost to repair the component.

(d) Do not include freight costs if the equipment can be repaired on site and is CONUS. If the equipment to be repaired is located overseas and no local capability to repair exists, the cost of freight to CONUS will be included as an element of cost. The cost of freight will include all transportation and handling costs from point of use to designated CONUS point of repair.

(e) When equipment cannot be repaired onsite and costs are incurred to prepare the equipment for shipment, such costs (including materiel) will be included in the estimate of cost to repair regardless of origin or destination.

f. Determine indirect costs by applying the indirect rate to the estimated direct labor hours (DLH) (use DFAS–IN Manual 37–100). The indirect rate includes:

(1) Manufacture or production expenses—costs incurred within or identifiable to the maintenance shop or organization performing the repair work, although not identifiable to jobs.

(2) General and administrative expenses—costs incurred in the general management or supervision of the installation that are allocated among maintenance and other activities.

g. Miscellaneous repair costs include contractual services acquired incidental to and identifiable with the performance of all or a portion of the specified repair. All costs directly identifiable with the equipment will be included unless listed in *paragraph 4–10i*.

h. Operating expenses include scheduled maintenance plans (scheduled services) and repairs can be accomplished by the using organization, including repair parts. These costs will be included when the item being repaired is excess to unit needs, was damaged accidentally, or is repaired by higher level maintenance on a non-return basis.

i. Do not include the following costs in the cost to repair estimate:

(1) Replacement of basic issue list items.

(2) The labor cost of applying MWOs.

(3) The cost to overhaul or replace accessory items used to adapt equipment for special uses, including such items as rank insignia, winterization kits, flashing lights, two-way radios, tool kits, and similar items. Cost estimates to overhaul such items will be made as needed.

(4) Operating expenses, when the item being repaired is not excess to unit needs, has not been accidentally damaged, or is repaired by higher level maintenance on a return-to-user basis including NSNs listed on the organization and support maintenance repair parts and special tools list.

(5) The cost to replace missing tools for those sets, kits, and outfits that are subject to MEL.

(6) Cost of any pending maintenance plan (scheduled services).

4–11. Turn-in procedures for serviceable excess and unserviceable reparable parts and components

The following procedures are mandatory per AR 750–1:

a. Field maintenance activities will turn-in unserviceable, serviceable, and not repairable this station (NRTS) reparable items and assemblies to the SSA within 10 working days of identification, classification, / removal from the end item per AR 710–2.

b. Sustainment maintenance activities will turn-in unserviceable, NRTS repairable items, and assemblies to the SSA or comply with disposition instructions within 10 working days of identification, classification, and removal from end item.

c. For expedited local processing, cleaning, preservation, and preparation for shipment, the following actions apply:

(1) *Steam cleaning.* Steam cleaning of major assemblies and components is not required at any level below installation. Steam cleaning is not required at installation level for assemblies repaired at depot. Any cleaning to facilitate diagnosis or repair will be done in accordance with applicable environmental regulations. The organization that performs this maintenance is responsible for the steam cleaning, if required for overhaul/rebuild of the assembly. The only authorized exception to this procedure is when steam cleaning is required to meet agricultural inspection standards. Aviation equipment will be cleaned only according to TM 1–1500–344–23–2 and aircraft specific manuals.

(2) *Lubricants.* Do not drain lubricants prior to turn-in. Exceptions include when a metal shipping container is not available / the major assembly cannot be safely transported to the repair location. If the repairing organization does not have sufficient approved capacity to collect and dispose of used lubricant, the supporting maintenance organization will be notified for disposition instructions.

(3) *Shipping.* Major assemblies and components will be shipped under transportation priorities applicable to the supply priority designators and procedures outlined in AR 725–50.

(4) *Packaging and preservation actions.* These will conform with DA Pam 700–32.

(5) *Inspections.* After the initial inspection is performed by the supporting field/sustainment maintenance activity, intermediate supply activities will not require additional Classification inspections. If items are not immediately shipped, instead put into storage, begin COSIS inspection frequencies according to AR 740–3.

(6) *Movement and movement control.* Where possible, the major assembly or component will be shipped directly to the repairing activity. Only the associated documentation will be routed normally through appropriate supply and/or transportation management activities.

d. The repairing activity will report any missing parts and damage-in-shipment discrepancies using established discrepant shipment procedures in AR 725–50. Inconsistencies between the repairing facility's

Classification inspection and the initial Classification inspection will be reported back to the shipping organization commander.

4–12. Equipment transfer and turn-in procedures

a. For equipment transfer and turn-in policy see AR 750–1. The procedures in this paragraph are mandatory.

b. ACOM, ASCC, and DRU commanders will standardize the materiel transferred between units within the ACOM, ASCC, and DRU; except for materiel being transferred within the ACOM, ASCC, and DRU from a regular Army unit to a RC follow AR 750–1. Use of TM 10– and TM 20–series PMCS maintenance standard is encouraged. ACOM, ASCC, and DRU commanders will provide necessary maintenance resources and assign responsibility for repair of materiel in the ACOM, ASCC, and DRU.

c. Equipment turn-in will follow these special provisions:

(1) Equipment contaminated by human body tissue or fluids will be handled as follows—

(a) When an inspector discovers or suspects that biohazards, including human body tissue or fluids, are present in/on an equipment item, the inspector will immediately stop the inspection to—

1. Determine the level of effort required to clean the equipment to return it to the Army maintenance standard.

2. If the level of effort is small (time and manpower are available) and proper medical protection equipment and supporting resources are available, the field maintenance unit will clean the equipment under the supervision of preventive medicine teams.

3. If the level of effort exceeds the available time or if proper medical protection equipment or supporting resources are not available, the inspector will close the work order using a work request status code of X and a failure code of 409 (Sanitize).

4. Place an appropriate CC on the equipment work order writing the words of “Not Repairable This Station Cleaning Required” in the remarks block.

5. Write the word “Sanitize” using white or yellow chalk or paint on the side of the equipment in large 12-inch block letters.

6. Turn-in to the local supply distribution point for retrograde to the designated maintenance activity capable of performing cleaning, disassembly, and reassembly.

(b) Cleaning of equipment will be accomplished by a field or sustainment maintenance unit / activity with the capability to assemble, disassemble and clean equipment. Commanders will plan to augment field and sustainment maintenance units / activities with military manpower, mortuary affairs teams, preventive medicine teams, and local chaplains as required.

(2) Equipment selected for repair in depot maintenance facilities will arrive at the depot repair site in the same or better condition of serviceability as when originally selected (TI performed and recorded on DA Form 5988–E, DA Form 2404, or DA Form 2408–13–3) for inducted into depot maintenance programs. AMC MSCs commanders will conduct depot maintenance evaluations/TIs and will use them for programming depot maintenance workloads and related purposes.

(a) COMPO 1 APSR (property book) items and other end items of equipment that have been inspected, evaluated, and accepted as candidates for induction into AMC depot maintenance programs will be promptly turned in to the supporting Forward Distribution Point (FDP) Supply Support Activity (SSA) via a supply transaction, according to the proposed sourcing decision directive instructions, otherwise known as disposition instructions. These instructions will be provided via AMC’s Lead Materiel Integrator Decision Support Tool (LMI–DST). COMPO 2 and 3 property book items and other end items of equipment that have been inspected, evaluated, and accepted as candidates for induction into AMC depot maintenance programs may be inducted into the AMC depot as either a supply or maintenance transaction per specifications of any applicable MOUs and within the provisions of DoD Instruction (DoDI) 1225.06.

(b) In cases where the depot candidate item cannot be promptly shipped to the depot repair site for immediate induction, the unit commander may retain custody / operational use of the accepted item. Some of these items may still be mission capable (MC). In all such cases, the owning and/or custodial commander will perform corrective actions at the receiving/handoff site to ensure equipment is in the same condition as reflected by record copy of acceptance as required in AR 750–1. To ensure that these candidate items are in the same better condition of serviceability, the equipment being turned in will be re-inspected for acceptance by the receiving command, or appropriate agency, a minimum of 90 days prior to turn-in. This re-inspection will be based on the original qualifying inspection noted in AR 750–1.

(c) Cannibalization of depot maintenance candidate items and controlled exchange or component parts by field organizations is prohibited. Exceptions will be made only in urgent cases of field operational readiness requirements and then only with the written concurrence of the AMC MSC commander.

(3) Tactical wheeled vehicles identified as excess to unit APSR or as candidates for cascade to RCs must have AMC item manager disposition instructions for turn-in to the DLA–DS in addition to MEL documentation.

(4) Equipment used for BASOPS or for the original purpose operator and/or crew training will meet the transfer and/or turn-in standard in accordance with AR 750–1.

(5) Turned-in materiel staying in the physical custody of units but on the property accounts at FDP SSA or higher levels will not be scheduled for repair or maintenance services unless directed by the command having property accounting responsibility (for example, SSA or NICP). Commanders will ensure that these items are not cannibalized or involved in controlled exchange without prior authorization from the NICP.

(6) Items found on post may be turned into the supporting SSA in an as-is condition in accordance with paragraph 4–12c(2); however, commanders will take responsible action to maintain the value, utility, and security of Government property while it is in unit custody. COMSEC equipment found on post, including controlled cryptographic items (CCIs), requires the submission of a COMSEC incident report per AR 380–40 and an AR 15–6 investigation per AR 735–5.

4–13. Logistics Assistance Program

a. The Commanding General, AMC manages the worldwide Logistics Assistance Program. Each AMC LCMC and Army Sustainment Command (ASC) provide technical and logistical assistance to the field for maintenance and commodities of equipment.

b. Logistics Assistance Representatives (LARs) perform such assistance services as:

(1) Tracking down the exact status of a critical requisition.

(2) Finding a critical part, module, or subassembly.

(3) Helping resolve systemic supply and maintenance problems.

(4) Providing assistance on warranty issues.

(5) Coordinating and conducting specialized training on the maintenance of equipment.

(6) Providing on-site technical assistance when needed.

(7) Spot checking total package fielding for the LCMC.

(8) Assisting maintenance personnel with identifying and fixing complex equipment problems.

(9) Assisting units to obtain and expedite critical parts.

c. LAR's are the technical building block of the AFSB. DA Civilians with specialized training on specific supported equipment. LAR's provide systems oriented supply and maintenance technical assistance to Army units. LAR's have substantial experience on the equipment they support and provide answers to maintenance, training, supply parts, and operational readiness questions. LAR's also take an active role in educating and training Soldiers and may perform hands on maintenance to resolve unique readiness situations, or to effect substantial cost savings, subject to approval of the appropriate LCMC. LAR's belong to their specific LCMC, but are attached to AFSB/AFSBns. Here is a list of the types of LARS—

(1) Aviation and Missile Command (AMCOM) LAR's (ATP 4–98)---

(a) Ground Missile Systems.

(b) Air Defense Systems.

(c) Multi-Missile Systems.

(d) Attack Aircraft Airframe (AH–64D/E).

(e) Attack Airframe Electronics (AH–64 D/E).

(f) Utility Aircraft.

(g) Medium Aircraft.

(h) Cargo Utility Aircraft Electronics.

(i) Multi-Aviation Systems Airframe.

(j) Unmanned Aircraft Systems (Gray Eagle/Shadow).

(2) CECOM LAR's (see ATP 4–98)---

(a) Power generation and environmental systems.

(b) Informational Technology Radio.

(c) Informational Technology Switch.

(d) Long Haul Transmission.

(e) Sensor (Radar).
(f) Logistics Information Technology & Mission.
(g) Intelligence & Electronics Warfare.
(h) Avionics.
(3) TACOM LAR's (see ATP 4–98)---
(a) Combat Support/Combat Service Support.
(b) Ground Combat Systems.
(c) Soldier, Biological, Chemical.
(4) Joint Munitions & Lethality Command (JM&L)/Quality Assurance Specialist, Ammunition Surveillance (QASAS) (see ATP 4–98).

d. Army field support brigades are the forward command and control teams representing AMC through ASC that have been designated to supervise and coordinate all in-theater support provided by AMC activities.

4–14. Managing unit and organization repair parts and maintenance-related supplies

In order to ensure that Army units can independently sustain successful operations for brief periods, Army policy requires commanders to establish and maintain limited quantities of supplies.

a. Shop supply listings and their maintenance-related supplies of common hardware and other items will be combined as directed in AR 750–1. AR 710–2 outlines Army policy for managing individual elements of these stocks. Commanders will develop an overall listing of repair parts assets in accordance with supply policy in AR 710–2.

b. Maintenance and supply managers will conduct quarterly shop supply listing reviews using the TELS and in accordance with AR 710–2.

(1) Maintenance providers will maintain shop supply listings when not co-located with a SSA. Under co-location conditions, supplies must be made accessible within minutes of the supply requirement. These conditions apply equally to MTOE or TDA organizations.

(2) Bench stocks must be available in all maintenance operations.

(3) Repair parts needed to complete repairs and not available from shop supply listings will follow AR 710–2, with issue priority designator consistent with the MPD.

4–15. Using the Army maintenance management system and spares management for successful maintenance operations

a. Leaders and commanders must ensure that supply and TAMMS team members are fully cross trained with backups available from other elements in the organization as necessary. The operation of this organization should be in unit SOPs so that the unit's mission is not inhibited by unexpected absences or losses.

b. Equipment Records and Parts Specialist (ERPS) and Aviation Production Control clerks must conduct the following operations:

(1) Record data from equipment inspections and fault correction worksheets within GCSS–Army. Ensure appropriate codes such as cause codes, fault codes and object part codes, are utilized from equipment inspections and fault correction worksheets (see DA Pam 750–8, DA Pam 738–751, GCSS–Army EUM).

(2) Record data on work referred to support maintenance (see DA Form 2407).

(3) Record equipment faults that could not be corrected that day (see DA Form 5988–E).

c. When the operator finds equipment faults that cannot be worked off by the operator, the ERPS clerk records it on a DA Form 5988–E. The DA Form 5988–E generated by TELS includes both uncorrected faults and parts ordered. This alerts the equipment operator and unit leader of the current condition of the equipment. When an operator/crew identifies a non-mission capable (NMC) fault, they will notify unit maintenance immediately. Unit maintenance will verify the NMC item and initiate repair actions in accordance with AR 750–1 and the appropriate TMs. When an equipment operator/crew identify a NMC fault, unit maintenance will coordinate with the operator/crew for verification and corrective actions in accordance with AR 750–1 and appropriate TMs. Once the unit completes all corrective action, the clerk will update DA Form 5988–E or DA Form 2408–14 with the new information.

d. Unit maintenance personnel will conduct maintenance and supply operations per applicable ARs, Pams, and local SOPs.

4–16. Using supply support activity to support maintenance operations

The SSA provides Class VIII/IX and other supply support to assigned customer units and transient organizations on an area support basis. Stock quantities are based on demand history per the policy in AR 710–2. The SSA receives and processes unit requisitions per AR 710–2, DA Pam 710–2–1, and local SOPs. The SSA compares requests for issue (or turn-in) against SSA stock records.

a. Parts are issued in accordance with unit assigned priorities.

b. If stock is not available, the SSA will establish a due-out status to the unit and pass the requirement to the National Level Supply for procurement (see AR 710–2).

c. The SSA periodically provides status reports on open requests to all supported units in accordance with AR 710–2 (for example, daily supply status updates and parts received report).

4–17. Controlled exchange

a. Controlled exchange is the removal of serviceable components from unserviceable, economically repairable end items for immediate reuse to restore a like item or weapon system to a FMC condition. Controlled exchange is authorized only when—

(1) Required components are not available from the source of supply within the timeframe reflected by the issue priority designator.

(2) A valid requisition is submitted to replace the unserviceable item.

(3) The maintenance effort required to restore all of the unserviceable reparable material involved is within the MAC authorization and the capability of the unit performing the controlled exchange.

(4) The end item or weapon system from which the serviceable component is removed is Classified NMC supply.

(5) Classify serviceable components removed from aircraft as one of the following: NMC supply, NMC maintenance, or partially mission capable.

(6) Aircraft maintenance manual instructions require that a known serviceable component be temporarily used while troubleshooting. Such components may be temporarily exchanged from a FMC or preventive maintenance check aircraft.

(7) The end item or weapon system will not be degraded to an uneconomically reparable condition.

(8) Protect the end item or weapon system from further degradation.

(9) Tag and retain the unserviceable component with the end item or weapon system the serviceable item came from. In addition, record the removal of the component on DA Form 2407 or DA Form 5988–E/DA Form 2404/DA Form 2408–13–3 for the end item or weapon system. This retains the identity and integrity of the reparable end item or weapon system.

(10) The organization performing the controlled exchange takes prompt action to restore the unserviceable equipment to FMC condition.

(11) When the controlled exchange take place when a requisition is already in the Army supply system, use the incoming part to restore the unserviceable end item or weapon system to FMC.

(12) All the unserviceable reparable material involved is owned or under control of the organization performing the controlled exchange.

(13) It is the only means reasonably available to eliminate an adverse effect on the operational readiness of the unit, organization or activity performing the controlled exchange.

(14) Approved by the commander of the organization performing the controlled exchange.

b. Controlled exchange by FLM will be authorized only when—

(1) It is the only means of providing a FMC end item or weapon system to a supported unit within the timeframe indicated by the issue priority designator on the maintenance request.

(2) The commander of tactical FLM organizations and LRC director, or a designated representative approves the exchange.

c. During mobilization or combat, ACOM, ASCC, DRU, or Joint commanders may modify the controlled exchange conditions as deemed necessary.

d. Controlled exchange is not authorized when the investigating officer has not formally released materiel involved in an accident or AR 15–6 investigation.

e. Controlled exchange is not authorized on operational readiness float assets.

f. Maintain controlled exchange documents and logs in accordance with AR 25–400–2 with documentation filed with the record retention schedule located at https://www.arims.army.mil.

4–18. Contractors on the battlefield

Refer to AR 715–9 for additional information.

4–19. Manual readiness reporting

a. Manual reporting is not required or authorized if EMSR reporting through TELS is possible. The most useful part of the DA Form 2406 is page 2 of the completed form. Some commanders require their maintenance personnel to complete the second page daily, to ensure the visibility of NMC equipment. Equipment that is non-operational for administrative or safety reasons should also be noted on the page 2.

b. Page 1 of the completed monthly DA Form 2406 is the historical report on equipment availability over the reporting period. Leaders should review this completed form carefully to ensure its accuracy.

(1) Check first hand to ensure the quality of preparation by your organization. Check random DA Form 5988–E/DA Form 2404 against the corresponding DD Form 314 (Preventive Maintenance Schedule and Record).

(2) Check a specific model and compare the authorized quantity with the MTOE authorization, counting items that make up a system. If a part of a system is NMC, the whole system is NMC. Check AR 700–138 against the MTOE equipment line item numbers to determine if the correct number and types of systems are included on the report.

(3) Compare the on-hand quantity of an equipment model against the number of copies of DD Form 314, noting substitute line items. Check the report period to verify the possible days for reporting purposes.

(4) Total the non-available days taken from the copies of DD Form 314 and subtract from the possible days to verify available days.

(5) Ensure that the non-available days are divided correctly into the supply and maintenance categories.

(6) Compare these numbers to the daily DA Form 2406 (see DA Form 5409 (Inoperative Equipment Report)/DA Form 5410 (Unit Level Deadlining Parts Report), if not using TELS) and file copies of DA Form 2407.

(7) Request the equipment nonoperational reports to cover a company or battalion-sized units for as many days as needed. The report period for a DA Form 2406 should provide data to match the DA Form 2406 backside. The customer reconciliation report lists all work orders the maintenance organization has in an open status for the customer unit. The report contains non-mission capable-supply and NMC maintenance time.

c. Examine readiness profiles in the unit status report closely and identify any degradation to readiness. Review broad factors

(1) Unit maintenance performance during the most recent readiness exercise or the Army Training Evaluation Program.

(2) Availability of maintenance leadership and skills.

(3) Maintenance training requirements and shortfalls. Commanders decide the overall readiness status based on their observations, statistical data, and informed judgment. If help is needed, note this on the unit status report.

Chapter 5
Sustainment Maintenance

5–1. Sustainment maintenance

a. Sustainment maintenance is the second function of the Army maintenance system. LRCs and Theater Logistics Providers (Materiel Support Center–Korea and Theater Logistics Support Center–Europe) are Field Maintenance Activities but may perform Sustainment Maintenance work with authorizations from AMC to support the National Maintenance Program (NMP) per special repair authority (SRA), one-time repair authority, or forward repair activity (FRA). Sustainment maintenance is characterized by:

(1) Commodity-oriented repair of components and end items in support of the Army.

(2) Job shop/bay or production line operations with the capability to task/organize to meet special mission requirements.

(3) Structured depot and theater support activities which support the NMP.

(4) Tactical, installation, depot, and contractor activities.

(5) Facilities, tools, machinery, TMDE, and technical skills and manpower needed to execute the NMP repair standard.

b. The term sustainment maintenance consists of materiel maintenance or repair requiring the overhaul, upgrading, or rebuilding of end items, parts, assemblies, or subassemblies and the testing and reclamation of equipment as necessary, regardless of the source of funds for the maintenance or repair or the location at which the maintenance or repair is performed. Sustainment maintenance is characterized by two standards:

(1) Overhaul is the national maintenance standard that restores equipment or components to a completely serviceable condition with a measurable (expected) life. This process involves inspection and diagnosis according to the depot maintenance work request (DMWR) or a similar technical direction that identifies all components exhibiting wear and directs the replacement or adjustment of those items to applicable equipment specifications.

(2) Rebuild is a maintenance process defined as an end item total tear down and replacement of all expendable components, all aged components, reconditioning of structural components, and the procedures identified for overhaul of the end item. Recapitalization of an item includes rebuild and restores the item to a standard configuration while installing all outstanding MWOs and/or engineering change proposals and allowing for technology insertion.

c. Operations assigned to sustainment-level maintenance units / activities will normally include the following:

(1) Inspection, diagnosis, isolation, and repair of faults within modules and/or components per the MAC. Components repaired and returned to stock will be repaired to the NMP repair standard. This process involves inspection and diagnosis according to the DMWR or similar technical directions that identifies all components exhibiting wear and directs the replacement or adjustment of those items to original equipment specifications.

(2) Performance of body, hull, turret, and frame repair per the MAC.

(3) Area maintenance support, including technical assistance and onsite maintenance as required or requested.

(4) Collection and Classification of Class VII materiel and Class VIII equipment end items for proper disposition.

(5) Operation of cannibalization points when authorized (see AR 710–2).

(6) Assistance to field-level maintenance organizations with turn-in of unserviceable end items and components through the appropriate SSA.

(7) Fabrication or manufacture of repair parts, assemblies, components, jigs, and fixtures when approved by the ACOM, ASCC, and DRU commanders.

(8) Equipment modifications as required by AR 750–10; these are integrated into the overall maintenance workload.

(9) A DMWR, national maintenance work requirement (NMWR), statement of work, or other applicable technical directive is required as guidance for the overhaul and rebuild processes.

(10) Manufacturing of end items and parts not provided by or stocked in the national supply system.

(11) Special inspections and modifications of equipment requiring extensive disassembly or elaborate test equipment. These are performed, when practical, as part of cyclic overhaul or special depot maintenance programs.

(12) Nondestructive testing to determine the acceptability of removed used parts.

(13) Installation of all outstanding MWOs and minor alterations directed by the materiel proponent. Report the application of MWOs in MMIS. This function can be delegated down to qualified personnel or agencies.

(14) Post-production Software Support (PPSS) for weapon systems will begin once the first software increment is fielded to the first unit.

(15) Depot repair and return programs (see AR 750–1 for details).

(16) Painting of repaired or manufactured repair parts, or painting that cannot otherwise be accomplished at the field level due to lack of OSHA approved facilities.

(17) Warranty support (sustainment-level maintenance items).

(18) Special repair teams (sustainment-level maintenance is not always executed at the depot). Each LCMC under AMC uses special repair teams to provide inspection and repair per applicable TMs for ground and air assets. The special repair teams are a combination of organic and contract personnel and support missions such as the Small Arms Readiness Evaluation Team.

d. Sustainment maintenance activities, to include Government contractors performing maintenance on Army equipment, will use approved TELS, GCSS–Army, Maintenance Data Management System, Depot Maintenance Operations Planning System, and LMP, where applicable.

e. Sustainment-level maintenance is generally characterized by "off system" component repair or end item repair and return to the supply system, or by exception, back to the owning unit. It is performed by national-level maintenance providers (including AMC and Installation LRC Maintenance Activities). The sustainment maintenance function can be employed at any point in the integrated logistics chain. The intent of this level is to perform commodity-oriented repairs on all supported items to return them to a national standard, providing a consistent and measureable level of reliability, and to execute maintenance actions not able to be performed at the field level of maintenance. Sustainment maintenance supports both operational forces and the Army supply system. There are exceptions when sustainment-level maintenance activities may conduct maintenance and return items to the using unit. Sustainment maintenance will normally be performed by industrial-type activities operated by the Army; it may also be performed by contract and interdepartmental or interagency agreement. Sustainment maintenance is comprised of below depot sustainment and depot sustainment.

(1) *Below depot sustainment-level maintenance.* This level of maintenance is maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion generally after it is removed from the system. The remove and replace authority for this level of maintenance is indicated by the letter "H" appearing in the third position of the source maintenance recoverability (SMR) code. An "H" appearing in the fourth position of the SMR code indicates complete repair is possible at the below depot sustainment maintenance level. Items are returned to the supply system after maintenance is performed at this level. Below depot sustainment level maintenance can also apply to end item repair and return to the supply system.

(2) *Depot maintenance.* Depot maintenance is maintenance accomplished on end items or on a component, accessory, assembly, subassembly, plug-in unit, either on the system or after it is removed. The remove and replace authority for this level of maintenance is indicated by the letter "D" or "K" appearing in the third position of the SMR code. Depot sustainment maintenance can be performed by either depot personnel or contractor personnel when authorized by AMC. A "D" or "K" appearing in the fourth position of the SMR code indicates complete repair is possible at the depot maintenance level. Items are returned to the supply system, or by exception directly to a using unit after maintenance is performed at this level.

5–2. Repair parts support

a. Army depot maintenance activities performing depot-level repairs (DLRs) are authorized to requisition and store spares, repair parts, and consumable items to support their maintenance programs and fabrication requirements. Details on funding for repair parts, (for example, when to fund a parts requisition for the various types of Operation and Maintenance, Army (OMA) and Army Working Capital Fund (AWCF) and what type program each should pay for) are contained in AMC Resource Management Policy. These materials, when on hand at depot maintenance activities, are not available for redistribution until identified as excess to production requirements by the depot commander.

b. The LCMC and depot will review the depot maintenance forecasted requirements for the FY plus three out-years. Range and quantity of repairs parts forecast will be determined through the enterprise resource planning (ERP) parts explosion process. Requisition/procurement actions will be initiated sufficiently in advance of the induction schedule, to take in to account all administrative / production lead-time factors and order-ship time factors to ensure parts sufficiency for successful and on-schedule completion of the depot's and their customer's requirements. The ERP special program requirements process will be run quarterly. This process provides the capability for forecasting repair parts requirements for depot-level and cross-service maintenance programs to DLA and the Army.

c. The ERP's repair parts forecasting process captures a list of repair parts used for overhaul of reparable items, and the estimated parts usage factors for each repair part and then applies this information to the protection of the overhaul program repair parts requirements through out a three-year planning horizon. The ERP special program requirements process relies on several functional areas (that is, production planners, resource managers, and materiel managers) to maintain up-to-date data within their area of responsibility.

d. After ERP's parts explosion is run, automated special program requirements are generated to forecast repair parts requirements to the DLA and the Army life cycle management centers' demand planners. Special program requirements forecast piece parts requirements that will support depot production

planned for the next 3 years. Any rejects from this process needs to be manually reviewed by LCMC personnel.

e. The LCMC's demand planners for the repairable materiel and the industrial facilities' production planners will coordinate with other Army material managers, other Services, DLA, or General Services Administration's (GSA) supply planners, as applicable, to ensure that repair part requirements are being sourced to support the projected / planned maintenance program. Coordination includes forecasting, prepositioning, alteration, or changes necessary to ensure requirements determination is complete.

f. A temporary shortage of critical maintenance repair parts may be alleviated by local procurement, depot fabrication, controlled exchange, or reclamation, and is strongly encouraged to help ensure sufficient materiel is on-time to support production schedules. When depot overhaul factors are updated these buys / fabrications should be considered in depot overhaul factor consumption rates.

g. Repair parts consumed by industrial facilities are of two basic types: material charged to overhead and prorated across programs (such as bench stock); and material charged directly to programs. LMP/ERP systems consider both types to be material, define as those stocks or items used to support production (raw materials and work-in-process items), supporting activities (maintenance, repair, and operating supplies), and customer service (finished goods and spare parts).

(1) Material charged to overhead and prorated across programs (bench stock) includes low-cost, high usage, common-usage, consumable items used by maintenance personnel at an unpredictable rate. Additionally, this stock includes items such as common hardware, consumable tool parts (such as cutting blades and drill bits), electric/electronic piece parts, bulk materials (such as tubing, sheet metal, and wire), and repair kits composed of consumable materiel. See AR 710–2 for bench stock management.

(a) Depot maintenance activities are authorized to stock up to seven workdays of bench stock in the work area.

(b) Bench stocks are stored at or near the work area to give repair personnel direct access.

(2) Materials charged directly to programs include repair parts, spares, modification kits, and consumable items not qualified for bench stock. Also included are materials used for fabrication to support either a maintenance program or a funded fabrication program (such as sheets, roll and plate metals, wire, and brackets).

(a) Materials can be consumable or non-consumable.

(b) Materials are typically not stored in the work area and are staged in other controlled access facilities.

(c) Requisition actions will be directly driven by the depot production schedules. The LCMC will ensure the depot commander assigns a single point of management and control to maintain stockage levels and to be responsible for the planning and control of materials for all maintenance and fabrication programs. When an oversupply exists, the single point of management and control will take action to reduce or redistribute the excess stock.

(d) A single point of management and control will review stock levels quarterly. The review is to ensure sufficiency of material to support production within 360 days for AMC maintenance depots, the proper handling of excess / aged material, and the addition of new items to support evolving requirements. An aged material is defined as restricted and unrestricted material unused for more than 180 days. Long-lead items are an exception to this policy and are to be managed by the single point of management and control on a case-by-case basis taking into consideration dollar value and length of time that the materiel is restricted to work in process inventory. Aged restricted materiel not needed to complete a production order will be moved to unrestricted stock. Aged unrestricted materiel needs to be made available to the supply system for issue to other customers.

(e) Materials charged directly to programs (stocks based on parts explosion for the rebuild, overhaul, and repair programs) in an ERP environment will be managed on a collective (unrestricted/not restricted to a specific program) requirement basis.

1. Stock will be maintained in unrestricted inventory status and will not be assigned to a specific program until consumption (that is, until the shop floor (performing work center) is ready for the stock and the stock is issued to the specific program).

2. The ERP system's fully integrated capability (and industry best practice methodology) to manage stock across all inventory accounts and to balance demand and supply actions will be used.

3. Upon program closeout, the ERP system will issue exception messages where oversupply situations exist (inventory is more than dependent requirements driven from the bill of material (BOM)), BOM explosions on funded and unfunded programs, and over the authorized mission stockage level).

4. The Industrial Facility's Industrial Business Office will review the messages and take action to ensure current stock levels are reduced, through redistribution or disposal as appropriate, to reflect reduced future demand. Inventory reduction, redistribution, and disposal actions may include the following:

a) Cancellation of planned procurement actions and purchase orders where possible.

b) Possible return to supplier for credit.

c) Position excess materials in the plant account for global availability checking and consumption by parties other than the industrial base plant. Mark assets as "unrestricted stock."

5–3. Bill of material for materiel requirements planning

a. A BOM is the formally structured list of basic parts and materiel contained in equipment weapon systems, their components/assemblies, depending on the type of BOM. The primary function of a BOM, in the maintenance sustainment process, is to provide the official baseline to identify and determine material requirements and shortages (planned or actual) as a result of the materiel requirements planning (MRP). For policies regarding BOM for MRP see AR 750–1. The following procedures are mandatory per AR 750–1.

b. BOM for LMP and/or ERP LCMCs and their maintenance depots, together with other planning factors.

(1) Manufacturing BOM is a listing of all the subassemblies, intermediates, parts, and raw materials that go into a parent assembly showing the quantity of each required to fabricate an assembly. It is used in conjunction with the master production schedule (MPS) to determine the items for which purchase requisitions and production orders must be released. A variety of display formats exist for the manufacturing BOM, including single-level BOM and multi-level BOM.

(2) Remanufacturing bill of material (RBOM) is a listing of all of the subassemblies, intermediates, parts, and raw materials that go into a parent assembly showing the quantity of each required to repair or overhaul an assembly using a depot overhaul factor. It is used in conjunction with the MPS to determine the items for which purchase requisitions and production orders must be released. A variety of display formats exist for the RBOM, including single-level BOM and multilevel BOM.

(3) Depot overhaul factor is the quantity of all subassemblies, intermediates, parts, and raw materials that go into a parent assembly RBOM expressed in terms of a percentage (for example, the RBOM parent assembly has 1 each of part A. Typically, part A only needs repair and/or replacement 50 percent of the time, therefore the quantity in the RBOM parent assembly for part A is set at .5 each). Depot parts managers are responsible for updating the depot overhaul factors in BOM upon completion of maintenance programs.

(4) An MPS is a manufacturing plan that quantifies significant processes, parts, and other resources to optimize production, to identify bottlenecks, and to anticipate needs and completed goods. Because an MPS drives much factory activity, its quality dramatically affects a factory's profitability. Typical MPSs are created by software with significant user input and tweaking. Due to software limitations, but especially the intense work required by the master production schedulers, schedules do not include every possible aspect of production, but only key elements that have proven their control effectively, such as working hours, machines, available storage, and parts supply. The choice of what to model varies among companies and even among factories. The MPS is a statement of what the company expects to produce, and purchase expressed in selected items, specific quantities, and dates. The MPS translates the business plan, including forecast demand, into a production plan using planned orders in a true multi-level optional component scheduling environment. Using MPS helps avoid shortages, costly expediting, last minute scheduling, and inefficient allocation of resources. Working with MPS allows businesses to consolidate planned parts, produce master schedules, and forecasts for any level of the BOM for any type of part.

(5) Materiel master (MM) is an LMP/ERP area, which houses data relevant to RBOM and MRP logic including lead times, make or buy logic, level of repair and maintenance codes, and supply sources. MM records must be built and maintained for all equipment weapon systems, their components/assemblies prior to the creation of a BOM or the execution of MRP. Ensuring correct codes are present in the MM allows MRP to function correctly and helps ensure that the correct level of inventory is available to support established maintenance programs. MM records are maintained by both centralized LCMC and depot team's maintenance programs. MM records are maintained by both centralized LCMC and Depot teams.

5–4. Aviation sustainment maintenance

a. Aircraft will be selected as candidates for recapitalization and overhaul during peacetime under the aircraft condition evaluation program as described below:

(1) Aircraft with established overhaul programs will be evaluated annually by Aircraft Condition Evaluation Teams using criteria developed by the NMP fielded by the NICP.

(2) Aircraft condition evaluation data will be used by the NICP to establish a profile index for each evaluated aircraft by serial number and to determine sustainment overhaul candidates.

(3) Aircraft with the highest profile index will be scheduled for the sustainment overhaul program first.

(4) Aircraft overhaul programs will be developed by AMCOM based on data, funding, and sustainment capability. The overhaul program will be finalized and coordinated with ACOMs, ASCCs, and DRUs. The NICP will notify ACOMs, ASCCs, and DRUs at least 60 days in advance of the scheduled overhaul date of specific aircraft to be turned in.

(5) Aircraft scheduled for sustainment overhaul that subsequently incur crash or battle damage will be reported to the NICP for selection of replacement aircraft.

(6) As a related program to aircraft condition evaluation, the NICP will develop data from the EMSR and DA Pam 738–751 to assist in identifying possible sustainment maintenance candidates.

b. Aircraft in combat areas will be selected for sustainment maintenance per TM 1–1500–328–23.

c. An annual aircraft distribution conference will be coordinated by AMCOM. The distribution conference will be jointly chaired by the DCS, G–8 and DCS, G–3/5/7. PEO aviation ICW AMCOM, ACOMs, ASCCs, and DRUs will participate in the distribution conference. All conferences will be approved per current Army conference policy before committing or obligating any Army appropriated funds.

(1) The NICP will coordinate with the ACOM, ASCC, and DRU concerned to determine quantities to be turned in for overhaul.

(2) The ACOM, ASCC, and DRU will identify aircraft overhaul candidates by aircraft serial number.

(3) Listing of aircraft selected for turn-in / replacement will be published by AMCOM.

Chapter 6
Maintenance of Watercraft

6–1. Watercraft on condition cyclic maintenance

On condition cyclic maintenance (OCCM) is a sustainment-level service. This service is required to meet numerous, vessel specific, federal statutory and regulatory requirements. All Army watercraft will undergo OCCM per the intervals established in table 6–1. The intervals in table 6–1 are maximum time intervals. However, when a deviation of more than 3 months is anticipated, the using unit may request a waiver of up to 6 months with justification through the appropriate ACOM, ASCC, and DRU commander to TACOM according to AR 750–1. Request a Watercraft Inspection Branch Marine Condition Survey per AR 750–1 by the owning unit 180 days prior to the OCCM due date.

Table 6–1
Active component on condition cyclic maintenance intervals by class and type of watercraft

Class and type of watercraft	OCCM interval
Class A	
LSV	48 months
LCU	48 months
Class B	
LCM 8	36 months
MWT, CF	36 months
ST 900	36 months
Army prepositioned stocks OCCM intervals by Class and type of watercraft	
Class and type of watercraft	**OCCM interval**
Class A	

Table 6–1 Active component on condition cyclic maintenance intervals by class and type of watercraft—Continued	
LCU	60 months (48 months if vessel is activated)
Class B	
MWT, CF	72 months (36 months if vessel is activated for contingencies)
ST 900	72 months (48 months if vessel is activated for contingencies)

6–2. Watercraft maintenance reporting

Army watercraft will be maintained and reported using the processes and records outlined in DA Pam 750–8. TAMMS, associated supporting TELS, and in accordance with provisions in AR 56–9 use the following maintenance forms:

a. DA Form 2402 (Maintenance Tag).

b. DA Form 5988–E or DA Form 2404.

c. DA Form 2405 (Maintenance Request Register).

d. DA Form 2406.

e. DA Form 5990–E, DA Form 2407, and DA Form 2407–1 (Maintenance Request Continuation Sheet).

f. Standard Form (SF) 368 (Product Quality Deficiency Report (PQDR)).

g. DA Form 3590 (Request for Disposition or Waiver).

Chapter 7
Maintenance of Electronics, Digital Systems, Network and Test Measurement and Diagnostic Measurement Systems

7–1. Modification of communications security materiel

Modification of Army-owned COMSEC material is prohibited unless authorized in writing by U.S. Army Communications Security Logistics Activity and will be reported per AR 750–10. Unauthorized modification of COMSEC equipment is a reportable COMSEC incident.

7–2. Test, measurement, and diagnostic equipment

TMDE is any system or device to evaluate the operational condition of equipment or subsystems or to determine if a part or item is installed within specifications.

a. AR 750–43 explains the Army TMDE Calibration and Repair Support Program and requires units to appoint, on orders, a TMDE Calibration Coordinator.

Note. Commanders must ensure that a unit TMDE Calibration Coordinator is actively providing support to commands as outlined in AR 750–43.

b. TB 43–180 is the authority to validate calibration items. Units will receive their monthly calibration listing from the TMDE support unit.

c. TB 750–25 addresses TMDE records keeping. The following labels and forms require review:

(1) DA Label 80 (U.S. Army Calibrated Instrument).

(2) DA Label 163 (U.S. Army Limited or Special Calibration).

(3) DA Form 2417 (U.S. Army Calibration System Rejected Instrument).

d. Medical device maintenance activities will manage TMDE programs according to AR 750–1 and TB MED 750–2. Two TMDE Classifications are used by medical maintenance activities in support of the medical maintenance mission, these include:

(1) Test, Measurement, and Diagnostic Equipment–General Purpose (TMDE–GP)—This Classification applies to TMDE used for the diagnosis and repair of medical device. TMDE–GP is authorized at many activities and is fully supported by the U.S. Army Test, Measurement, and Diagnostic Equipment Activity.

(2) Test, Measurement, and Diagnostic Equipment–Special Purpose (TMDE–SP)—This Classification of TMDE has a specialized application and is used in the verification and calibration of medical devices. OEM or depot-level support may be required to service TMDE–SP.

7–3. Logistics information technology

Figure 7–1 displays a flowchart of commercial-off-the-shelf (COTS) and/or non-standard equipment (NS–E) computer repair and upgrade methodology.

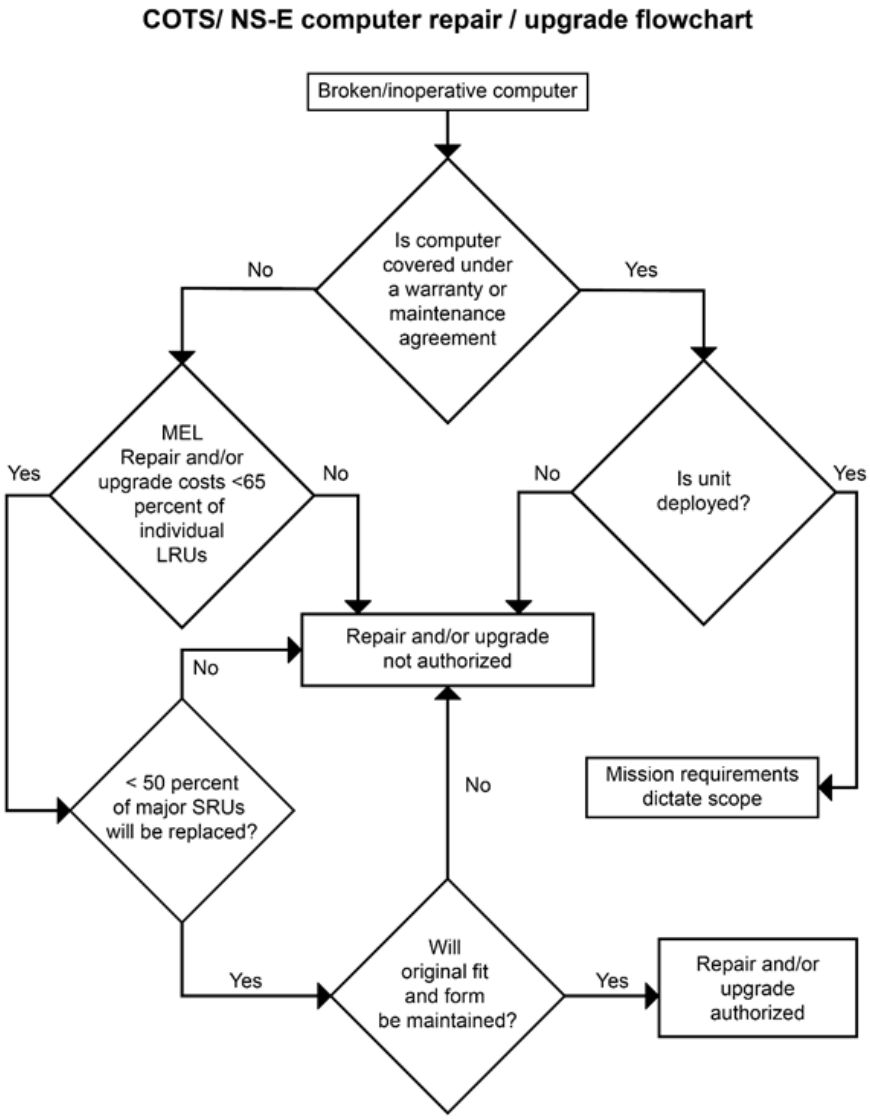

Figure 7–1. Commercial off-the-shelf and/or non-standard-equipment computer repair and/or upgrade flowchart

Chapter 8
Life Cycle Maintenance Support Procedures

8–1. General

a. Per AR 750–1, total cost of ownership reduction is an Army objective throughout the life cycle of the weapon system. The Chief of Staff, Army and the Army Acquisition Executive identified the reduction of operating and support costs as a high priority and vital to realizing modernization efforts. The system's total ownership cost includes costs associated with acquiring, operating, modifying, maintaining,

supplying, and disposing of weapon/materiel systems. Reducing total ownership cost is instrumental, not only to reducing fiscal demands on the operational commander, but also to generating savings that can be reinvested in support of Army modernization objectives.

b. For policies relating to mandatory life cycle maintenance support see AR 750–1.

8–2. Reliability-centered maintenance

a. RCM enables the optimal mix of condition-based actions, interval (time-based or cycle-based) actions, failure finding, or run-to-failure approach (see ADS–79–HDBK for aircraft/aviation systems). RCM involves identifying actions that, when taken, will reduce the probability of failure and which are the most cost effective. For more on RCM, see AR 700–127 or MIL–STD–3034.

b. Capability developers (CAPDEVs) and materiel developers (MATDEVs) will use RCM to determine the most effective approach to maintenance.

8–3. Condition-based maintenance, conditioned-based maintenance plus, and prognostic and predictive maintenance

a. CBM is a set of maintenance processes and capabilities derived primarily from real-time assessment of weapon system condition obtained through multi-authentication embedded sensors or external tests and measurements using portable equipment. CBM is performed when a need arises; when one or more indicators show that servicing is required, that the system is going to fail or that equipment performance is deteriorating.

b. PPMx is the data and machine learning driven capability to measure equipment health and performance characteristics to support the commander and life cycle manager's ability to plan and execute data informed and fleet management readiness decisions. It is achieved through the application and integration of processes, technologies, and knowledge-based capabilities that will allow the Army to achieve and maintain targeted availability, reliability, and cost targets for our weapon systems across their life cycle.

(1) PPMx provides the commander with the prognostic capability that supports the ability to assure operational availability of the unit's primary war fighting systems for current and future operational cycles.

(2) It is also the means by which the Life Cycle Management Team can perform the iterative assessment of fleet operating health to support the planning and execution of reliability and maintainability improvements, depot overhaul, service life extensions and recapitalization decisions and modernization.

c. PPMx architecture and data.

(1) The PPMx architecture includes equipment on board health monitoring systems or sensors with digital source collectors, signal transport capabilities to move data from platform to point of action (from and to the tactical, operational and national level) and back, on and off board health and failure alert notification capabilities and the data storage and computing environment.

(2) PPMx is a machine learning enabled capability, but will require human expertise within the battlespace and at the national levels to validate fault alert accuracy and provide the technical and experiential expertise to improve the prognostic applications capability. The TM maintenance instructions and troubleshooting procedures may be embedded (displayed, triggered, alerted, etc.) with PPMx to support proactive maintenance functions. Diagnostic algorithms provide the prognostic capability that takes the Army from reactive maintenance at point of failure to maintenance performed at the appropriate time in support of the Commander's plan.

(3) Each PPMx-enabled system will have its own prognostic application; however, these applications are not to be proprietary to any of the original or subsequent OEMs. Whether Army-owned or -operated or provided as a service; the Army will retain the right to use all data and analytical results to preserve readiness-based decision space and without additional licensing or other like costs.

(4) CBM supporting indicators include non-invasive measurements, performance data and scheduled tests. The performance data can be captured by either on or off platform tools or capabilities.

(5) Condition data is gathered at intervals or continuously (for equipment with internal sensors and either source collectors or a health monitoring system) to support the Commander's ability to know whether or not the unit's primary war fighting systems can be available throughout the upcoming operational cycle. PPMx uses primarily nonintrusive testing techniques, visual inspection, embedded sensors, and performance data to assess equipment condition (see ADS–79–HDBK for aircraft/aviation systems).

(6) Equipment usage, engineering and parametric data will move from supported equipment to the battalion or equivalent maintenance level operation. System usage and health data will be captured and transmitted as outlined in AR 750–1. The data needed at that level will be provided to support both local

maintenance requirements and for analysis by the algorithmic application providing the prognostic capability. The algorithmic application will be resident either on platform or at the battalion and equivalent maintenance location.

(7) The Army's PPMx storage and computing environment enables remote monitoring; provides, at home station and in the battle space the necessary fleet health visualization and data/information integration that support diagnostic algorithms.

d. Guidance.

(1) The AMC/LCMCs will issue advisory messages and update TMs and TBs to advise commanders of equipment with CBM capabilities in effect.

(2) Commanders are authorized to perform CBM on systems that have an on-board condition/performance monitoring capability and PPMx prognostics supporting capabilities.

(3) The Army Airworthiness Authority retains the authority to decree and publish when preventive maintenance measures are in effect for aviation systems.

e. CBM Implementation.

(1) CBM will be implemented for systems in concept development, design, and production phases.

(2) CBM will be implemented for out of production systems only when the strategy is shown to have quantifiable benefits (for example, savings, cost avoidances, productivity improvements).

(3) CBM solutions will be approved once a documented with a business case analysis in accordance with ASA (FM&C) Army C&E Analysis Manual.

f. CBM Operations. Unlike in planned scheduled preventive maintenance (PM), where services are performed based upon predefined scheduled intervals, CBM is performed only after a decrease in the condition of the equipment has been observed. Compared with preventive maintenance, this increases the time between maintenance tasks and actions, freeing time for leaders, operators, crews, and maintainers to focus on other readiness requirements, extending both endurance and efficiency.

(1) Field-level maintenance—FLM operations will be conducted according to equipment condition once the system has been approved for CBM/PPMx operations. This includes services, preventive maintenance, and (when the capabilities are deployed) alert notifications of future reliability failures from CBM prognostics.

(2) Sustainment-level maintenance—As the analytical and engineering capabilities are developed and deployed, depot level maintenance (overhaul, remanufacture) will be performed for only those tasks in the defined statement of work based upon the asset's condition.

g. Monitoring and reporting CBM benefits.

(1) The system life cycle manager and PM will monitor CBM benefits to validate and confirm proposed cost avoidances, documenting the methods used to determine projected cost avoidance, milestones for key events in development and implementation of efficiencies, and periodic reports (format and frequency) to monitor progress of efficiencies.

(2) Future CBM efficiencies claims will have metrics addressing the detailed description of goals expected, detailed evaluation plan covering data collection plan, and measures of success. System life cycle managers will document metrics according to ASA (FM&C)'s Army C&E Economic Analysis Manuals.

(3) A listing of reliability parameters, based on DoDD 5000.1 and DoDI 5000.2, can be found in Military Handbook (MIL–HDBK)–470A.

8–4. Maintenance support initiation

During the acquisition phase of the weapon system life cycle, the MATDEV will (see AR 700–127)—

a. Provide materiel maintenance inputs.

b. Analyze maintenance and maintainability goals and objectives and provide input to the combat developer including the surface maintenance support proponent, for finalizing the maintenance and logistics support concept portions of requirement documents per AR 700–127.

8–5. Establishing and sustaining maintenance support requirements

Per AR 750–1, Field and sustainment maintenance activities will be established and will perform the functions and tasks necessary to develop and sustain adequate maintenance support for new materiel or fielded material across the entire life cycle. Maintenance activities will—

a. Participate in all phases of the materiel systems development, production, and sustainment.

b. Provide maintenance requirements / constraints to the system acquisition plan and contract acquisition package.

c. Develop the maintenance aspects of the logistics support system including Battlefield damage, assessment, and repair (BDAR).

d. Participate in the Test and Evaluation Integrated Product Team and provide requirements to test planners for use in developmental testing (DT), operational testing (OT), and for evaluating the system support package.

e. Prepare and execute the maintenance portion of the Supportability Strategy (SS) and other plans, as appropriate, during the materiel acquisition process.

f. Conduct and sponsor research programs to improve the performance of both maintenance engineering and maintenance operations.

g. Provide technical expertise to resolve problems or respond to requests for information from user ACOMs, ASCCs, and DRUs concerning support of materiel systems.

h. Evaluate and identify calibration requirements of TMDE, ensure availability of calibration support, and ensure that TMDE acquisition is consistent with AR 750–43.

i. Generate maintenance workforce performance data on fielded systems from all levels of maintenance, including sustainment level, for use in establishing life cycle estimates to support development of new weapons/equipment, application of MWO to fielded equipment, and updating float and failure factors. Identify areas requiring maintenance-engineering actions and provide appropriate input to the system manager.

j. Ensure that RCM criteria are used to develop maintenance standards.

k. Ensure that the MAC is developed and uses RCM and per Society of Automotive Engineers (SAE) publications: SAE JA1011 and SAE JA1012.

l. Identify and budget for DMPE and FRA.

m. Establish and conduct pilot industrial base maintenance programs.

n. Develop and update technical criteria to prescribe the scope, depth, and frequency of inspection and maintenance operations to be performed on materiel systems. Establish technical criteria for the performance of maintenance operations based on quantitative control parameters, operating time, miles traveled, rounds fired, usage rate, local environmental conditions, elapsed calendar time, equipment conditions, or a combination of any of the preceding. The technical criteria will:

(1) Be published in technical publications to include MAC, SMR, and MOS.

(2) Be evaluated periodically and changed to include Log Demonstration per AR 700–127, in-process reviews per AR 25–30 as required.

(3) Be used to determine economic repair or replacement of equipment.

(4) Prescribe guidelines for inspection, reclamation, condemnation, and demilitarization of equipment.

(5) Identify items requiring float support and compute initial float factor.

(6) Identify items requiring an MEL and demilitarization instructions.

8–6. Maintenance support plan

a. Maintenance is an integral element of the SS; for more information see AR 70–1, AR 700–127, and AR 700–139. The Maintenance Support Plan (MSP) is a portion of the SS. The SS is prepared before Milestone B in the Materiel Acquisition Process per DA Pam 700–127. It is updated and expanded periodically throughout the life cycle of a system.

b. The MSP is based on the maintenance/logistics concept contained in the requirement document. In developing alternatives and selecting a final maintenance concept. The MATDEV, in coordination with the combat developer and surface maintenance support proponent, will evaluate factors such as:

(1) Compatibility with the Army maintenance system at present and planned.

(2) Complexity of the materiel system.

(3) Mobility and transportability requirements.

(4) Operational readiness objectives.

(5) Operational and logistics environment in which the system will operate.

(6) Criticality of the materiel system.

(7) Support concept for subsystems.

(8) Projected operating and support cost.

(9) Resource requirements.

(10) Requirement for ready to right, maintenance float, warranty, AOAP, total package fielding, weapon system designator code, MEL, technical maintenance manuals, embedded TM, IETM, and demilitarization instructions.

c. The determination of the repair level within the Army maintenance system will be an essential element of the logistics product data (LPD). LPD will include analysis as required by AR 700–127. The product support manager will use the Computerized Optimization Model for Predicting and Analyzing Support Structure (COMPASS) software to perform Level of Repair Analysis (LORA) and will ensure the LORA processes are executed using the procedures and activities outlined in SAE AS1390–2014. LORA is used to determine the optimum maintenance levels for repair actions and recovery of the end item and components. The LORA considers availability or requirements for additional tools, support equipment, and skills in intended supporting units. The LORA should address the requirement to minimize additional special tools and test equipment for new equipment. As part of the post deployment evaluation, the LORA will be rerun no earlier than one year and no later than three years from the unit-equipped date, using actual reliability data from fielded equipment. The LORA will be rerun every five years throughout the equipment life cycle. The MACs will be updated to reflect any changes in the LORA outcome. The guidance in AR 750–1 applies in allocating maintenance operations and resources.

d. The following describe the MAC:

(1) The MAC reflects the approved maintenance concept for an end item, weapon system, or subsystem and specifies the lowest level of the Army maintenance system authorized to perform complete repair of a specific maintenance task.

(2) The preliminary MAC should be included in the MSP. As the acquisition program progresses, and both design and support planning become firmer, the MAC will be updated and, if appropriate, included in the updated MSP.

(3) Draft MACs and revised MACs will be coordinated with the capability developer, to include the surface maintenance support proponent (appropriate TRADOC activity), to assure that support planning complies with the system maintenance support concept and permits TRADOC to make adjustments, as needed.

(4) All final draft MACs and revised MACs will be approved by AMC and MATDEV with written concurrence from TRADOC.

8–7. Depot maintenance support plan

a. The Depot Maintenance Support Plan (DMSP) is an integral part of the SS. The DMSP ensures provisions for required depot maintenance. This plan identifies all installations and FRAs to be used for depot maintenance support of the item and the type of workload to be assigned to each based on SOR decision logic.

b. The objectives of the plan are to identify and schedule the preparation of overhaul standards and procedures and acquisition of peculiar depot maintenance equipment, facilities, TMDE, and personnel training.

c. The DMSP encompasses all phases of the life cycle of an item of new materiel. Planning actions and a sample plan are contained in DA Pam 700–127. The DMSP is updated as changes become necessary.

d. Consideration will be given to the use of inter-Service support to provide maintenance support services per AR 750–1.

e. Full depot maintenance support will begin by initial operating capability (IOC) for all items identified as DLR. If organic support will not be available by IOC, then interim contractor support (ICS) is allowed up to four years.

8–8. Product support analysis

a. The PSA is a planned series of tasks performed to examine all elements of a proposed system and to influence the design so that the system and support can be provided at an affordable cost, MIL–HDBK–502A. RCM is an element of this process. RCM will be applied to all acquisition programs as part of logistics support data which is found in SAE TA STD 0017 and SAE GEIA STD 0007.

b. The RCM will be used to establish a systematic approach for identifying and developing scheduled or preventive maintenance tasks. The program will be monitored to ensure continued update of scheduled/preventive maintenance requirements based on design change, tools or maintenance concepts, or structure of maintenance units.

c. Maintenance support costs related to weapon system data or equipment end-item system performance data will be analyzed as part of the PSA process during acquisition. The PSA process will be

extended in enough depth to provide the LPD that will identify skills and any supplementary training materiel required. PowerLOG-J is a government provided tool that can be used to document your LPD.

d. Maintenance support activities personnel will ensure a balanced logistics support program is planned and executed at the least cost to the Government.

e. AR 700–127 provides policy guidance on the use of this analysis technique during materiel acquisition. Maintenance activities will develop PSA requirements considering the Integrated Product Support (IPS) elements. MATDEVs will coordinate logistics information they develop with maintenance activities.

f. The PM will use the LPD Store to collect and save LPD throughout the product life cycle.

8–9. Maintenance equipment publications

The Army Publishing Directorate (APD) is the source for Army administrative publications (https://armypubs.army.mil). Units and activities can use, review, print, and download the electronic versions of publications and forms.

a. Technical manuals. TMs are available in multiple formats and from numerous sources.

(1) Paper TMs are available for all operator manuals, wiring diagrams or schematics, firing tables, safety of use and safety of flight TBs, and pre-combat/flight checklists. Commanders may elect to maintain limited paper copies for contingency plan purposes. APD will provide paper copies only by request. Operator manuals (for example TM 10–, TM 12–, and TM 13–series) will continue to be printed on paper even when they are part of an electronic manual.

(2) Electronic technical manuals (ETMs) and interactive electronic technical manuals (IETMs) are intended for use at field and sustainment levels of maintenance to support operator/crew, and user requirements. Many TMs, TBs, and safety bulletins are available on CD for use on electronic maintenance support devices. The LDAC website (https://www.aesip.army.mil/irj/portal) will provide the information upon request.

b. Technical publication compact discs. Two types of CDs are available at the LDAC. One includes major end items or weapons systems, including publications on their components. A second type includes publications covering common-use equipment. CDs for grouped equipment generator sets, tools, and shop sets are available to each Regular Army, Army Reserve, and ARNG account.

c. Manufacturers (user) manuals. Commanders and supervisors will use manufacturers' manuals for commercial materiel (for example, N–SE, COTS equipment manuals used in-lieu of TM 10– and TM 20–series) procured or leased for use at all levels of maintenance.

d. Develop, coordinate, publish, and update maintenance requirements for each materiel system and supporting TMDE in ETMs and IETMs. AR 25–30 is the governing policy on maintaining DA administrative publications. DA Pam 25–40 provides instructions and guidance to comply with AR 25–30.

e. Equipment ETM and TM updates will delineate and describe guidance for the operation, evaluation, maintenance, and repair parts support of the materiel system, including modifications and BDAR.

f. Equipment technical publications delineate and describe:

(1) Maintenance tasks (scheduled and unscheduled).

(2) Materials, task time standards, and workmanship required.

(3) Methods and practices to complete maintenance tasks.

(4) Safety and other precautions.

(5) Wear limits, fits, tolerances, and other inspection criteria.

(6) Calibration requirements for special and general-purpose TMDE.

(7) Desirable post repair operational performance standards.

(8) Nuclear hardness maintenance and hardness surveillance requirements.

(9) Preservation of chemical, biological, and radiological warfare resistance.

(10) Storage requirements.

(11) Fault isolation.

(12) Data required to support equipment tracking and fleet performance information, including information required to be on equipment data plates.

(13) Corrosion prevention and guidance for specific vehicle and components.

(14) How to leverage diagnostics and PPMx capabilities for equipped systems. Plus the data collection and transmission requirements.

g. Write procedures in enough detail to clarify the technical competence required to complete each level of maintenance. Develop requirements to complete repairs at the national maintenance standard for

field reparables according to commercial best practices, and published as a NMWR or TM. Ensure coordination with the quality assurance (QA) and safety activities.

h. Develop requirements for depot maintenance per industry best practices, coordinate with the QA and safety activities, and publish as a depot maintenance work requirement.

i. Contractor support will be considered only if the SOR analysis shows it to be the most cost-effective method for depot support per AR 700–127. The use of contractor manuals will be considered if they meet the overhaul and recapitalization requirements before developing NMWRs or modifying depot maintenance work requirements and developing or modifying depot capability.

j. Develop maintenance requirements and tasks per RCM principles to ensure preservation of design reliability and safety. The RCM program concern is identifying design practices that minimize preventive maintenance workload. RCM analysis is used to develop initial scheduled maintenance requirements and is based on engineering information. PMCS tables provide operator/crew and field maintenance personnel with technical guidance for determining and preserving full mission capability of their equipment. The PMCS Tables are to be prepared per RCM principles.

Note. Emerging requirements such as PMCS procedure changes, NCOMP, and software updates are accessible in the MMIS database until the specific TMs is updated. Maintainers should use the TM as the baseline, but periodically check MMIS for any updated procedures or new information.

k. For equipment lacking a TM, follow the current maintenance quality requirements, and follow the safety checks in AR 385–10.

l. Scheduled/preventive maintenance of any kind is considered a reliability, availability, and maintainability-related support concept. Scheduled maintenance programs for weapon and equipment end items will be developed, applied, and managed by all MATDEVs using RCM.

m. Age exploration is part of the RCM program where updates can be made to the initial scheduled maintenance requirements. Age exploration occurs after fielding.

(1) The materiel proponent initiates and maintains an age exploration program as part of RCM. The RCM analysis furnishes initial scheduled maintenance requirements based on engineering information. UIT data and usage information provide initial feeder input for age exploration.

(2) Establish an age exploration program to address the following steps:

(a) Selection of candidates for age exploration.

(b) Design of the age exploration task.

(c) Collection of required data.

(d) Conduct data analysis.

(e) Apply analysis results to maintenance tasks.

(f) Determine the number of economic repairs, overhauls, or economic service life of equipment.

(g) Adjust expenditure limits in TBs.

(h) Identify the impact on the equipment's maintenance burden data.

n. Equipment publications are an essential tool and enabler for Soldier operator and maintenance capabilities. These publications are also tested and validated during DTs and OTs. Publication adequacy will be addressed in test reports.

o. Over the materiel life cycle, use LPD as source data for developing and updating equipment publications. The source data can also be used in preparing and updating work measurement standards, manpower support requirements, QA criteria, methods and standards, and depot maintenance work requirements and/or NMWRs.

p. Equipment publications will be developed during the acquisition process and updated by the LCMC product support team throughout an items life cycle. The program manager in coordination with the Product Support Team will prepare MWOs to authorize application of mandatory modifications to equipment. Prepare sustainment maintenance work requirements (only) for materiel for depot maintenance functions listed in the MAC. The MATDEV verifies equipment publications in coordination with the appropriate TRADOC proponent school to ensure contractor compliance with contract requirements. User concerns regarding incomplete or faulty publications will be resolved prior to authentication and subsequent printing and distribution of TMs.

q. The repair parts and special tools list and narrative portion of the equipment publications will support and be consistent with the MAC. The list will display materiel that can be stocked as authorized stockage list/prescribed load list materiel by national item identification number (NIIN).

r. Use manufacturer manuals for commercial materiel procured or leased-off-the-shelf for use at all levels of maintenance. To the greatest extent feasible, manufacturer manuals will be compatible with emerging electronic publishing systems. PMCS, MACs, repair parts and special tools lists—including NSNs—work measurement standards, and similar specialized data will supplement them, as necessary. The MATDEV or other proponent, in coordination with CAPDEV, to include the LCMC, determine when COTS and NS–E manuals are acceptable for maintenance purposes. Procurement of COTS manuals and supplemental manuals is prescribed in AR 25–30.

s. During initial development and update, equipment publications will be coordinated with the appropriate materiel safety director to assure that proper warnings, cautions, and limitations have been included.

t. Coordinate all equipment publications with the appropriate environmental office to ensure the correct references are included.

u. Materiel procured and managed by DLA or GSA will be incorporated into applicable TBs which are based upon their assigned Federal Supply Code, and managed by the appropriate item manager.

v. Problems involving equipment publications for new and modified materiel that cannot be resolved prior to finalization will be solved through a maintenance literature conference. This is done before the development acceptance in-process review or Army Systems Acquisition Review Council (ASARC) and Defense Systems Acquisition Review Council by the agency or command responsible for logistics support of the materiel system.

w. TMs that are provided in electronic format (ETMs and/or IETMs) increase efficiency, reduce operations and sustainment cost, incorporates the ability to receive and give back information to the digital log book and assists in automated maintenance forms creation and parts request, and reduce paper requirements. Program managers will use interactive authoring display software (IADS) to simplify and expedite maintenance of IETMs. The IADS viewer will be used to support the high functionality requirements of complex systems such as aircraft, ground combat systems and all other Army systems/equipment utilizing ITEMs. Effective FY23, IADS will be the only authorized viewer for IETMs.

(1) ETMs and IETMs are intended for all units, maintenance activities, and depots.

(2) The Army will provide a maintenance support device (MSD) for using ETMs and IETMs. MATDEVs will use the requirement determination process to document this requirement and the DCS, G–3/5/7 in conjunction with the DCS, G–8 will assign and properly resource a MATDEV to acquire this equipment. MATDEVs will coordinate with the PD–TMDE prior to developing the IETM that will be hosted by the MSD or AT-Platform Device. These devices will have several capabilities, to include the ability to—

(a) Run / play an ETM or IETM.

(b) Interface with a weapon system platform or equipment item.

(c) Run a portion of GCSS–Army at the mechanic- or technician-level.

(d) Leverage PPMx technologies and concepts.

(3) Commanders may elect to maintain limited paper copies for contingency plan purposes.

(4) Paper copies will be stocked and distributed only by the Army Publishing Directorate (APD).

x. Depot maintenance work requirements will be available for the performance of depot maintenance tasks identified in the MAC.

(1) All overhaul and rebuild, regardless of the commodity of the equipment, is defined as depot-level maintenance. Maximum use will be made of existing data and procedures. Instead of depot maintenance work requirements, consider using verified manufacturers equipment publications for procured or leased commercial materiel. Depot maintenance work requirements, when required, must contain data required by DA Pam 25–40.

(2) Depot maintenance work requirements will be verified by the system proponent as indicated in section II of the SS (see DA Pam 700–127).

(3) Sustainment maintenance work requirements will be maintained by the system proponent to agree with the latest technical data package.

(4) Materiel proponents (for example, AMC), in coordination with APD, will publish and maintain a current index of all depot maintenance work requirements.

(5) NMWR will be available for the performance of sustainment maintenance as directed by the NMM. All Class VIII/ IX repairs directed by the NMM, regardless of commodity, will be defined as sustainment maintenance.

(6) Development of NMWRs maximize the use of existing data and procedures. Consideration will be given for using verified manufacturers equipment publications for procured or leased commercial equipment.

(7) NMWRs must contain data required by DA Pam 25–40.
(8) NMWRs will be verified by the system-applicable AMC LCMC.
(9) NMWRs will be maintained by the applicable AMC LCMC to agree with the latest technical data package.
(10) Mandatory parts replacement lists published in the NMWRs will have source of supply validated prior to publication.
y. It is the responsibility of the MATDEV to fund the verification effort for all equipment publications, including funding for user representative involvement.

8–10. Multimedia use in interactive electronic technical manuals
a. Where cost effective, multimedia will be used to enable completion of tasks. The proponent for each weapon system or subsystem along with subject matter experts from TRADOC will establish the specific instances where enhanced functionality will be incorporated into the associated IETM. PMs will use IADS viewer software. Multimedia capabilities can consist of, but are not restricted to, the following:
(1) IETM multimedia.
(2) Animation.
(3) Three dimensional media.
(4) Motion video.
b. Use of multimedia should be considered for use in complex and difficult tasks to enhance the maintainers understanding of the task. Complex and difficult tasks may include procedures that require the use of special tools, sets, kits, or outfits, or tasks continuously performed incorrectly or not in a timely fashion (as identified during training and testing). Others include the following:
(1) Infrequently performed actions.
(2) Hydraulic flow.
(3) Troubleshooting and/or fault isolation.
(4) Difficult to access tasks.
(5) Software navigation.
c. Prior planning and approval are essential to the effective, efficient, and affordable use of multimedia. Close coordination between the acquisition, sustainment, and user communities, undertaken before development begins, is critical to the successful and cost-effective use of this technology.
(1) During the development of IETMs, IADS software must be used. This will continue to be the policy when using multimedia.
(2) A waiver from AMC is required before using proprietary / licensed runtime display software. Submit waiver requests to AMC (AMCC–BIP), 4400 Martin Road, Redstone Arsenal, AL 35898–7466.

8–11. Maintenance/service kits
Use maintenance/service kits to optimize the delivery of maintenance services throughout the Army force structure. MATDEVs and the Commander, AMC ensure the aggregations of repair parts, special tools, maintenance related supplies, and other items are compiled into an array of kits to support each Army equipment platform.
a. Design to increase Soldier/maintainer efficiency, reduce TAT, ease handling of items, and assist the warfighter in achieving readiness objectives in AR 700–138.
b. MATDEVs and the Commander, AMC will conduct annual reviews of readiness data available in TELS and adjust maintenance kit support as required to support deployed forces.
c. Capability and training developers will integrate the use of maintenance kits into doctrine and training programs.
d. Stockage of maintenance kits by field organizations will meet the demand criteria outlined in AR 710–2.

8–12. Initial provisioning
Initial provisioning is a management process for determining and acquiring the range and quantity of support items necessary to operate and maintain a new end item of materiel for an initial period of service. Detailed information is contained in AR 700–18, AR 700–82, and SAE Government Electronics & Information Technology Association Standard–SAE–GEIA–STD–0007.

a. The selection and assignment of spares and repair parts to the levels of maintenance will be accomplished per guidance in AR 700–18 and AR 700–82 using data developed through the product support analysis process as outlined in SAE TA–STD–0017 Product Support Analysis.

b. Selection and coding assignment must be according to the maintenance concept, the maintenance plan, and the MAC.

c. Source, maintenance, recoverability codes, essentiality codes, and demilitarization codes will be assigned to each spare and repair part, TMDE, and other support items.

d. Maintenance replacement rates and task times will be assigned for peace, wartime, and military operations other than war usage, and geographical considerations for all spares and repair parts. Technical guidance for developing is available in the maintenance replacement rates in SAE Government Electronics & Information Technology Association SAE GEIA–STD–0007.

e. Maintenance task distribution will be developed by using the MAC, maintenance-level workload capability, and latest repair TATs (see AR 700–18).

8–13. Materiel release and fielding

Materiel fielding is the process of planning, coordinating, and executing the deployment of a materiel system and its support. For policy on Materiel Fielding see AR 770–2, for policy on Type Classification and Materiel Release see AR 770–3. DA Pam 770–2 and DA Pam 770–3 contain instructions, formats, reporting requirements, and schedules used to carry out the policies. The objective of the materiel release for issue process is to establish a management control system to ensure that materiel released for issue by the Army is safe, operates as designed, and is logistically supportable during fielding.

Chapter 9
Maintenance Programs

9–1. Maintenance Award Program

Soldiers perform best when commanders and supervisors recognize performance. Command review and recognition of high achievement are elements of command emphasis for the success of an organization's maintenance program.

a. Individual and Soldier recognition. Effective commanders identify numerous methods to recognize individual achievement. In accordance with AR 600–8–2, commanders (lieutenant colonel (LTC) or higher) can award driver and mechanic badges (with appropriate bar(s)) to persons who demonstrate a high degree of ability in equipment operation or mechanical maintenance.

b. Unit recognition. The Army Award for Maintenance Excellence (AAME) program serves as a cornerstone for ACOM, ASCC, or DRU unit maintenance recognition programs. AAME participation enhances readiness, develops esprit de corps, and promotes the fundamentals of maintenance management.

c. Categories of competition.

(1) *Regular Army MTOE units.* Three categories of competition exist and are based on the number of authorized personnel (from all approved authorization documents, including any augmentation TDAs) in the competing unit. The size categories are small (1–100 personnel), medium (101–300 personnel), and large (301+ personnel).

(2) *Army Regular National Guard modification table of organization and equipment units.* Two categories of competition exist based on the number of authorized personnel (from all approved authorization documents, including any augmentation TDAs) in the competing unit. The size categories are small (1–100 personnel) and medium (101+ personnel).

(3) *Army Reserve modification table of organization and equipment units.* There are two categories of competition based on the number of authorized personnel (from all approved authorization documents, including any augmentation TDA's) in the competing unit. These size categories are small (1–100 personnel) and medium (101+ personnel).

(4) *Table of distribution of allowances units.* Regular, National Guard, and Army Reserve will compete as separate components. (for Regular Army only, TDA is defined as an organization with any military personnel authorized on the TDA).

(5) *Regular Army all other units.* There will be one category. All other categories are defined as a regular Army organization with no military personnel authorized on the TDA (example: below Depot LRC/AFSBn' s andTMP's), only civilian personnel (example: DA, local, and national).

(6) *Aviation units.* The Regular, National Guard, and Army Reserve MTOE and TDA Aviation units will be consolidated into one category. Unit size does not matter in this category.

d. Command nomination parameters.

(1) ACOM, ASCC, and DRU may submit AAME nominations.

(2) The USARC may submit 18 nominations for the USAR TOE/MTOE competition: 9 small, 9 medium (Large units are included in the medium category), and 2 aviation units. ACOMs, ASCCs, and DRUs with USAR units mobilized and within their AO must submit nominations through USARC and will count against total submissions by category.

(3) NGB may submit 18 nominations for the ARNG TOE/MTOE competition: 9 small, 9 medium (large units are included in the medium category), and 2 Aviation units. ACOMs, ASCCs, and DRUs with NGB units mobilized and within their AO must submit nominations through NGB and will count against total submissions by category.

(4) Each regular Army ACOM, ASCC, and DRU other than FORSCOM may submit 11 nominations for the regular Army TOE and/or MTOE competition: 3 small, 3 medium, 3 large, and 2 Aviation units, except FORSCOM, which may submit a total of 14, 4 per category and 2 Aviation nominations. Deployed combat aviation brigade units may be submitted by the command they are attached to.

(5) Each ACOM, ASCC, and DRU may submit 10 nominations for the TDA competition: Regular, ARNG, and USAR will complete as separate components. Unit size does not matter in this category.

(6) Regular ACOM, ASCC, and DRU may submit 6 nominations for the “all others” competition. Unit size does not matter in this category.

(7) The program is designed to assess the unit’s maintenance operations at division, brigade combat team, battalion, company, battery, troop, equivalent MTOE, or TDA organizations. Parent units (for example, brigade and battalion) that compete must address all subordinate elements in their nomination packages. As such, subordinate elements of a parent unit will not be permitted to compete separately if the parent unit competes. When all subordinate elements of a parent unit are compete, the parent unit will compete as a single entity. In the event a parent unit is selected as a semifinalist, all assigned elements are subject to evaluation during the onsite assessment.

(8) With the approval of the responsible ACOM, ASCC, and DRU commander, detachments that meet all other requirements of AR 750–1 and this pamphlet and that are assigned field maintenance functions may compete. Detachments, teams, or other elements that are temporarily separated from the parent organization will compete as part of their parent unit and not as a separate entity.

(9) Units that have effective date changes to their MTOE/TDA during the competitive FY will be assessed on the MTOE/TDA under which they were organized for the greatest part of the year. Commanders should note MTOE/TOE changes in their comments. Units with an augmentation TDA to their base TOE will compete in the category (MTOE/TDA) that authorizes the largest number of personnel. The total number of authorized personnel on both documents will determine the size category in which the unit must compete.

e. Submission of nomination packages.

(1) Instructions for preparing and submitting the AAME nomination package are listed in the official United States Army Ordnance School (USAOS) website: (Available at: https://goordnance.army.mil/aame/aame.html).

(2) Units will submit packets through command channels to their appropriate ACOM, ASCC, and DRU.

(3) ACOMs, ASCCs, and DRUs will review and select those packets to be nominated to the HQDA-level AAME competition in accordance with instructions and criteria in the official USAOS website (https://goordnance.army.mil/aame/aame.html). If selected to represent the ACOM, ASCC, or DRU, then the ACOMs, ASCCs, and DRUs will endorse and forward the original packets for each unit / activity nominated to arrive at the USAOS no later than COB the first Friday in November following the FY of competition.

(4) Submission of nomination packages to the USAOS constitutes consent for an onsite evaluation of the unit’s maintenance program as articulated in the nomination packet.

f. Headquarters, Department of the Army evaluation requirements.

(1) Phase I: Submission of AAME nomination packets.

(a) USAOS will convene an evaluation board and appoint an appropriate chairperson.

(b) The board members will be drawn from the ACOMs, ASCCs, and DRUs. Members will have both a proven performance record and expertise in maintenance. Personnel will be in the grades of sergeant first

class and above chief warrant officer two and above through chief warrant officer five, and captain and above or civilian equivalent.

(2) Phase I evaluation guidelines and scoring criteria will be developed by USAOS. The board will assess the AAME nomination packages and select semifinalists in each of the 12 competition categories.

(3) Phase II: Onsite evaluation of phase I semifinalists.

(a) USAOS will appoint an onsite evaluation team to evaluate all Regular, USAR TOE/MTOE, TDA and all others, ARNG TOE/MTOE, and TDA semifinalist.

(b) The team members will be selected from ACOMs, ASCCs, and DRUs. If possible, members will be selected from the phase I evaluation board or have previous experience in conducting AAME onsite evaluations.

(c) Using the phase II evaluation guidelines/scoring criteria, the onsite team will evaluate each semifinalist unit.

(4) Phase I and II results*.* Results will determine the winner and runner-up in each of the 12 competition categories. Units must meet a minimum of 70 percent to be eligible to compete in the Phase II on-site evaluation. The top three units in each category meeting the minimum score will receive a Phase II onsite evaluation. Units must meet a minimum of 70 percent during the Phase II evaluation. The unit with the highest score above 70 percent will be considered the winner and the second highest score above 70 percent will be considered the runner-up. The highest overall weighted score from the category winners will determine the Army's best unit and will also be awarded the "Chief of Ordnance Best of the Best Maintenance Award".

(a) Winner notification. The DCS, G–4 (Maintenance Directorate) will notify the winners by message immediately after phase II results are compiled.

(b) Lessons learned. The USAOS will compile and forward lessons learned from the nominations not selected as semifinalists to the DCS, G–4 and each ACOM, ASCC, and DRU. Additionally, the USAOS in conjunction with DCS, G–4 will host an annual ACOM, ASCC, and DRU-level AAR. Lessons learned will be discussed at the annual maintenance award program AAR.

g. Publicity.

(1) To enhance recognition of AAME winners and promote participation in the process, all levels of command should aggressively publicize the program. This may be accomplished through public affairs officers and may include announcements of winners in local newspapers, hometown news releases, and background information about the Armywide aspects of the AAME Program and its positive impact on unit combat readiness.

(2) The USAOS will ensure that its public affairs office is continually notified of AAME events and achievements.

(3) Commanders will submit publicity information and photographs for historical purposes to the Commander, U.S. Army Ordnance School (ATSL–AAME), 2221 Adams Ave Fort Lee, VA 23801.

(4) Photographs taken at the AAME award ceremony will be sent to the ACOM, ASCC, and DRU for distribution to all awardees.

h. Program milestones. The USAOS will—

(1) Request HQDA board members and onsite evaluation team members to meet during the first quarter of the FY.

(2) Convene the HQDA Phase I Evaluation Board during the first quarter.

(3) Convene the HQDA onsite Phase II Evaluation Team visit during the second and third quarter, following the conclusion of the Phase I Evaluation Board.

(4) Publish the Preventive Maintenance Monthly and public affairs articles, as required.

(5) Conduct ACOM-, ASCC-, and DRU-level AARs during the third quarter.

i. Depot-level maintenance operations competition.

(1) AMC will conduct a sustainment-level competition selection board, review all depot facility nomination submissions, and select a depot-level competition winner and runner-up.

(2) DCS, G–4 will review the competition winner and runner up to ensure that the submissions meet the minimum competition criteria for programs within the DoD's major organic depot facilities. That is, those facilities having more than 400 employees engaged in depot-level maintenance operations that have been in operation for at least 6 months of the competition period.

(3) Instructions for preparing and submitting the depot-level nomination package are listed in the official USAOS website (https://goordnance.army.mil/aame/aame.html).

9–2. Army Oil Analysis Program

a. The objectives of the AOAP are to improve operational readiness of Army equipment, enhance safety, detect impending component failures, and conserve petroleum resources through application of the on-condition oil change policy. AOAP monitors lubricants for the presence of contaminants, abrasive part wear, and review of prescribed physical properties and consolidates analytical data in support of diagnostic/prognostic maintenance processes. For AOAP policies see AR 750–1.

b. Unit tactical deployment.

(1) The AOAP laboratories, positioned on a regional basis, will provide AOAP daily operations and capabilities.

(2) When a unit is deployed and oil analysis service is not available, the equipment unit will change component oil and service filters in accordance with the equipment LO.

(3) During deployment operations, the area of responsibility ASCC will establish AOAP service operations in concert with its maintenance plan/strategy. The PM AOAP will provide technical advice and assistance to the ASCC service support organization.

(4) During wartime and transition to war, AOAP:

(a) Priority will be given to aeronautical items.

(b) Support will be provided by fixed labs and mobile or portable systems as they are available.

(c) Services will be provided as far forward as possible using the most expeditious system available.

(d) Services will be event oriented, occurring during unit stand-downs, reconstitutions, and the conduct of field and sustainment maintenance.

(e) Will be discontinued during download and hand-off of pre-positioned stocks only when AOAP laboratories are not available.

(5) When required by the task force commander and upon direction of DCS, G–3/5/7, the PM AOAP will provide and deploy mobile laboratories in support of field operations as part of the maintenance plan / strategy.

(6) Upon arrival in the theater of operation, the mobile laboratory and AOAP team will be assigned in accordance with the area of operation ASCC operational plan. The PM AOAP continues to provide technical advice and assistance to the ASCC and mobile laboratory team for the duration of the deployment.

c. APS/COSIS. Equipment will be enrolled, samples are not required unless equipment is identified for issue. Upon order to issue equipment, a sample is taken, submitted to AOAP lab, and test result instructions complied with prior to issue.

d. Communication. Direct communication between the PM AOAP and the various command operating elements and laboratories is authorized. Correspondence will be sent to Army Oil Analysis Program Office (AMAS–SPR–O), ASC, Redstone Arsenal, AL 35898. ACOMs will not procure or test any lubricant analytical device / instrument without prior approval from and coordination with the PM AOAP.

e. Feedback. Maintenance feedback based on laboratory findings and recommendations is available at the AESIP/LDAC, Maintenance AOAP tab found at https://www.aesip.army.mil/irj/portal .

(1) When AOAP laboratories identify a potential impending equipment failure, they will contact the unit and forward a written laboratory maintenance recommendation using DA Form 3254–R (Oil Analysis Recommendation and Feedback) to the owning unit.

(2) Owning units and maintenance activities will provide maintenance feedback to AOAP laboratories within 24-hours of identifying inspection findings and maintenance actions taken. Procedures for providing feedback are contained in DA Pam 750–8 and DA Pam 738–751.

(3) Support. When practical and necessary, inter-Service oil analysis support may be obtained from Navy and Air Force Joint Oil Analysis Program laboratories (see AR 700–132). Questions regarding inter-Service support and laboratory locations should be referred to the PM AOAP at usarmy.redstone.asc.mbx.aoap@mail.mil.

9–3. Army Warranty Program

a. In warranty applications, unit readiness and mission effectiveness take priority over warranty actions. If the field maintenance provider is not able to get an effective response through the warranty process in a timely manner, the maintenance provider will repair first and initiate settlement action later in accordance with local SOPs and AR 700–139. Notify the supporting warranty control officer immediately when equipment requires repair first and the warranty settled later.

b. The warranty bulletin will specify the application of the AOAP to items under warranty. AOAP procedures supplement the instructions directing oil changes for equipment under warranty.

c. Apply via a MWO all warranty actions that require a modification. Apply and report the MWO per AR 750–10.

d. Units may accept manufacturers' standard warranties for locally procured items. Special warranties are included in local purchases only when they are cost effective and executable by the user.

e. When warranty actions are completed they will be reported in accordance with DA Pam 738–751 and DA Pam 750–8.

f. AMC LAR personnel are available to assist field organizations. Commanders and leaders should call the local AMC representative for assistance with warranty issues.

9–4. Army Modification Program

a. MMIS is the current application within LDAC where LCMCs provide ACOMS with capability to verify receipt, confirm completion, and have access to MWO message instructions.

b. For detailed policy and procedures on the Army modification program see AR 750–10, AR 220–1, AR 700–138, DA Pam 750–8, and DA Pam 738–751.

c. Mandatory modifications are authorized for application by a published MWO. The MWO applying activity is responsible for ensuring application of MWOs and equipment data in MMIS is accurate.

d. Equipment awaiting application of an emergency MWO will be placed in an NMC status per AR 750–10. Urgent modifications will be applied within two years from the MWO effective date as specified in the MWO. The equipment may continue to be operated under restrictions determined by the MATDEV. Equipment not modified 2 years from the effective date of the MWO will be reported as NMC, except in the case where an extension has been granted by the DCS, G–4 (Maintenance Directorate) per AR 750–10, DA Pam 750–8, DA Pam 738–751, AR 220–1, and AR 700–138.

e. Routine modifications will be applied within five years from the MWO effective date as specified in the MWO. Routine MWOs published, but not applied, will not cause equipment to be reported NMC. Action to apply overdue MWOs will continue and require command emphasis.

f. The funding of MWOs is based upon guidance in DoD 7000.14–R, DFAS–IN Manual 37–100 current fiscal year and AR 750–10.

g. Commanders will not modify their equipment unless there is an official MWO.

h. The activity applying an MWO will report MWO application to MMIS in accordance with AR 750–10.

i. MWOs will be annotated in the applicable maintenance TELS with an appropriate fault code based on the Classification of the MWO.

j. New MWOs with data plates and labels must include requirements for item unique identifier (IUID).

9–5. Battlefield damage, assessment, and repair

a. The purpose of BDAR is to return disabled equipment rapidly to combat or enable the equipment to self-recover. BDAR procedures are designed for battlefield and training environments to be used in situations where standard maintenance procedures are not practical or possible. These procedures do not replace the standard maintenance procedures. The objective is to sustain the vehicle/equipment until permanent repairs can be performed.

b. Incorporate low-risk BDAR procedures into peacetime maintenance training in both field and training-base scenarios. Combat training centers and field training exercises provide excellent realistic training environments for BDAR. Approved BDAR kits provide operators and maintainers with the capability to complete damage repair or routine equipment failure repair on the battlefield. BDAR fixes will be replaced with standard repairs at the first opportunity. Equipment may continue to be operated based on the recommendation of qualified maintenance personnel, while awaiting parts, with the BDAR fix in place. Peacetime BDAR involves low-risk fixes as outlined in BDAR TMs, and is performed only in a training environment at the discretion of the commander. Low-risk repairs can be accomplished without risk to personnel or further damage to equipment. Low-risk repair can be applied under the supervision of qualified maintenance personnel. Peacetime BDAR repairs are temporary and will be replaced with standard maintenance repairs at the first opportunity.

c. BDAR requirements are usually written in TMs. Some items of equipment may not require the development of a BDAR TM. However, if a new or updated system is under development and BDAR is required, the TRADOC BDAR agency will assist AMC and the contractors in development of a BDAR TM. BDAR is for those items of equipment having a significant impact on the outcome of specific combat missions.

d. BDAR doctrine and techniques will be evaluated during a U.S. Army ballistic research live fire test. Live fire test plans will incorporate BDAR into live fire tests on Army equipment to ensure that BDAR can be performed and to ensure that it is incorporated into appropriate publications. When reporting a BDAR action, a DA Form 5988–E/DA Form 2404 will be forwarded to the Survivability/Vulnerability Information Analysis Center (AF–FDL–FES–CDIC), Wright-Patterson AFB, OH 45433 (see ATP 4–31).

9–6. Product quality deficiency/improvement reports

a. EIRs/QDRs submitted using SF 368, online, by telephone, or by other means are to be evaluated for possible follow-on actions to modify the equipment design, equipment operation, or maintenance instructions. The surfacing of equipment design deficiencies through the deficiency reporting process (EIRs/QDRs) may result in MC requests being initiated. Deficiency reporting instructions are contained in AR 702–7–1, DA Pam 750–8, and DA Pam 738–751.

b. Army activities will assist, when requested, in the investigation, evaluation, and resolution of deficiency reports in a timely manner. The goal is to provide an interim or a final resolution of the report within 180 days after receipt.

c. The unit or activity that identifies the need for a EIR/QDR is responsible for its submission.

d. When a EIR/QDR results in a need for a modification to fielded equipment, the modification will be applied in accordance with AR 750–10.

e. The unit or activity may contact the LAR or logistics assistance office for guidance on QDR / EIR.

9–7. Administrative storage of materiel

a. Administrative storage is the placement of materiel in a limited care and preservation status for short periods of time. This applies to MTOE and TDA units. The policy for administrative storage of TDA equipment is in AR 71–32.

b. Administrative storage will be considered when—

(1) An activity lacks operating funds, people, and other resources, or when normal usage of its equipment is not adequate to sustain materiel readiness.

(2) Lack of maintenance resources causes an owning organization to be incapable of performing the required field maintenance of its equipment.

(3) In addition to in paragraphs 8–10a(1) and 8–10a(2), equipment that exceeds the capability of the owning organization to operate or maintain must be retained by that organization for contingency or other valid reasons.

(4) Completion of current mission does not require use of authorized equipment on a routine basis.

(5) Training requirements of units or individuals do not require the use of all MTOE equipment.

c. Before a decision is made to use administrative storage, the commander will consider all workable options for maintaining equipment readiness.

d. Installation commanders may authorize the administrative storage of their materiel within guidance furnished by AR 750–1 and this pamphlet. To the maximum extent practical, administrative storage of materiel will be controlled and supervised at battalion level or above. Equipment will not be left in administrative storage for a period exceeding 365 days.

e. When more than 25 percent of an organization's on-hand equipment must be placed in administrative storage, the ACOM, ASCC, and DRU commander will consider initiating action to reorganize the activity at a level of equipment authorization that can be operated and maintained.

f. All regularly scheduled preventive maintenance services are suspended while materiel is in administrative storage.

g. When like items are in use, they should be rotated with items in administrative storage to keep all items exercised and reduce the maintenance effort. When equipment is not rotated, it should be exercised in accordance with exercise schedule in the TM for the equipment.

h. Equipment will be stored to provide maximum protection from the elements; to provide access for inspection, maintenance, and exercising; and to provide physical separation from active equipment.

i. Materiel removed from administrative storage will—

(1) Be restored to normal operating condition.

(2) Have all MWOs applied.

(3) Be returned to a normal PMCS schedule using the last type service completed.

(4) Be calibrated, as required.

j. Commanders will provide the security necessary to prevent cannibalization or theft of materiel in administrative storage in accordance with AR 190–11 and AR 190–13.

k. Special Maintenance Plan (scheduled services), inspections, maintenance standards and procedures, or other readiness evaluations prescribed in applicable operator manuals will be followed. The applicable field maintenance TM and TM 1–1500–204–23–1 will be used for aircraft. Performance of the services is the responsibility of the unit storing the materiel. Required services, inspections, and evaluations will be recorded on DA Form 5988–E or DA Form 2404 and retained for the duration of the administrative storage or 365 days, whichever is shorter. Faults noted during these actions will be corrected as quickly, as practicable.

l. The application of CICs to reduce the progression of corrosion will be administered per TB 43–0213 and spot painting as required per TM 43–0242.

9–8. The Army Tire Program

Per AR 750–1, the following procedures are mandatory:

a. Surveillance procedures will be established to ensure that all reparable vehicle and aircraft tires are recovered prior to the end of their useful life.

(1) Buses will not be operated with retread tires on the front wheels.

(2) Ambulances, both commercial and military; M977–series heavy expanded mobility tactical trucks; and any vehicle with a central tire inflation system will not be operated with retread tires.

(3) M911 heavy hauler, truck tractor vehicles will not be operated with retread tires on steering axles.

(4) Retread tires will not be used on any axle of the M860A1 Patriot Missile trailer or any large missile system and its prime mover. This includes not using retreads on any axles of the M983 heavy expanded mobility tactical truck tractor when it is the prime mover of the Patriot Missile trailer. Retread tires will not be used on any axle of the M985E1 heavy expanded mobility tactical truck cargo guided missile transporter.

(5) Applicable State and Federal transportation codes will be met when a vehicle is operated off the installation.

(6) Non-directional cross-country retreaded tires will not be used on any axle of any vehicle or trailer, including such vehicles as 5-ton and 2.5-ton trucks.

b. Regrooving of tires is not permitted because it is not structurally viable or cost effective.

9–9. Tool improvement program suggestions

a. Tool improvement program suggestions (TIPS) is a means for the users of tools to report deficiencies in tools; to recommend tools for deletion from, or addition to, SKOT; and to suggest modifications to tools that will improve the usefulness of the tools.

b. When a suggester (military or civilian) has trouble with a tool that impacts the unit mission, he or she is responsible for notifying the Army's responsible official for tools. This notification may be submitted in any reasonable format and by any means of documentation available, including data fax and/or electrical message. The initiative must be clearly stated; explain the issue; and propose a solution. See DA Pam 750–8 for specific guidance on TIPS initiatives. Initiatives must be addressed to U.S. Army Combined Arms Support Command, 2221 Adam Street, Building 5020, Fielded Force Integration Directorate, Fort Lee, VA 23801–1809.

c. Evaluators are subject matter / technical experts at TRADOC schools or AMC / TRADOC MSCs. The evaluator, when tasked, will conduct a complete evaluation of the initiative, including cost / time savings or avoidance, and return comments and recommendations to CASCOM within established periods. If the evaluator determines that a prototype tool is required for testing, CASCOM is notified. CASCOM will provide mailing instructions and a TIPS control number to the suggester. The suggester should provide a prototype tool only upon request. The suggester or the unit, upon the commander's approval, must bear the cost of providing required prototype tools.

9–10. Unique Item Tracking Program

The Unique Item Tracking (UIT) Program requires the visibility and tracking by serial number of selected items and installed components as outlined in DoD 4140.1–R and AR 710–3. The objective of the UIT program is to maintain visibility of each unique identified asset for the primary purpose of inventory control and engineering analysis. Security, accountability, safety, maintenance, operational readiness, warranty,

and other areas that may benefit from the tracking process are subsets of the inventory control or engineering analysis functions.

a. UIT reporting requirements for Army-controlled small arms, security risk non-nuclear missiles and rockets, controlled cryptographic items, and radiological testing and tracking assets are outlined in AR 710–3. HQDA will approve additional assets for serial number tracking via UIT.

b. All assets within the supply system subject to UIT tracking have a unique item identifier for each individual asset being controlled or managed. A unique item identifier can be the item's serial number, the vehicle identification number, and so on as long as no other UIT asset has the same identifier within the national stock number or national item identification number. Installed components, as specified in AR 710–3, also require unique item identifier assignment.

c. All UIT programs will include provisions for data entry into TELS and other information systems using AIT. AIT enables the capturing of source data in an almost error-free process, enhancing the maintainers ability to identify, track, document, and control materiel and maintenance processes. Optical and digital scanning and reading devices are included in the family of AIT enablers.

d. Army procurement policies for the 21st century require materiel developers to ensure manufacturers place readable serial number markings on equipment.

9–11. Army equipment safety and maintenance notification system

a. Maintenance messages.

(1) The AESMNS also includes maintenance messages such as MAMs, maintenance information messages (MIM), SOUM and the ground safety action.

(2) The repository and compliance reporting location for AESMNS is the MMIS database which can be accessed through the AESIP portal, https://www.aesip.army.mil/irj/portal.

b. When a materiel defect or hazardous condition that can cause death or injury to Army personnel or damage to Army equipment is discovered, an AESMNS message is prepared in accordance with AR 750–6 and a SOUM or ground safety action is approved for release to the field.

c. A SOUM is issued when the risk condition assessment is a high or medium safety risk according to AR 385–10. The following procedures apply—

(1) Upon verification of a high safety risk condition, the program sponsor immediately notifies the USASC and prepares a draft SOUM for coordination. Upon completion of coordination within the appropriate AMC commodity command and approval by USASC, the program sponsor notifies the DCS, G–4 (Maintenance Directorate), which will ensure proper staffing at the HQDA-level and secure final release approval from the DCS, G–4.

(2) Upon verification of a medium safety risk condition and determination by the program sponsor that a SOUM will be issued, the procedures in paragraph 10–11 will be followed.

(3) All SOUMs will be transmitted as immediate precedence messages.

(4) A unique control number will be issued at the time of transmittal for each SOUM.

d. A ground safety action is issued when the risk condition assessment is a medium or low safety risk (see AR 385–10). The following criteria apply:

(1) For a medium safety risk condition for which the program sponsor has determined that a SOUM is not required, a ground safety action is prepared and staffed within the appropriate AMC commodity command and then is approved for release by the appropriate AMC commodity commander.

(2) For a low safety risk condition, the program sponsor prepares a ground safety action and staffs it within the appropriate AMC commodity command, with approval for release by the appropriate AMC commodity commander.

(3) All ground safety actions are to be transmitted as routine precedence messages.

e. A unique control number will be issued at the time of transmittal for each ground safety action. SOUMs and ground safety actions are addressed to ACOM, ASCC, and DRU commanders using Address Indicator Group 12523.

f. ACOMs, ASCCs, and DRUs will immediately acknowledge receipt of a SOUM and/or ground safety action to the originating organization and/or office listed on the message. If the ACOM, ASCC, and DRU fails to acknowledge receipt within 5 working days, the message originator will contact the ACOMs, ASCCs, and DRUs that failed to verify receipt.

g. ACOMs, ASCCs, and DRUs will disseminate SOUMs and ground safety actions within 24 hours to all subordinate units (see AR 25–1.)

h. Compliance actions—

(1) ACOMs, ASCCs, and DRUs will develop compliance reports as required by the SOUM/ground safety action.

(2) Army equipment users will report compliance per their ACOM, ASCC, and DRU instructions and directives and immediately report additional deficiencies discovered.

(3) Depot activities will acknowledge receipt of each SOUM and/or ground safety action, estimate when safety requirements will be accomplished, and confirm safety compliance by equipment serial number and SOUM, ground safety action date, and time group.

i. Medical materiel quality control (MMQC) messages: MMQC messages are used to notify Army personnel of Food and Drug Administration (FDA) Class I, II and III equipment and supply hazards. Equipment operators and medical maintainers are to execute directions contained within the body of each message per AR 750–6. Each message type has different response requirements:

1. Class I – acknowledge receipt within 24 hours and report compliance within 72 hours.
2. Class II – acknowledge receipt within 24 hours and report compliance within 5 business days.

9–12. Army Corrosion Prevention and Control Program

The Army Corrosion Prevention and Control (CPC) Program responsibilities and guidance are in accordance with AR 11–42, AR 750–1, and AR 750–59. Corrosion prevention starts with Soldiers and leaders enforcing PMCS, which includes cleaning, servicing, spot painting, identifying and replacing gaskets and seals, and properly storing equipment and repair parts. The first step in CPC is ensuring operators and/or crews perform PMCS and identify corrosion at its earliest stages. Keeping equipment clean and in serviceable condition is the first line of defense against corrosion.

a. CPC is a critical consideration in assuring the sustained performance, readiness, economical operation, and service life of Army systems and equipment. It requires active consideration in the materiel development, acquisition, fielding, operation, and storage processes. CPC requires life cycle management planning and action in design, development, testing, fielding, training, and maintenance.

b. CPC will be achieved by incorporation of the latest state-of-the-art corrosion control technology in the original equipment design, in the manufacturing, in all levels of maintenance, in supply, and in the storage processes. The objective is to minimize corrosion by using design and manufacturing practices that address selection of materials; coatings and surface treatments; production processes; process specifications; system geometry; material limitations; environmental extremes; storage and ready conditions; preservation and packaging requirements; and repairs, overhaul, and spare parts requirements.

c. There are several proven technologies and/or procedures that units can employ to reduce the effects of corrosion on their equipment. The level of corrosion protection needed is based on environmental severity Classification and should be considered when performing maintenance. All locations to which the Army stations or deploys are Classified by their environmental severity Classification. Severity Classifications are addressed in UFC 1 – 200 – 01 (wbdg.org) and DoDI 5000.67 which can be accessed via the world wide web or at TACOM Corrosion Website (CAC-Enabled): https://tacom.aep.army.mil/sites/ilsc/public/cpc/sitepages/home.aspx . Two examples are the controlled humidity preservation program and corrosion inhibiting preventative maintenance applications:

(1) *Controlled Humidity Preservation Program.*

(a) Long-term preservation is permanent shelter designed to maintain equipment stored for a period of one to three years at a specific relative humidity.

(b) Modified long-term preservation provides the same benefits of long-term preservation but is intended for storage of equipment from 90 days to one year.

(c) Operational preservation is an easily installed capability designed for crew compartments and enclosed equipment spaces (such as M1, M2, M3, and M109) to reduce the effects of moisture on electronic components.

(d) The Single Vehicle Environment Stabilization System is designed to prevent moisture in crew compartments of specific tactical vehicles (M1, M2/3, M109, and M88).

(2) *Corrosion inhibiting preventative maintenance applications.* CICs will be applied by field-level personnel to prevent the effects of corrosion per the applicable equipment TM and TB 43–0213.

(a) Only the use of approved CPC products is authorized.

(b) The AFC, ARL is the approval authority for these products.

d. When cleaning, remove dirt, salt, and other contaminants as these accelerate corrosion. For Army ground equipment refer to TB 43–0213 and the applicable ETM. For aviation equipment refer to DA Pam 738–751, TM 1–1500–328–23, TM 1–1500–345–23 and TM 1–1500–344–23 series and the platform

specific equipment TM. Authorized cleaning equipment, compounds, and procedures will depend on the type of surface being cleaned and the supplies being used. The associated TM outlines the frequency of cleaning along with consideration of the operating environment. The frequency of cleaning should increase based on environmental severity classification of the operating environment. When cleaning, remove dirt, salt, and other contaminants as these accelerate corrosion. Authorized cleaning equipment, compounds, and procedures will depend on the type of surface being cleaned and the supplies being used. The associated TM outlines the frequency of cleaning along with consideration of the operating environment. Good maintenance programs require a minimum of a monthly fresh water and detergent cleaning. Heavy-use equipment will require cleaning at least twice a month or immediately after operation, if based within 1.25 miles of a salt-water environment. Perform a wash and rinse when directly exposed to dirt, mud, salt spray or splash, and other contaminants.

e. Neutralize, clean, and treat spilled electrolyte and corrosive deposits found around battery terminals and battery areas. Clean areas of the equipment exposed to corrosive fire extinguishing substances within 4 hours after application. Clean saltwater deposits including equipment exposed to significant amounts of salt water after shipment. Washers and a detergent cleanser are an acceptable method of cleaning for non-electronic equipment. It is important that water pressure not damage the equipment. The maximum pressure used on equipment varies (see the associating TM or TB for further guidance). Do not force water into a surface or at gaskets, seals, and protective coatings. Unplug drain holes and ensure water-pooling areas are dried.

f. Thorough inspection of equipment is the second step in the CPC process. Check the condition of the equipment for corrosion, coating damage, trapped water, and contaminated surfaces. The frequency of the corrosion inspection should increase with the operational tempo and severity of the operational environment. Visual inspection is an effective method for detection and evaluation of corrosion. Special attention for inspection should include fasteners, crevices, hinges, and points where metals join. The most common tools used in a visual corrosion inspection are a flashlight or magnifying glass to check pitting and cracking, an inspection mirror, and a non-metallic scraper. Remove the corrosion and clean, treat, or repaint accordingly using the approved paint per equipment specific TM, most often the Chemical Agent Resistant Coating (CARC) System, refer to TM 43–0242 for spot painting of Army Ground Equipment. For spot painting of Aviation Equipment refer to TM 1–1500–345–23. For aviation equipment document corrosion and corrective action taken in the maintenance records using Cause Code 170 Corroded/Rusted using DA Form 2408–13–1. For ground equipment, operator/crews identify corrosion deficiencies and maintainers verify faults reported on the DA Form 5988–E. Unit maintenance personnel validate corrosion condition. The GCSS–Army Equipment Records Parts Specialist annotates corrosion deficiencies with Cause Code 170 and object part code as applicable per AR 750–59, when creating a notification in the fault details cause code section in the GCSS–Army work order process.

g. Always check water entrapment areas, battery compartments, vent openings, drain holes, and electrical connectors as well as bare metal components and surfaces.

h. Preservation of clean, corrosion-free equipment is the third step of the CPC process. Preservation helps protect equipment and parts by providing coatings, lubricants, sealants, and water displacement compounds. Reapply preservatives and sealants after washing, before and after deployment, and for extended periods of equipment storage. CICs or preservatives are used to protect metal parts and components. They function by preventing electrolytes from contacting and corroding bare metal surfaces. Many of these compounds are also able to displace water and other contaminants from the metal surface and provide lubrication and corrosion protection as well. Use approved corrosion preventive compounds provided through the supply system. The supporting LAR can request an alternative corrosion prevention compound through the Systems Readiness Directorate (SRD) when materials are not available.

9–13. Army Battery Program

The Army Battery Program provides policy guidance on the use and maintenance of military and commercial standard batteries and rechargeable/reusable batteries.

a. Lead-acid batteries. Commanders will use batteries prescribed by the technical and equipment manual. Valve regulated lead acid (VRLA) and absorbed glass mat (AGM), enhances system performance and reduces logistics burden; therefore, commanders will order and use sealed batteries as batteries require replacement. MATDEVs will ensure that suitable VRLA batteries, that support the performance specifications required by technical and equipment manuals, are available for use. Commanders will order and use VRLA batteries as replacement batteries are required. As an exception, flooded wet

cell batteries may only be used when VRLA batteries are not available or not yet approved for use as per the technical and equipment manual. VRLA and flooded wet cell is not authorized to be mixed in accordance with TB 9–6140–252–13.

(1) Equipment operators and/or crews are responsible for visually inspecting installed lead-acid batteries for cleanliness and obvious damage in accordance with applicable operator TMs. Operators/crews will report faults using TAMMS to their field maintenance activity for action.

(2) Field maintenance activities are authorized to inspect, add distilled water (flooded wet-cell only), install, remove, test, and conduct recharging of batteries installed in/on authorized equipment.

(3) Field-level and sustainment-level maintenance activities conducting a battery recovery and recharging mission are authorized to inspect, add distilled water (flooded wet-cell only), install, remove, test, and conduct recharging of batteries installed in/on authorized equipment, properly fill, activate, charge, recharge, issue, reissue, diagnose, test, recover, and temporarily store serviceable / unserviceable batteries and related support materiel. The DLA consignment program or local contract will initially fill and charge batteries and issue them flooded wet (only by exception) or VRLA to units. Use of the DLA consignment program or other local contract is required when available. Local command policy may augment these actions to take climate and other circumstances into consideration. Applicable host country turn-in and disposal procedures apply.

(4) If the DLA consignment program or contractor support is unavailable (during or shortly after initial deployments to an area of operations), field-level or equivalent or higher-level maintenance activities may temporarily operate a regulatory compliant battery shop (fixed or mobile) using approved equipment. These maintenance activities can return unserviceable batteries to FDP SSA/supported units. If unable to return batteries to a serviceable condition, applicable unit turn-in and disposal procedures apply. During initial stages of deployment, a supply of automotive batteries can accompany the unit until more sustained support (units, contractors, and DLA battery consignment) can provide requisite support.

(5) Commanders will ensure that all battery maintenance management programs are operated in an OSHA/Environmental Protection Agency compliant manner.

b. APS/care of supply in storage/NCOMP/administrative storage/long term storage. Equipment in long term, LUP or NCOMP programs will have all automotive batteries fully recharged and balanced in accordance with applicable TMs and TBs prior to placing in storage. At a minimum, all automotive batteries in long term storage or limited use programs will be fully recharged every six months and tested to verify full state of charge. The exception are batteries maintained on approved maintainer/conditioning equipment. Commanders will use approved solar maintainers for equipment in LUP, NCOMP or in outdoor storage.

c. Rechargeable communication-electronic batteries. All units will use rechargeable CE batteries for garrison duty and training (to include training at the combat training centers) and will develop rechargeable battery SOPs.

(1) Unit battery SOPs will address the following:

(a) Which primary CE batteries the units currently use when replacing batteries and which rechargeable batteries to use instead of the primary.

(b) The number of primary and rechargeable communications and electronics batteries required annually for supporting the equipment on hand.

(c) The number of chargers required for supporting the equipment on hand.

(d) How best to logistically support the recharging of these batteries.

(e) Barriers to using rechargeable batteries and what actions will be taken to eliminate the barriers.

(f) Duties and responsibilities of Soldiers relating to the use and management of rechargeable batteries.

(g) The proper recharging process, use, care, and maintenance of rechargeable batteries.

(h) Locations using large numbers of primary batteries should develop a lithium (disposable) battery recovery and reuse program.

(i) Duties and responsibilities of Soldiers relating to the collection and disposal (to include proper place for disposal) of all batteries used in the unit.

(2) Commanders will maximize use of rechargeable batteries during Peacekeeping operations where appropriate.

(3) Commanders may use rechargeable batteries during wartime as a viable alternative power source when rechargeable batteries and their logistics planning have been incorporated into the units' training plan. Rechargeable/reusable batteries will not be used when:

(a) Front line tactical units have adequate standard batteries for mission accomplishment. Commanders may use the rechargeable batteries:

1. Based upon short supply.

2. At tactical operation centers, support units, and rear echelons during wartime to free up primary assets for combat units.

(b) Temperature exceeds the operational temperature range for rechargeable batteries, generally below negative 4 degrees Fahrenheit and above 122 Fahrenheit.

(c) Recharging is not practical such as when the time between resupply actions requires users to stock an excessive amount of rechargeable batteries.

d. Battery disposal. Each installation will operate battery disposal operations in accordance with the qualified recycling program and applicable regulatory guidance. All disposal contracts should include revenue generation as a key consideration. Units or activities with no installation support will develop local disposal capabilities in accordance with applicable regulations and qualified recycling program, as necessary.

Chapter 10
Command Maintenance Discipline

Section I

Command Maintenance Discipline Program Procedures

10–1. Overview

Per AR 750–1, CMDP is a mandatory commander's program. This program focuses commanders, directors and supervisors on maintenance management and operations core competencies. The CMDP is a tool to evaluate unit maintenance programs on a day-to-day basis. The CMDP will place emphasis on identifying those areas requiring attention by commanders and the resolution of systemic problems. The CMDP is oriented to combat readiness and sustainability. On the spot training and assistance is highly encouraged. The overriding principle of CMDP is the Soldier's and units' abilities to maintain their equipment in any environment.

a. This chapter implements the CMDP and lists Army management controls. The CMDP addresses supervisory and managerial responsibilities within the maintenance system from the user to the O–5/LTC and O–6/COL command levels.

b. The CMDP is a compilation of existing regulatory requirements. Therefore, commanders, supervisors and managers are required to implement the provisions of this chapter in order to standardize maintenance discipline throughout the Army. As a mandatory program, CMDP simplifies command, supervisory and managerial responsibilities by—

(1) Compiling various regulatory requirements in the CMDP checklist.

(2) Standardizing evaluation requirements.

(3) Formalizing follow-up procedures.

c. Commanders will implement the CMDP by using their existing resources.

(1) Examples of existing resources include, Command Inspection Program, Internal Review Office, and staff personnel (see AR 1–201 and AR 11–2).

(2) Whichever activity the commander designates to assist with implementing the CMDP, that designated activity will incorporate CMDP policy in its evaluation plans and procedures. All existing maintenance evaluation programs will absorb the CMDP. Additionally, local IGs at the commanders discretion may conduct special inspections using the systemic methodology for determining root causes for problems identified through the CMDP. Therefore, commanders should not establish new evaluation teams because of the CMDP.

10–2. Purpose

a. The purpose of the program is to—

(1) Establish maintenance discipline as regulatory guidance.

(2) Standardize maintenance discipline requirements.

(3) Provide responsible personnel with a single listing of maintenance policy requirements.

(4) Make the Army more efficient with respect to time spent monitoring subordinates actions.

(5) Eliminate repeated findings of non-compliance with policy.
(6) Serve as a checklist for internal management controls.
(7) Identify and resolve logistical problems adversely affecting readiness.
(8) Establish reporting procedures required to identify maintenance issues in order to improve the conduct of maintenance and sustainment of all MTOE and TDA equipment.

b. To achieve the stated purposes, implementation of the CMDP will—
(1) Ensure compliance with DA maintenance policy and procedures.
(2) Determine the adequacy of established DA maintenance policy and procedures.
(3) Identify maintenance problems to permit timely corrective action within the chain of command.

10–3. Enablers to Commander Maintenance Discipline Program

a. Maintenance Assistance And Instruction Teams (MAIT).
b. Command Maintenance Evaluation Teams (COMET).
c. Maintenance Terrain Walk Program (MTWP).
d. Army Awards for Maintenance Excellence (AAME) (see chap 10).
e. LCMC Corrosion Prevention and Control Office.

Section II

Program Guidance

10–4. Concept

To assure proper implementation of the CMDP, the intent of the program is as follows:

a. The CMDP in conjunction with other maintenance programs helps eliminate non-compliance with maintenance regulations and policies. To accomplish this, the CMDP assists commanders by making them aware of maintenance conditions in their command.

b. CMDP is an inspection program. Responsible personnel expect to use the program to—
(1) Gain familiarity with established policies.
(2) Enforce compliance with policy by subordinate personnel.

c. Inspections are a necessary part of the CMDP in order to monitor performance. The intended result of these evaluations is to present the facts to the commander so the chain of command can initiate prompt corrective action.

10–5. Requirements listing

a. Each command level will review the requirements listing for completeness and make the necessary additions to account for uniqueness within the command.

b. The intent of the requirements listings is to provide supervisors with a single source of maintenance policy requirements.

c. The following format outlines the information within each of the requirements listing:
(1) Regulatory requirements include a concise listing of the guidance.
(2) Administrative procedures include the actions needed to complete the regulatory requirement.
(3) References include the source of the requirement.
(4) Requirements detail how to meet the standard supported by a current regulation or publication.

10–6. Implementation

a. The CMDP Checklist will be reviewed and updated by the HQDA–G4 on an annual basis in coordination with ACOMs, ASCCs, ASCs, DRUs and representatives from the U.S. Army Ordnance School. The review will be conducted at the CMDP Review Board to be held 4QTR of each FY.

b. Each commander provides his or her personal interest and direction to establish an effective CMDP.

c. The CMDP integrates existing resources in the command to avoid redundancy and to ensure unity of effort.

d. Supervisors use the Requirements Listing in the normal performance of their duties.

e. When a requirement within the Requirements Listing is not complete, the affected organization must notify the immediate higher headquarters.

f. Commanders will appoint a CMDP coordinator (on orders) and ensure that they understand their responsibilities and coordination requirements.

g. CMDP coordinators will schedule formal and informal inspections and staff assistance visits.

h. CMDP coordinators and Inspectors will use the most current CMDP Checklist which is located at the U.S. Army Ordnance Corps and School website https://goordnance.army.mil/ or https://www.milsuite.mil/book/community/spaces/sustainnet/ordnancecommunity/cmdp

10–7. Inspections

The CMDP is a day-to-day program conducted by commanders or their designated representatives. The frequency of internal inspections is set as desired. Commanders at all levels will conduct or ensure a formal inspection on brigade and lower size units by their parent organization that has training, resourcing and authority on a semi-annual basis (annual inspections by ARNG and RC units). ACOMs, ASCCs, and DRUs will conduct formal annual inspections on their next lower commands (for example, division and corps) (once every two years for ARNG and RC). The brigade, combat aviation brigade or equivalent O–6/COL command level will keep the results of the semi-annual (annual for ARNG and RC) inspections for 2 years. ACOMs, ASCCs, and DRUs will keep annual inspections on file for 2 years (4 years by ARNG and RC commands). Commands will review the results of the formal inspections as part of the overall maintenance program and ensure training and corrective actions occur.

a. User, battalion and brigade level staff, division or ACOM, ASCC, and DRU level—

(1) Supervisors will use the CMDP to ensure maintenance discipline. The most effective means of ensuring maintenance discipline is to have an internal self-administered program implemented on a routine basis.

(2) The normal recording of (for example, inventories and record keeping) is required.

(3) At the completion of an evaluation by a higher headquarters, the evaluation team along with the inspected unit or organization will determine a suspense date (get well date) to resolve discrepancies.

b. Parent organizations and higher commands—

(1) The immediate level above the unit or organization is the parent organization.

(2) The parent organization and higher command levels are required to evaluate the subordinate commands for compliance with established policy.

(3) Formal semi-annual evaluations (annual for ARNG and RC).

(a) Provide supervisors with feedback of their maintenance discipline performance.

(b) Identify maintenance problems and resolve difficulties before they become serious.

(c) Determine if resolution of past findings are complete and appropriate.

(4) Each organization and higher command (O–5/LTC) will maintain a file of evaluations in accordance with paragraph 10–8—

(a) Date of evaluation.

(b) Organization evaluated.

(c) Findings and associated suspense dates.

(d) Repeat findings.

(5) Some evaluation findings of non-compliance may be due to circumstances beyond the control of the evaluated organization (for example, the discrepancy is a result of conflicting command or policy guidance). The level conducting the evaluation is then responsible for elevating a finding to the appropriate level capable of resolving the discrepancy.

c. Formal annual evaluations (every 2 years for ARNG and RC)—

(1) The purpose of the evaluation is to determine unit compliance to regulatory guidance.

(2) The requirements listings establish the minimum standards. Commanders are encouraged to develop command checklists using the Requirements Listing as a baseline.

(3) CMDP evaluations will include the following:

(a) The review of the unit maintenance files, SOP, TELS, tool rooms, safety program, HMs and programs such as equipment licensing.

(b) School-trained maintenance personnel are working in maintenance positions. Verify and review labor to determine utilization efficiencies.

(c) A comparison of a representative sample of completed maintenance transactions crosschecked with equipment services or repairs.

(4) Personnel undergoing the evaluation may make on-the-spot corrections without deficiencies noted on the inspection report.

(5) Inspectors will record findings on each applicable requirement in the Requirements Listing. Review the results of the last inspection to determine if past discrepancies were resolved. Inspections will be on file with the unit and headquarters per paragraph 10–8.

(6) Evaluators will brief the organizations supervisors and commander on the findings. For each finding, the supervisor or commander will establish an internal suspense date for resolving of each discrepancy.

(7) In the case of repeat findings, the chain of command will take action to correct the problem and to re-establish compliance.

(8) The inspected organization will receive a copy of each inspection made under CMDP. The copy will specify all non-compliance findings along with the respective suspense dates determined by the supervisor or commander. The inspector will also retain a copy of the inspection and use it for follow-up on corrective actions during the next inspection.

(9) If major problems with procedure or policy surface during the CMDP inspection, the inspection team will elevate the findings up the chain of command to appropriate level capable of resolving the problems.

(10) In summary, the sequence of events is as follows:

(a) Organization inspected.

(b) Organization's supervisor or commander establishes suspense dates for corrective actions.

(c) Supervisor or commander is required to utilize inspection results to improve maintenance discipline.

(d) Future CMDP inspections will include a review of corrective action(s) taken on the last inspection.

(e) Repeat findings require chain of command notification and assistance.

Section III

Maintenance Discipline Enforcement

10–8. Methods for enforcing maintenance discipline

Enforcement of maintenance discipline is accomplished through a combination of leadership, command emphasis, training, administrative and disciplinary measures.

10–9. Administrative measures

AR 735–5 provides various administrative measures for accounting for lost, damaged and destroyed property. The measures are not corrective or disciplinary actions.

10–10. Disciplinary measures

Military discipline goes hand-in-hand with maintenance discipline. The commander has several tools available to use, both deterrence and corrective actions. Disciplinary measures include reprimands, adverse efficiency reports and Uniform Code of Military Justice.

10–11. Reacting to incidents of non-financial liability

Use of administrative and disciplinary alternatives is not limited to cases involving the standards prescribed for financial liability. Even when no financial liability is found, the facts may warrant some form of command action, such as a failure to properly supervise an operation or a subordinates' actions. For example, there is little doubt that strong measures should be taken against a maintenance person whose stocks were found by a command inspection to be 10,000 short because of his or her misconduct, neglect or inefficiency. However, similar action might also be appropriate against supervisors and commanders in the chain of command if an investigation revealed inadequate command supervision (for example, failure to conduct or verify inventories and failure to conduct checks).

10–12. Ensuring maintenance discipline and management controls

The best means of ensuring maintenance discipline is to be proactive and not reactive in maintenance operations. Maintenance discipline does not lend itself to infrequent emphasis. Enforcing discipline and compliance with regulations requires constant command emphasis. To effectively instill and maintain maintenance discipline, commanders and supervisors must routinely adhere to CMDP procedures and conduct maintenance discipline training for all subordinates.

Section IV

Command Maintenance Discipline Program Enablers

10–13. Maintenance Assistance and Instruction Team Program/Command Maintenance Evaluation and Training

a. MAIT/COMETs Program procedures will include the following:

b. The MAIT/COMET Program will be operated as a decentralized program.

(1) Teams will be established at installations or comparable levels in CONUS and at ACOM, ASCC, and DRU, corps, division, separate brigade, or comparable levels in overseas areas.

(2) The teams will be clearly identified in mission and function statements or operating regulations.

(3) A MAIT/COMET will not be established when troop or equipment density does not warrant it. In such cases, the responsibility for providing assistance and instruction is assigned to an established team within the geographic location.

c. Personnel assigned to a MAIT/COMET may participate in command inspections, annual general inspections, AT evaluations, spot checks, roadside inspections, or any other command evaluation program.

d. Site Assistance Visits (SAV) are a normal function of the MAIT/COMET and the results of SAVs will not be used as a bases for derogatory information or for adverse command action. When resources permit, each regular Army and RC unit will be visited annually. Visits to RC units will take place during scheduled drills and assemblies or during AT periods.

(1) MAIT/COMET visit results and summaries will not be given ratings or scores, nor will the information be revealed to any inspection agency. When the MAIT/COMET function is contracted, MAIT/COMET visit results will be available to QA evaluators.

(2) The MAIT/COMET consists of the minimum number of specialists required to meet the needs of the visited unit.

(3) MAIT/COMET visits will be directed for specific units not meeting acceptable readiness standards or levels. Direct communication will be established between the units in need of assistance and the supporting MAIT/COMET.

(4) Coordination between the unit and regular Army MAITs/COMETs will take place at least seven working days prior to a directed or programmed visit. ARNG MAITs will coordinate visits at least 30 calendar days prior to a directed or programmed visit.

(5) MAITs/COMETs, as a minimum, will have the capability to assist and instruct units in improving operations and management in the following areas:

(a) Operator requirements.

(b) Preventive maintenance and equipment repair.

(c) Equipment condition and serviceability.

(d) Materiel condition status reporting.

(e) Administrative storage.

(f) Maintenance records and reports management.

(g) Calibration management.

(h) Proper use of tools and test equipment, troubleshooting, and fault diagnosis.

(i) Maintenance personnel management and training.

(j) Publications account management, distribution of publications, and proper use of publications.

(k) Shop layout.

(l) Planning, production, and quality control procedures.

(m) Safety.

(n) Shop operations, including SOPs.

(o) Facilities.

(p) Shop Stock, Bench Stock.

(q) Equipment recovery and evacuation.

(r) Proper implementation of the Army Warranty Program.

(s) Army modernization training.

(t) AOAP.

(u) DoD Phoenix Award.

(v) AAME.

(w) PQDRs/QDRs.

(x) Maintenance Plans (Maintenance Plan (Scheduled Services)).
(y) CARC/CPP.
(z) Corrosion Prevention and Control Program.
(aa) Hazardous material handling.
(bb) Tire maintenance.
(cc) Maintenance TELS systems.

(6) The MAIT will consist of team chief and sufficient personnel to provide effective assistance and instruction to supported units. Team size depends on the following:
(a) Number and type of supported units and their geographic dispersion.
(b) Density and type of equipment supported.
(c) Commodities and areas that assistance and instruction will address.
(d) Frequency and time allotted for visits.

(7) Military and civilian personnel selected for assignment to MAITs will meet the following criteria:
(a) Possess technical skills, knowledge, and ability in their commodity or specialty areas.
(b) Have a broad general knowledge in a related secondary logistics field.

(8) MAIT/COMET personnel authorizations will provide sufficient spaces to maintain program continuity during periods of personnel turbulence.

(9) Visits to units with specialized equipment (for example, aviation, medical, signal, missile) may require temporary addition of qualified personnel.

(10) MAIT/COMET personnel will be cleared for access to defense information according to AR 380–67. Clearance will be equal to the Classification of the equipment and documents to be reviewed during the visits.

(11) Responses to a request for assistance and instruction will be made by—
(a) Telephone or electrical means.
(b) Visit of selected personnel.
(c) Visit of entire team.

(12) MAIT/COMET visits are categorized as—
(a) Requested visits arranged by the unit commander requiring a MAIT or by commanders requesting a MAIT for subordinate units.
(b) Directed visits scheduled in advance.
(c) Programmed visits scheduled in advance.

(13) Upon conclusion of the visit, the MAIT/COMET will—
(a) Conduct an informal review of the visit. Persons present for the review will include the commander of the unit visited and others selected by the commander. The critique should cover the total scope of the visit and include problem areas, remedial action initiated or recommended, and areas recommended for follow-up.
(b) Prepare a visit summary.
(c) Discuss areas requiring external assistance with the unit commander. After this discussion, a separate letter will be prepared to describe problems that require outside assistance. The MAIT/COMET will submit this letter to the organization, HQs, activity, or agency capable of taking action. The MAIT/COMET will also furnish a copy of the letter to the commander of the unit visited.
(d) The unit commander will be given an evaluation questionnaire to assess the performance, quality of assistance and instruction provided by the MAIT/COMET.

(14) The success of the MAIT/COMET Program depends largely on the quality of the assistance and instruction provided. To enhance the program, it is essential that the MAIT/COMET capabilities be widely publicized. Suggested methods are flyers, daily bulletin notices, and articles in local news media, referral cards, command websites, and briefings for newly assigned key personnel. Another effective method is to distribute a newsletter to supported units. Some of the subject areas that can be included in a newsletter are:
(a) MAIT/COMET lessons learned.
(b) Logistics information of general interest.
(c) Solutions to common problems encountered by MAIT/COMET.
(d) Situations that require quick remedial action.
(e) Mobilization.

(15) The primary duty of MAITs/COMETs during mobilization is to augment the resources of the command or installation to which they are assigned. The teams will also develop the capability to perform the following tasks during mobilization and intensified buildup operations:

(a) Provide assistance and instruction in equipment pre-embarkation reviews. This includes validation of condition Classification.

(b) Augment ACOM, ASCC, and DRU assistance team capabilities.

(c) Develop onsite training programs.

(16) Team integrity should be retained, where possible, to facilitate efficient return to peacetime operations.

(17) Consideration will be given to the allocation of mobilization augmentees for assignment to MAITs/COMET.

(18) Records and reports will be handled as follows:

(a) The MAITs/COMETs will maintain a DA Form 5480 (Maintenance Request and Assignment Register) of visits conducted. All time expended by team members, including hours for responding to telephone requests, will be shown on the register. These data will be used to support requests for additional TDA spaces or to defend existing MAIT/COMET manning levels.

(b) A visit summary will be prepared after each visit. It will describe actions to be taken and problems that require assistance of a support organization or higher HQs.

(c) A summary of a requested, directed or programmed visit will be prepared and provided to the requesting commander, subordinate commander, and a copy placed into the MAIT/COMET privileged information file.

(d) The MAIT/COMET will provide a written report quarterly to the HQs of the activity to which it is assigned. The report will contain personnel spaces authorized, personnel assigned, number of units visited/man days expended, number of telephone inquiries completed, man days lost to temporary duty or leave, number of unit requests not completed and reasons why, and suggestions for improvement of the MAIT program.

10–14. The Maintenance Terrain Walk Program

a. The Maintenance Terrain Walk Program is a leader development program for Battalion Commanders designed to support the CMDP. Its purpose is to assure a high level of awareness and command interest in field maintenance by ensuring senior commanders understand how their maintenance program operates. The conduct of maintenance and a unit's ability to sustain operations over an extended period of time are the direct responsibility of the Commander. No unit, no matter how well trained in the execution of its tactical mission, can expect to fight and win on the battlefield if it cannot maintain its equipment. Maintenance and training exist together, both critical to mission success and survival of the Soldier.

b. The Maintenance Terrain Walk is a training event to be conducted within 90 days of assumption of command (It is not an inspection). It is conducted as an on-site discussion of battalion maintenance management and operations, which takes place in each unit area (motor pool, aircraft hangers, arms rooms, CBRN rooms, and communication shops).

c. It begins with a maintenance overview briefing of not more than 20 minutes' duration conducted in a location of the Battalion Commander's choosing IAW Training Objective #1. The terrain walk concludes with a tour of the battalion's maintenance areas IAW Training Objective #2 and comments from DCG–S (if applicable). Referenced Training Objectives are as follows:

(1) Maintenance in-brief.
(2) Orientation.
(3) Maintenance Management Program.
(4) Maintenance Safety Program.
(5) Hazardous Waste Program.
(6) Corrosion Prevention and Control Program.
(7) Driver's Training and Licensing Program (Battalion S3 Area of Responsibility).
(8) TAMMS Flow.
(9) Class VIII/ IX requisitioning.
(10) Maintenance Plans to include the execution of Low Usage Plans (LUP) and NCOMP.
(11) EMSR.
(12) Organizational Maintenance Tools.
(13) TMDE Program.

(14) Automotive PMCS.
(15) Dispatch Procedures.
(16) Communications Maintenance Program.
(17) CBRN Maintenance Program.
(18) Weapons Training Program.
(19) Maintenance Training Program.
(20) Aviation Unit Maintenance Program.

d. Key maintenance personnel will be present to facilitate the conducting of the tour, and will address specific questions by the Deputy Commanding General for Support.

e. Additional information on the Maintenance Terrain Walk Program is available at the U.S. Army Ordnance Corps and School website https://goordnance.army.mil/.

10–15. Life cycle Management Command corrosion prevention and control offices

The AMC LCMC CPC programs (TACOM, AMCOM, CECOM, and JMC) periodically travels to specific Army installations to conduct corrosion surveys on Army weapons and support equipment which are LCMC specific managed equipment, provide corrosion FLM demonstrations and to evaluate then provide recommendations regarding unit CPC programs and Maintenance processes and reporting.

a. Benefits to military units, AFSBs, ASCCs, and ACOMs.
(1) Survey findings will provide unit commanders:
(2) Status on unit CPC program/ CPC training needs.
(3) Equipment technical corrosion assessments.
(4) Equipment fleet status.
(5) Corrosion maintenance action requirements for assets assessed.

b. Technical assistance and advice provided to military and civilian personnel:
(1) On-site Corrosion Field Maintenance Demonstrations to Soldiers.
(2) Command Maintenance Discipline Program (CMDP)– CPC.
(3) Army Award of Maintenance Excellence (AAME) – CPC.
(4) Environmental, Safety, and Occupational Health (ESOH).
(5) Personal Protective Equipment (PPE) identification.
(6) CPC Product availability – Authorized Usage List (AUL).
(7) Command Maintenance Evaluation Team (COMET).
(8) Maintenance Assistance and Instruction Team (MAIT).
(9) Ground Readiness Evaluation Assessment Team (GREAT).
(10) Logistics Assistance Representatives (LARS).
(11) Aviation Readiness Management Survey (ARMS) Teams.

c. Benefits to Maintenance Facilities with Paint Booth Operations.

d. Provide Technical assistance and advice on the following:
(1) CPC Program.
(2) CMDP Checklist.
(3) Over-the-shoulder review and guidance on current operations.
(4) Inspection.
(5) Cleaning.
(6) Surface preparation.
(7) Chemical Agent Resistant Coating (CARC) System application.
(8) Quality Assurance / Quality Control (QA/QC).

e. The TACOM Corrosion Office is the proprietor for the following:
(1) TM 43–0242, TM 43–0139, and TB43–0213.
(2) Corrosion Control Office POC. AMC, HQ, G3 LRC/FMx, DSN: 256–450–6828.
(3) TACOM Corrosion team email—usarmy.detroit.tacom.mbx.ilsc-corrosion@army.mil
(4) AMCOM Corrosion team email—usarmy.redstone.devcom-avmc.mbx.amcom-corrosion@army.mil

Chapter 11
Equipment Regeneration, Reconstitution, and/or Reset

11–1. Equipment regeneration principles
The Army has requirement to regenerate combat power at critical points in the course of equipment life cycles. Examples of regeneration requirements are:

a. Equipment identified by the responsible program office for modernization initiatives, life cycle replacement, spiral upgrade, deep cleaning or recapitalization.

b. COMPO 2 transitioning from Title 10 deployment status to Title 32 status. (See DoDI 1225.06).

c. Condition based maintenance identified through physical inspection or condition based PPMx.

d. Directed Repair Cycle Float transactions.

11–2. Regionally Aligned Readiness and Modernization Model
Regionally Aligned Readiness and Modernization Model (ReARMM) is the Army's force regeneration process which replaces the Sustainable Readiness Model (SRM) described in AR 525–29. Equipment regeneration supports the ReARMM process directed by HQDA EXORD 269–20.

11–3. Intensively managed items
a. Intensely managed items (IMI) is equipment that is automatically inducted into a sustainment-level regeneration program as a maintenance transaction and remains on the unit APSR. LCMCs place items on the IMI list because of expected extensive wear and tear experienced in high OPTEMPO environments.

b. The IMI list identifies equipment that will receive OEM or depot maintenance. The transaction for IMI is as follows:

(1) Unit plan is executed through LMI DST RESET Module for Class VII items.

(2) LCMCs will provide disposition instructions and specific contact information on these items for turn-in.

(3) IMI is a maintenance transaction, which will require a work order using TELS maintenance process.

(4) IMI items are turned-in "as is" condition, either shipped to SOR or to home station as directed.

(5) Major end items of the patriot missile system, to include ground support equipment, will be turned in as is, complete. All recoverable items will be present and installed on the major end item.

11–4. Medical sustainment items
a. MSIs clinically relevant or require scheduled maintenance should be inducted into the Class VIII materiel sustainment program. All coordination for medical materiel support, maintenance or exchange will be performed through the AMLC.

b. The MSI reset's primary purpose is to induct medical materiel at home station and to simultaneously field new, refurbished or recapitalized Medical device and sets.

(1) Units retain accountability in operation and ships items to home station.

(2) Units coordinate with the LCMC item manager / SOR to reset items.

(3) Items are Reset at home station (repaired or exchanged) and returned to the unit.

11–5. Decision support tool reset module
a. As the Army begins the migration of data centers and applications into the cloud, legacy applications such as Automated Reset Management Tool (ARMT) and other related applications will sunset. The LMI–DST will subsume the reset capability as part of the LMI process. To enable this, LDAC built the Reset Planning module within DST. This module, as well as modifications to existing DST modules, will contain the functionality needed to enable Unit Reset Planning.

b. DST Reset Module provides a collaborative integrated tool for commanders to view directed equipment regeneration planning and disposition for organizations equipment.

c. AMC has enhanced this tool to allow the automatic build of equipment regeneration plans. DST Reset Module auto-generates directed equipment regeneration plans for UICs using GCSS–Army data to identify on-hand equipment eligible for focused regeneration.

d. AMC builds plans. Once executed, the LCMCs provide disposition instructions the SORs for workload planning.

e. ACOMs, ASCCs, and DRUs will ensure redeploying units induct all equipment into directed regeneration programs no later than 30-days after arrival at home station.

Chapter 12
Unit Maintained Equipment and Additive Manufacturing

12–1. Unit maintained equipment standards

a. Equipment which remains at home station during deployment will be considered Unit Maintained Equipment (UME) and will be maintained according to the Army maintenance standard in AR 750–1 to ensure equipment readiness for future contingencies.

b. Corrosion prevention and maintenance steps remain in effect as written in the applicable TMs.

(1) Safeguard all property and equipment including all associated components and materials. Examples include BII, COEI, special tools and repair parts.

(2) Perform PMCS quarterly with all (before, during, after, weekly, and monthly) checks accomplished at a minimum of quarterly.

(3) Exercise all equipment per paragraph 4–6.

(4) Maintain the AOAP schedule.

(5) Maintain all equipment maintenance plans (services) per paragraph 4–6.

(6) Maintain all equipment records, MMIS data, Gun Cards (DA Form 2408–4 (Weapon Record Data)) in the appropriate TELS per DA Pam 750–8.

(7) Enforce the use of the Army Battery Program in paragraph 10–13.

c. When contract augmentation is required, units will request contract support through their chain of command and according to the prescribed policies and procedures established by their respective ACOM or ASCC. Final support coordination and approval will be between the ACOM or ASCC and ASC.

d. When contracted augmentation is requested to support the UME, units will—

(1) Develop a UME concept of support and plan.

(2) Adjust requirements for contract augmentation to account for NCOMP, administrative storage and expected use of equipment.

(3) Consider the use of administrative storage on equipment with minimal maintenance requirements meeting the administrative storage requirements in paragraph 10–7.

(4) Lateral transfer, divest, or turn-in all excess equipment to reduce maintenance requirements.

(5) Provide logistics and maintenance leadership for the UME mission.

(6) Provide operators for TELS to support the UME mission.

(7) Provide QA program for oversight of the program with appropriate COR / quality assurance representative for the duration of the contract to ensure contract deliverables achieve the requirements stated in this paragraph.

(8) Provide maintenance facility, repair parts and all specialized tools and equipment to support of the UME mission.

12–2. Additive manufacturing categories for risk-based decision-making

The procedures in this pamphlet are mandatory and comply with the policy in AR 750–1.

a. Advanced Manufacturing Data Repository (AdvM DR) is the data repository and collaborative space for all Army AdvM activities–from the Tactical to the National Level. Joint Additive Manufacturing Model Exchange (JAMMEX) is another digital repository that is available for users to access. JAMMEX is supported by the DLA.

b. Additive manufactured products/outputs will be categorized in one of the following six tiers to assist Commanders in making an appropriate risk-based decision for utilizing additive manufacturing technologies to support mission requirements.

c. Tier 1 —Standalone items not intended for use in a maintenance activity. Examples are sand table models, training aids, and mock-ups, or items needed to fulfill a non-maintenance related operational need—

(1) Commanders may authorize fabrication utilizing additive manufacturing for tier 1 items from approved models in AdvM DR or designed/created at the local level.

(2) Tier 1 items may be fabricated upon the approval of battalion-level commander or above, in response to an operational need not currently being met by an Army program of record.

d. Tier 2 —Standalone items that support the performance of a maintenance operation. Examples include hand tools, jigs, and fixtures.

(1) Commands are authorized to use additive manufacturing to produce Tier 2 items from approved models in the AdvM DR or locally designed.

(2) Locally designed Tier 2 items must be approved by the battalion or higher commander based upon a local risk assessment of availability of technical expertise to use them safely and effectively.

(3) Tools, jigs, and fixtures that support aviation or missile maintenance operations are considered tier 5 and will be produced based upon the approval authorities defined for Tier 5.

(4) Tools, jigs, and fixtures that support medical materiel are considered Tier 6 and will be produced based upon the approval authorities defined for Tier 6.

e. Tier 3 —Parts that enhance capability or ease of use of an existing system without altering its intended use nor affecting safe and effective operations. Examples include, carrying handles, blocks, and braces—

(1) Commands are authorized to use additive manufacturing to produce Tier 3 items from approved models in AdvM DR or locally designed.

(2) Locally designed Tier 3 items must be approved by battalion or higher command and consistent with applicable configuration controls.

(3) Tier 3 parts that are used with aviation or missile systems are considered Tier 5 and will be produced based upon the approval authorities defined for Tier 5.

(4) Tier 3 parts used with medical materiel are considered Tier 6 and will be produced based upon the approval authorities defined for Tier 6.

f. Tier 4 —Repair parts that are part of a PM controlled configuration affecting the safe and effective operation of a system that control or contribute to the transmission of motion, power, or electricity—

(1) Commands are authorized to use additive manufacturing to produce tier 4 items only from approved models in AdvM DR in accordance with specified engineering parameters, configuration controls, or locally designed by a technically trained Allied Trades Warrant Officer, upon the approval of the battalion or higher commander.

(2) Use of a Tier 4 additive manufacturing repair part in an MTOE unit in place of a standard repair part will be recorded locally on the DA Form 5988–E or DA Form 2404 and in the equipment master data file in GCSS–Army.

(3) Tier 4 repair parts used with aviation or missile systems are considered Tier 5 and will be produced based upon the approval authorities defined for Tier 5.

(4) Tier 4 repair parts used with medical materiel are considered Tier 6 and will be produced based upon the approval authorities defined for Tier 6.

g. Tier 5 —Aviation and missile repair parts, system enhancements, and any tools, jigs, fixtures used to support maintenance and sustainment of aviation and missile equipment and supplies. Use of additive manufacturing for aviation and missile applications will follow the procedures for Tier 4 additive manufacturing items, plus—

(1) Commands will not additively manufacture any repair parts, system enhancements, tools, jigs, or fixtures for use with aviation systems without the explicit approval from the Army airworthiness authority, Commander AMCOM. This prohibition includes parts on the host aircraft, parts launched from the host aircraft (for example, missiles and future platforms), parts that attach to the host aircraft (for example, missile launchers), and any jigs, fixtures, / tools used to support maintenance and sustainment of aviation equipment and supplies. Units shall coordinate approval to fabricate and use additively manufactured parts and items through their supporting Logistics Assistance Representative (LAR), who, if required, shall coordinate with the DEVCOM Aviation & Missile Center Systems Readiness Directorate Liaison Engineer (LE).

(2) Commands will not additively manufacture any repair parts, system enhancements, tools, jigs, / fixtures for use with missile systems, including the missile, launcher, launch tube, launch rail, etc. without explicit approval by the governing PM Office, coordinated through their AMCOM LAR. This applies to any missile system, including aircraft-launched, land vehicle-launched, and man-portable missile systems.

h. Tier 6 —Medical materiel. The use of additive manufacturing for medical materiel will follow the policies for Tier 4 additive manufacturing items plus—

(1) Command(s) will not fabricate any medical materiel without the expressed approval of the AMLC.

(2) Fabrication of medical materiel is restricted to organizations authorized and professionally trained and equipped for that purpose.

i. Permissions to fabricate based on levels of training:

(1) Allied trades (defined as 914A Allied trades Warrant Officer and 91E Allied Trades Specialist) are authorized to produce Tier 1 through Tier 6 items or parts using additive manufacturing based upon the approval authorities defined in this chapter.

(2) Not MOS (technically) trained soldiers are authorized to produce Tier 1 through Tier 3 parts in accordance with the approval authorities outlined in this chapter.

(3) Not MOS (technically) trained personnel are not authorized to produce Tier 4 or Tier 6 parts.

(4) For fabrication of Tier 5 aviation parts and items, units shall coordinate with their LAR. The LAR, if required, shall coordinate approval for fabrication with the assigned LE, in accordance with U.S. Army Aviation Policy for Advanced Manufactured Aircraft Repairs, Parts, Components and Support Products – Policy 070–062.

(5) For fabrication of Tier 5 missile parts and items, units shall coordinate with their LAR. The LAR, if required, shall coordinate approval for fabrication with the governing PM Office.

(6) Allied trades personnel are authorized to leverage the Army's AdvM DR to upload and download manufacturing files, additive and otherwise, to support their day-to-day operations and maintenance activities including BDAR, consistent with existing policies and procedures.

(7) Designs created by units locally will be submitted to the appropriate research and engineering center for analysis and inclusion in the AdvM DR maintained by AMC.

(8) Designs and 3D models will only be uploaded to or downloaded from approved Army or DoD sources and sites.

j. For the most current information and reference materiel related to AM refer to the following web address: https://www.milsuite.mil/book/groups/army-am-community-of-practice.

k. An AM guidebook can be found at the following web link by using the Pub Title Text selection under Search Type and the Search Criteria "guidebook": https://ent.ldac.army.mil/etmapp/#/etm/search.

Chapter 13
Pre-Deployment Training Equipment

13–1. Pre-deployment training equipment maintenance

a. Units that lateral transfer equipment to the pre-deployment training equipment (PDTE) property book will perform a Joint PMCS with the designated PDTE site manager in accordance with the equipment TM prior to lateral transfer. Units will transfer electronic maintenance and service records for all equipment as part of the transfer process.

b. Transfer standard is in TM 10 and TM 20 series condition with shortage annex.

c. Unit equipment work ordered to a SOR prior to designation as PDTE will transferred after release from the SOR. The Joint inspection by the unit and gaining PDTE site manager is required upon release of the equipment.

d. Evacuated PDTE for sustainment maintenance is a supply transaction and may not return to the PDTE site.

e. Using unit is responsible for field maintenance during and after use—

(1) Units will perform all field maintenance for standard Army and MRAP family of vehicles while in their possession. For MRAP maintenance support, if special tools are required, the unit will coordinate support requirements with the PDTE site manager. The PDTE site manager will hand receipt to the unit MRAP special tools to repair the equipment. Units will work order equipment to the SOR once determined it is outside their repair capability.

(2) PDTE will be returned in the same condition it was issued prior to clearing the supporting AMC/LRC installation. If a unit cannot perform or complete required maintenance prior clearing the LRC, units must provide a waiver (with a minimum of 06/colonel commander approval) to the LRC in conjunction with funds for labor and parts not provided based on required maintenance determined from a joint TI.

13–2. Pre-deployment training equipment maintenance reporting

a. The PDTE team will continue to track and report EMSR for equipment on temporary loan for 30 days or less.

b. Units with temporary loans greater than 30 days will immediately load PDTE equipment into TELS, track, and report EMSR for the duration of the loan.

Chapter 14
Non-Standard Equipment Maintenance and Sustainment

14–1. General
This chapter outlines the procedures to sustain tactical N–SE used by Army forces and defines requirements for the performance and management of N–SE.

14–2. Non-standard equipment maintenance procedures and structure
a. The basis of tactical N–SE maintenance is the N–SE provide the capability it was procured to do? N–SE operator manuals are likely the only information available to the user.

(1) Performance observation is the basis of the preventive maintenance checks per the operator.

(2) The user must document observed performance against established capability needed to accomplish the mission and report problems that degrade the equipment reliability.

(3) Maintenance standard: Tactical N–SE meets the maintenance standard when the following conditions exist:

(a) N–SE meets the maintenance standard when the equipment is FMC and safe to operate (determined from the applicable manufacturer TM and DST Catalog.

(b) Identify faults and record using TELS in accordance with the owner/operator manual.

(c) Report corrective actions not provided at field-level to qualified personnel responsible to perform maintenance.

(4) Record Maintenance Plan (Scheduled Services) within TELS and perform services at intervals required by the applicable manufacturer or by AMC/PM organizations.

(5) Due to safety implications, units will not modify or alter N–SE and must request modifications through their ACOM, ASCC, or DRU Headquarters to AMC. AMC will consult DST Catalog and manufacturer for approval to alter N–SE.

(6) Repair of N–SE is not authorized when maintenance costs exceed 60 percent of the replacement cost.

b. Maintenance records—

(1) Sustainers (for example, AMC and PM will ensure maintenance records are accurate, complete, and entered in the DST Catalog Web site (https://www.eis.army.mil/programs/aesip-hub) for items selected for storage. Records from TELS may also be used. Units will not enter unit- procured, unit-owned N–SE in AESIP but will list items in the DST Catalog data base in accordance with AMC process procedures.

(2) SSLs are unauthorized for unit maintenance organizations when maintenance personnel have prompt, secure, walk up access to a SSA.

14–3. Non-standard equipment inspection and repair
a. Units will conduct inspections according to equipment maintenance and serviceability standards applicable to the manufacturer.

b. A sustainment repair and return program is a process whereby N–SE is retrograded to AMC elements at posts, camps and stations, forward repair activities, contract facilities or PM and the same or like-item is direct exchanged or repaired and returned.

14–4. Non-standard equipment contractor logistics support
a. Depending on the sustainment strategy, AMC or the PM will determine when and how CLS is the primary SOR. AMC or the PM is the only authorized activity to establish CLS contracts.

Note. N–SE providers such as rapid equipping force may let CLS contracts until the item transfers to AMC or the PM for sustainment.

b. The negotiating, awarding, funding and managing of all maintenance contracts are the responsibility of AMC or PM to support N–SE (see AR 700–127 for further guidance).

14–5. Non-standard equipment Army Warranty Program

a. The overall policies and procedures for the Army Warranty Program are contained in AR 700–139, which requires the Army to use warranties only when the warranty is in the Army's best interest. The decision to obtain a warranty is on a case-by-case basis.

b. If the maintenance activity cannot get an effective response within the warranty-specified timeframe, the maintenance activity will contact the acquiring provider or manufacturer for resolution.

c. AMC will manage unit procured, unit-owned N–SE warranties through a memorandum of agreement on a reimbursable basis for administrative time and labor.

Chapter 15
Medical Equipment Maintenance and Sustainment

15–1. General guidance

a. This chapter outlines the procedures to sustain medical device used by Army forces and defines requirements for the performance and management of medical device. Because medical devices are COTS they are by definition non-standard equipment (N–SE) with unique supportability requirements.

b. Information for Class VIII TMDE and MMQC messages are addressed in *paragraph 9–11i.*

15–2. Medical device maintenance procedures and structure

a. The basis of tactical medical device maintenance is that it must provide the capability it was procured to do. Medical device operator and service manuals are likely the only information available to the user, although many are augmented by MAC.

b. Performance observation is the basis of preventive maintenance checks per the operator and Biomedical Equipment Specialist (BES), MOS 68A.

c. The user must document observed performance against the manufacturer's established capability and report problems that degrade the device's reliability.

d. Maintenance standard. Medical device meets the maintenance standard when the following conditions exist:

(1) When the equipment is FMC and safe to operate (determined from the applicable manufacturer manuals and MAC.

(2) Identify faults and record using TELS in accordance with the owner/operator/service manual.

(3) Report corrective actions not provided at field-level to qualified personnel responsible to perform maintenance.

(4) Perform all scheduled services at semi-annual intervals and record and manage remedial and scheduled services within the TELS (see *para 4–5c*, managing maintenance operations).

(5) Due to safety implications, units will not unilaterally modify or alter medical device without requesting modifications through the AMLC.

(6) Repair of medical device is not authorized when maintenance costs exceed the MEL.

e. Medical maintainers must assess the medical device MEL as it applies to all corrective maintenance actions. The estimated repair cost to return a medical device to a fully operational condition must be less than or equal to the MEL. Calculating the MEL in advance of corrective-maintenance performance allows maintainers to determine if it's more economical to perform a corrective maintenance action or replace the medical device (see TB MED 750–2 for MEL calculation formulas). Definitive life MEL factors are provided in figure 15–1.

PERCENTAGE USEFUL LIFE REMAINING	MEL FACTOR	PERCENTAGE USEFUL LIFE REMAINING	MEL FACTOR
12.50	.0 to .10	47.50	0.38
13.75	0.11	48.75	0.39
15.00	0.12	50.00	0.40
16.25	0.13	51.25	0.41
17.50	0.14	52.50	0.42
18.75	0.15	53.75	0.43
20.00	0.16	55.00	0.44
21.25	0.17	56.25	0.45
22.50	0.18	57.50	0.46
23.75	0.19	58.75	0.47
25.00	0.20	60.00	0.48
26.25	0.21	61.25	0.49
27.50	0.22	62.50	0.50
28.75	0.23	63.75	0.51
30.00	0.24	65.00	0.52
31.25	0.25	66.25	0.53
32.50	0.26	67.50	0.54
33.75	0.27	68.75	0.55
35.00	0.28	70.00	0.56
36.25	0.29	71.25	0.57
37.50	0.30	72.50	0.58
38.75	0.31	73.75	0.59
40.00	0.32	75.00	0.60
41.25	0.33	76.25	0.61
42.50	0.34	77.50	0.62
43.75	0.35	78.75	0.63
45.00	0.36	80.00	0.64
46.25	0.37	81.25	≥0.65

Figure 15–1. Definitive life mission essential list factors

f. All other non-expendable medical devices have a wide range of life expectancies as follows:

(1) Developmental or non-commercial military unique items up to 80 percent of the acquisition cost,

(2) Special purpose items (for example, X-ray tube heads, dental surgical headpieces, and rigid or flexible fiber optic scopes) up to 90 percent of the acquisition cost.

g. For more information on MEL for medical device see TB MED 750–2.

h. Manage unit and organization repair parts and maintenance-related supplies in accordance with AR 710–2 and TB MED 750–2.

i. Maintenance records—

(1) Sustainment maintenance organizations (for example, Medical Logistics Company (MLC) and Medical Maintenance Operations Division (MMOD) will ensure maintenance records are accurate, complete, and entered in TELS.

(2) Bench stocks recorded in TELS are authorized for field maintenance operations (when medical device is approved as part of the units mission essential equipment list), except for unit procured, unit-owned medical device.

15–3. Medical device inspection and repair

a. The Army maintenance standard, as defined in AR 750–1, establishes an Armywide evaluation baseline for maintenance programs.

b. In conjunction with this standard, operator-level 10 series and organizational-level 20 series standards provide clearly stated, measurable objectives and define end-state performance conditions that must be successfully achieved upon completion of medical device maintenance.

c. Units will conduct PMCS according to TB MED 750–2, according to serviceability standards prescribed in manufacturer's literature and MAC.

d. Units will maintain medical devices to comply with a 90-percent unit equipment readiness goal, as specified in AR 700–138, unit readiness objectives stated in AR 220–1, and DA Pam 220–1.

e. Medical maintenance managers will proactively use the maintenance support chain (for example, MLC), installation medical maintenance support, depot operations, medical logistics management center), when maintenance requirements exceed the unit's organic capability; see figure 15–1.

f. A sustainment repair and return program is a process whereby a NMC medical device is retrograded to support elements (theater lead agent for medical materiel, MLC, MMOD) at posts, camps and stations, or forward repair activities, and the same or like-item is direct exchanged or repaired and returned.

g. Cyclically scheduled medical device maintainer-level PMCS as well as unscheduled services should only be performed by the following qualified personnel:

(1) Health service maintenance technicians (MOS 670A).

(2) BES (MOS 68A).

(3) Properly trained DoD civilians and contractors.

15–4. Medical maintenance structure

a. Field-level maintenance. FLM for medical devices are generally the same as that for other Army units. However, operator/crew and maintainer maintenance have some unique medical requirements. See also figures 4–1 and 4–2 for typical PMCS cycle and FLM fault repair flow.

(1) Crew maintenance is conducted by device operators using the OEM operator manual. Medical device operator maintenance is normally restricted to tasks that can be performed without tools or test equipment. BES' conduct equipment PMCS, repairs, as well as, replace minor components and assemblies as authorized by the OEM literature and/or MAC using authorized tools, TMDE and repair parts.

(2) Operators are system specialists in those military occupational specialties (for example, 68D - Army Operating Room Specialist, 68E - Dental Specialist) that receive formal training from their proponent (normally advanced individual training, and specialized functional courses) on equipment operation, minor repairs and identifying specific system faults. Their primary focus is on a system's performance and integrity.

(3) BES maintenance is maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed by a trained maintainer in CMF 670A or 68A.

b. Sustainment maintenance. Sustainment-depot level medical maintenance is performed by national-level maintenance providers that include the AMLC and the MMOD. Below depot medical maintenance is performed by the MLC as well as support field maintenance services in accordance with ATP 4–02.1, paragraph 2–6. The sustainment maintenance function can be employed at any point in the integrated logistics chain utilizing combat repair teams, forward repair activity-medical, and repair and return services from the MMODs. The MMOD's primarily repair and return to the supply system but, also perform limited repair and return to the using unit.

(1) Below depot sustainment maintenance is maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion generally after it is removed from the system.

(2) Depot maintenance is maintenance accomplished on end items or on a component, accessory, assembly, subassembly, plug-in unit, either on the system or after it is removed. Depot sustainment maintenance can be performed by either depot personnel or qualified contractor personnel. Items are used to support the wholesale supply system or conditional support to the using unit.

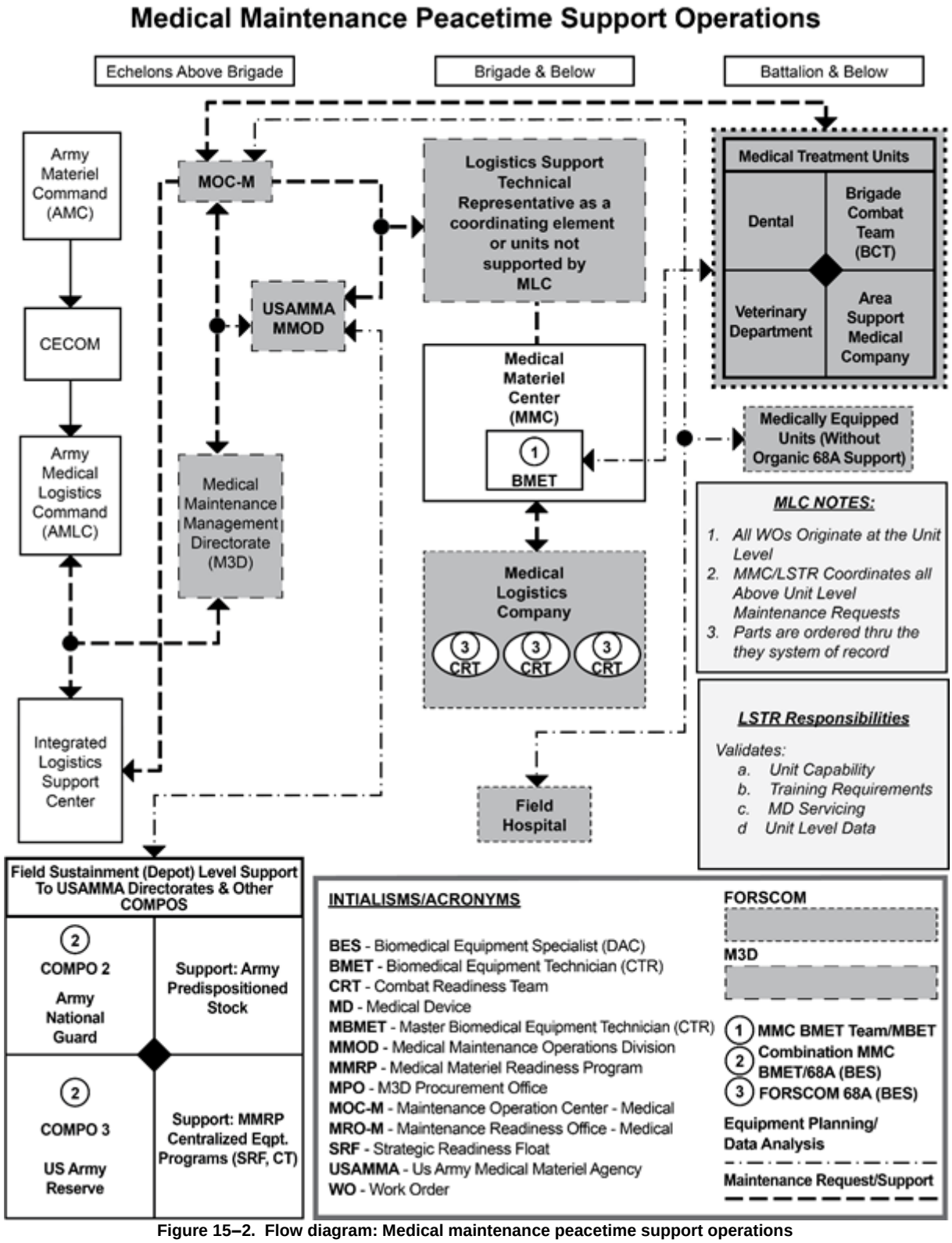

Figure 15–2. Flow diagram: Medical maintenance peacetime support operations

15–5. Support from external maintenance and supply organizations

a. Units will use all organic maintenance capability to perform field maintenance to the maximum extent possible. However, when maintenance requirements (for example, time to repair the equipment once supplies are on-hand) exceed capability for 8 days or longer or require immediate repairs prior to deployment or training for deployment, units may request pass back maintenance from the supporting MLC. If the MLC is not available, then pass back maintenance can be coordinated with the local Logistics Senior Technical Representative (LSTR). If maintenance is beyond its capability or capacity of the MLC, further maintenance support will be coordinated through MMOD. Support beyond the capability of these activities should request support through the AMLC.

b. In order to ensure that they meet Army readiness requirements both, units with 68A, BES, and medically equipped units without organic BES, must become familiar with all types of support organizations on and off their installations. These organizations typically publish external SOPs for use by organizations requiring service. External SOPs are often the best source of information on how to obtain maintenance services, supplies, technical expertise, and other support.

15–6. Medical device warranty program overview

a. Overall policies and procedures for the Army Warranty Program are contained in AR 700–139 and TB MED 750–2. In warranty applications, unit readiness and mission effectiveness will take priority. If the medical maintenance activity is not able to get an effective response through the warranty process, then repair first and settle later through the acquisition support activity.

b. Warranty implementation: AR 700–139 provides procedures for administering warranties. Organizations with medical device assets will establish local warranty implementation procedures.

c. Warranty claim actions: Warranty claim actions for other than AAC “L” and nonstandard medical equipment will be reported to U.S. Army Medical Materiel Agency MMOD on DA Form 2407 or its automated equivalent with all pertinent information. Copies of any maintenance records or histories will be provided in addition to copies of contract and receiving documents. Warranty claim actions for locally acquired medical equipment also may be forwarded to DA representatives for information or assistance to resolve warranty disputes.

Appendix A

References

Section I

Required Publications

AR 220–1
Army Unit Status Reporting and Force Registration-Consolidated Policies (Cited in para 2–2c(2).)

AR 700–138
Army Logistics Readiness and Sustainability (Cited in para 2–2b(2).)

AR 700–139
Army Warranty Program (Cited in *para 8–6a*.)

AR 710–2
Supply Policy Below the National Level (Cited in para 2–4a(1).)

AR 725–50
Requisitioning, Receipt, and Issue System (Cited in *para 4–9d*.)

AR 750–1
Army Materiel Maintenance Policy (Cited in para 1–1.)

AR 750–6
Army Equipment Safety Notification System (Cited in para 4–6.)

AR 750–10
Army Modification Program (Cited in para 4–1c(12).)

AR 750–43
Army Test, Measurement, and Diagnostic Equipment (Cited in *para 7–2a*.)

AR 750–59
Corrosion Prevention and Control for Army Materiel (Cited in para 4–1b(4)(e).)

DA Pam 710–2–1
Using Unit Supply System (Manual Procedures) (Cited in *para 4–3c*.)

DA Pam 738–751
Functional User's Manual for the Army Maintenance Management System-Aviation (TAMMS–A) (Cited in *para 2–3d*.)

DA Pam 750–3
Guide to Field Maintenance Operations (Cited para 3–2.)

DA Pam 750–8
The Army Maintenance Management System (TAMMS) Users Manual (Cited in *para 2–3d*.)

Section II

Prescribed Forms

Unless otherwise indicated, DA Forms are available on the APD website (https://armypubs.army.mil/).

DA Form 5480
Maintenance Request and Assignment Register (Prescribed in para 10–13d(18)(a).)

DA Form 7567
Special Repair Authority (SRA) Approval/Disapproval Sheet (Prescribed in para E–2).

Appendix B

Maintenance Metrics and Performance Measures for Army Field Organizations

B–1. Army-level metrics for field commands

TLRT–M and TAT are described in tables 2–2, 2–3, and 2–4 of this pamphlet.

a. TLRT–M.

(1) AMC will provide TLRT–M reports to each Army organization to which maintenance support is provided under the provisions of AR 750–1. TLRT–M reports will also be made available to parent commands of these organizations.

(2) TLRT–M is a metric that supports the fundamental purpose of the TAMMS procedures in DA Pam 750–8 and DA Pam 738–751. It supports readiness requirements of AR 700–138. It begins when an item becomes NMC and includes the following:

(a) The time that the customer organization takes to prepare and submit an unserviceable item to a maintenance provider.

(b) The time the maintenance provider takes to repair the item.

(c) The time the customer organization requires to pick up the repaired item, if it is AR 700–138 reportable, the time to return the item to "A" status, as outlined in DA Pam 750–8 and DA Pam 738–751.

b. Turnaround time.

(1) AMC will provide TAT reports monthly to each maintenance provider organization and will make them available to their parent commands. See the forthcoming revision of DA Pam 750–1 for sample maintenance provider TAT reports for MTOE, TDA, and contract providers.

(2) TAT is the period that elapses between the time that a maintenance organization accepts a field and/or organization work order, followed by accomplishment of the work, and the time at closeout of the work order.

(3) TAT is the foundation metric for the maintenance provider. The objective of all Army maintenance providers is to achieve TAT on all work orders within the time frame required by the warfighter and/or customer, as indicated by the MPD. More detailed metrics for assessing and controlling internal operations of maintenance providers are found in tables 2–2, 2–3, and 2–4 of this pamphlet.

B–2. Army commands, major Army subcommands (down to division and separate brigade), U.S. Army Installation Management Command and regions, and reserve component maintenance management metrics

Additionally, TLRT–M and TAT, commanders will use TAT scorecards to manage and support their maintenance provider organizations, to ensure that the maintenance mission is accomplished and that maintenance provider organizations are properly resourced. AMC will establish and maintain TAT scorecards for each ACOM having a maintenance support mission maintenance provider organization.

a. The following are TAT scorecard data elements for commands having maintenance provider organizations:

(1) Number of maintenance organizations.

(2) Number of maintenance organizations achieving GREEN status in the Commander's Actionable Readiness Dashboard (c@rd).

(3) Number of maintenance organizations achieving AMBER status in the c@rd for a reporting period.

(4) Number of maintenance organizations achieving RED status in c@rd for a reporting period.

b. The following are ACOM, ASCC, and DRU, MSC, and intermediate command scorecard ratings:

(1) GREEN status will be achieved when at least 90 percent of the total assigned maintenance provider organizations achieve a green TAT rating for a given rating period.

(2) AMBER status will be achieved when the number of assigned maintenance provider organizations are rated with green TAT status is equal to or less than 89 percent but equal to or greater than 70 percent for a reporting period.

(3) RED status will be achieved when the number of assigned maintenance organizations with green TAT status is 69 percent or below for a reporting period.

B–3. Maintenance provider (modification table of organization and equipment and/or table of distribution allowances contractor) organization management metrics

a. General.

(1) Armywide management of the mission performance by Army maintenance provider organizations, organic and contractor, is founded on the capture and analysis of historical data records from the Tactical Logistics Information System (TELS). The key data record that must be captured is the closed work order, as defined in DA Pam 750–8 and DA Pam 738–751.

(2) Unit TAT performance is measured in the c@rd for each maintenance provider, by UIC, using the closed work order.

(3) When TAT scorecards reflect that missions performance requires improvement (it is not in the GREEN category), responsible commanders will take appropriate corrective action to improve maintenance organization performance/support to organization operations.

(4) Commanders of large organizations that control maintenance provider organizations, commanders of MTOE units, LRCs, and contract supervisors must aggressively manage the aspects of the operations that they can directly control. They must also give early notice to their external support systems when mission operations will be adversely affected. All areas affecting mission operations will be kept under management over-watch; however, manpower utilization will receive special management attention. All commanders will give special emphasis to the management of maintenance personnel. The objective is to achieve the peacetime manpower availability rate defined in AR 570–4 for garrison operations. Commanders will maintain utilization records and make them available for review.

b. Man-hour utilization rates. There are two utilization rates that are used to measure the effective use of maintenance personnel:

(1) The direct labor assigned man-hour utilization rate measures the percent of direct labor man-hours assigned to the unit/organization that is recorded as total man-hours on all DA Form 2407 or DA Form 5990–E in a given period of time.

(2) The direct labor available man-hour utilization rate measures the percent of all the direct labor man-hours made available to the shop for work for a given time period.

(a) Direct labor/productive labor is defined as time expended in performance of maintenance tasks required by the technical publication.

(b) Indirect labor is work that contributes to the completion of work orders but does not include the performance of maintenance tasks required by technical publications. Indirect labor codes are in the appropriate TELS.

(c) Lag time is defined as work where personnel are available for duty but unable to contribute to the completion of work orders. Lag time codes are in the appropriate TELS.

(d) Nonproductive labor is defined as the time that personnel are unable to perform their duties. Nonproductive labor codes are in the appropriate TELS.

(e) Overtime is time worked beyond the scheduled workday. Overtime will be added to the assigned labor man-hours to ensure the total man-hours are accounted for in the utilization rates.

(f) The standard direct labor available man-hour utilization rate for military manpower is 50 percent with a goal of 75 percent and for civilian manpower it is 85 percent with a goal of 90 percent.

c. Computations are as follows:

(1) Assigned time = (direct labor personnel x scheduled work hours in a day x number of workdays in reporting period).

(2) Available time = assigned time - total nonproductive labor time.

(3) Direct labor assigned man-hour utilization = (total direct labor man-hours/assigned time) x 100.

(4) Direct labor available man-hour utilization = (total direct labor man-hours/available time) x 100.

d. Workload. Workload is the sum of the estimated man-hours required for work awaiting induction and to complete work in progress. The maintenance workload must be analyzed in materiel commodity areas (for example, armament, aviation, automotive, and communications-electronic) and is not normally in managed in higher workload aggregations. This management technique parallels the typical organization of maintenance operations into platoons, shops, sections, and similar sub-elements. Higher aggregations of workload statistics for different commodities do not have management significance, because maintenance skills, tools, repair parts and other maintenance resources are often not transferable across commodity lines to reduce high workloads. Use of established time standards for tasks performed repeatedly over a time period results in more accurate man-hour estimates. The task time standards should be reviewed and adjusted at least semiannually to assist commanders in detecting and responding to changes in a maintenance organization’s workload.

e. Direct labor availability. Direct labor availability is the number of man-hours available per day to perform maintenance tasks, such as the productive capacity of the organization. If a review of projected

personnel gains and losses 90 days to 180 days out indicates an adverse situation is developing, the following alternatives will be addressed:

(1) Expediting the personnel replacement process.

(2) Borrowing personnel from other organizations.

(3) Using local contract or host nation support.

(4) Shifting a portion of the workload to another organization that has excess productive capacity.

f. Efficiency rate.

(1) The efficiency rate is a measure of the skill proficiency within the maintenance organization. It is dependent upon establishment and maintenance of a set of task time standards that are representative of maintenance performance under the local situation. Inspectors will use the task time standards to estimate the man-hours required to complete each work order.

(2) The efficiency rate is the man-hours estimated for a given work order (or the total of estimated man-hours for all work orders completed during a given period of time) divided by the man-hours that were actually expended to accomplish the work orders.

(3) The recommended management objective for the efficiency rate is 80 to 100 percent.

(4) The efficiency rate will be calculated for the unit by including all the work orders completed during the reporting period. It will be calculated for specific individuals as required to measure skill proficiency and thus identify training requirements.

(5) The trend of the efficiency rate should be plotted for the previous 12-months. When a declining trend is observed, the following should be considered:

(a) Reviewing the maintenance task standards for validity.

(b) Verifying the effectiveness of supervision within the shops.

(c) Reviewing the supported density list to identify new equipment for which MOS training may be required.

(d) Identifying individuals who require additional training in certain skills or on certain equipment.

(e) Physical layout.

(f) Tool and TMDE availability.

(g) Amount of lag time spent waiting for tools and parts.

g. Backlog. Maintenance backlog is the overall measure of the direct labor resources required to complete the workload. The total backlog is measured by combining the unit's work center planned and expended direct labor. GCSS–Army provides the ability to review backlog. In order to capture an accurate portrayal of backlog, the following conditions must be met:

(1) Commanders will ensure all Work Orders (WO) capture accurate planned and expended direct labor tasks. Notifications not assigned to a WO will not be captured as backlog since man-hours cannot be assigned to a notification.

(2) The formula for projecting backlog:

(a) Workload = (PM01 + PM02 + PM06 + PM07 WO Planned Direct Labor) – (PM01+ PM02 + PM06 + PM07 WO Consumed Direct Labor).

(b) Backlog Days = (Workload)/[(Number of Direct Labor Mechanics) x (8 hour work day)].

(3) The backlog will be computed for each commodity maintenance organization or shop.

(4) Backlog is the overall measure of the direct labor resources required to complete the workload.

(5) The backlog will be expressed in 8-hour workdays and will be computed as backlog (in workdays) = workload / average daily direct labor man-hour capacity per day.

(6) The standard for backlog will be established at the local level based on the equipment supported and historical experience. The previous 12-months of experience will be analyzed for trends. If an unfavorable trend emerges, the components of the backlog formula will be analyzed to identify the probable cause.

B–4. Turnaround time and internal operations

a. TAT is the overall measure of the duration of the maintenance cycle. It gives an indication of the responsiveness of the maintenance organization to its customers. TAT is computed by commodity and initial rejects are excluded. It covers the period of time from acceptance of a work order to closeout but does not include time awaiting customer pickup.

b. TAT will be determined as follows:

(1) The number of calendar days between the acceptance date and the closeout for each work.

(2) The work orders are arranged in ascending order based upon the number of calendar days.

(3) The 25 percent of the total number of work orders with the highest number of calendar days is removed from consideration.

(4) The average of calendar days for the remaining work orders is calculated.

(a) The 25 percent of work orders with long TAT times in paragraph B–4b(2) will be the subject of intensive scrutiny to resolve their particular problems, but will not be allowed to distort the average of TAT that is intended to be representative of normal operations.

(b) Although there may be variations among work orders, TAT can comprise three major components—maintenance delay time, supply delay time, and RCT. Although the factors that comprise or influence these components are not always controllable at the local level, effective corrective actions cannot be managed until the problems have been identified and traced to the probable cause.

c. Commanders and LRCs will use AMC generated TAT reports and locally developed TAT reports to assist them in meeting mission performance standards.

B–5. Maintenance codes

Figure B–1 lists the work order system condition codes found in GCSS-Army. See paragraphs B–6, B–7, and B–8 for more detail on these codes.

System Condition Code	Descriptions
0	Evacuated awaiting NON-NMC parts
1	Awaiting deadlining NMCS Parts
2	Awaiting deadlining NMCS parts-local purchase
3	Await NON-NMCS parts-local purchase
4	Evacuated awaiting maintenance
5	Scheduled services
6	Re-inspection
7	Awaiting float transaction
8	Rework, return to shop
9	Begin in-transit time
A	Awaiting initial inspection
B	In Shop
C	Awaiting Shop
D	Deferred
E	Awaiting final inspection
F	Final inspection complete
G	Road Test/Test Flight
H	Awaiting disposition from higher
I	In shop while awaiting non-NMC pa
J	In shop awaiting NMCS parts
K	Awaiting non-NMC parts
L	Evacuated NMCS
M	Evacuated NMCM
N	Evacuated Depot
O	Awaiting evacuation
P	NMC for lack of resources
Q	Awaiting estimated cost of damage
R	Awaiting pickup
S	Closed, technically complete
T	Closed,completed by other maint.A
U	Picked up, must be closed first
V	Work request closed, ORF exchange
X	Work request closed, exceeds time
Z	Work request closed, w/out comp

Figure B–1. Maintenance codes

B–6. Maintenance delay time

a. Maintenance delay time is the component of TAT that represents time spent awaiting a required resource other than repair parts, that is, the availability of facility space, tools, TMDE, and skilled personnel. It also includes time awaiting initial, in-process, and final inspections and time awaiting induction into the shop.

b. Maintenance delay time is calculated using the same segment of work orders completed during the period as used to calculate TAT. It is determined by calculating the mean number of calendar days that work orders in the segment were carried in status codes indicating awaiting inspection, awaiting shop, or awaiting some action other than receipt of repair parts. It will also be expressed as a percentage of the TAT.

c. The following work order status codes qualify as MDT (see fig B–1):

(1) A—Awaiting Initial Inspection.
(2) C—Awaiting Shop.
(3) D—Deferred.
(4) E—Awaiting Final Inspection.
(5) F—Final Inspection Complete.
(6) H—Awaiting Disposition.
(7) M—Evacuate NMCM.
(8) N—Evacuation to Depot.
(9) O—Awaiting Evacuation.
(10) P–NMC for lack of resources.
(11) Q—Awaiting ECOD.
(12) 4—Evacuated Awaiting Maintenance.
(13) 7—Awaiting Float Transaction.
(14) 9—Begin In-transit time.

d. Local commanders will establish a standard for maintenance delay time in terms of its percentage of total TAT. When an increasing trend is observed, the following will be reviewed:

e. Availability and utilization of direct labor personnel.

f. Inspection procedures.

g. The ratio of direct labor personnel to workstations by shop section; balance labor among workstations.

h. The adequacy of the quantity of tools and TMDE.

i. The adequacy of lift and materiel handling equipment.

B–7. Supply delay time

a. Supply delay time is the component of TAT that represents time lost waiting for receipt of repair parts. It includes only that time when no further maintenance action can be taken because of a lack of repair parts. Time elapsed while repair parts are on order, but other maintenance actions are, or could be, taken will not be counted as supply delay time.

b. Supply delay time is calculated using the TAT segment of work orders completed during the period. It is determined by calculating the average number of calendar days that work orders in the segment were carried in status codes indicating no further action possible while awaiting receipt of repair parts. It is also expressed as a percentage of the total TAT.

c. The following work order status codes qualify as supply delay time in the GCSS–Army system (see fig B–1):

(1) 0—Evacuated Awaiting Non-NMC Parts.
(2) 1—Awaiting NMCS Parts.
(3) 2—Awaiting Dead-lining parts NMCS local purchase.
(4) 3—Awaiting Non-NMCS Parts Local Purchase.
(5) K—Awaiting Non-NMC Parts.
(6) L—Evacuate NMCS.

d. The local commander in terms of its percentage of total TAT should establish a standard for supply delay time.

e. When an increasing trend is observed, the following will be reviewed:

(1) Requisition priorities.
(2) Reconciliation procedures.

(3) Authorized stockage list.
(4) Supply performance measures, including:
(5) Gross availability or fill rate.
(6) Average customers wait time.
(7) Requisition processing time.
(8) Receipt processing time.

B–8. Repair cycle time

a. RCT is the component of TAT that represents time spent in the shop undergoing inspection, repair, or service. It is the primary component that measures actual maintenance performance rather than detractors to performance as measured by the two delay time components. RCT comprises or is influenced by several factors, including skills, efficiency of repair personnel, and the required numbers of personnel at each step in the maintenance process.

b. Because it is the only delay component that is subject to distortion by a small percentage of the total, the RCT will be calculated using all the work orders completed during the period. It will be determined by calculating the average number of calendar days that the work orders were carried in status codes indicating in shop.

c. Repair cycle time codes are (see fig B–1):

(1) 6—Re-inspection.
(2) 8—Rework/return to shop.
(3) B—In-shop.
(4) G—Road Test/Flight Test.
(5) I—In-shop while awaiting non-NMC parts.
(6) J—In-shop awaiting NMC parts.

d. Installation-level commanders will establish standards for total RCT, by priority of the work order. When an increasing trend is observed, the factors affecting RCT will be reviewed and analyzed, as indicated by supervisors and leaders.

B–9. Backup support utilization

a. Backup support utilization is a measure of the extent of workload transferred to an organization charged with the responsibility of absorbing overflow workload.

b. Backup support utilization is a percentage calculated by dividing the number of man-hours estimated for all work orders accepted into the maintenance activity during the period into the number of man-hours estimated for work orders evacuated to backup support during the same period.

c. The installation commander will establish the standard for backup support utilization. The installation commander will also consider the unit's capacity as stated in its MTOE. When an increasing trend is observed, the following items will be reviewed:

(1) The trend of workload acceptance to identify an increase in work coming in from supported units.
(2) The supported density lists to identify additional quantities supported.
(3) Direct labor availability to identify a decrease in labor capacity.
(4) Direct labor utilization rate to identify a decrease in effective use of personnel resources.

B–10. Repaired item rejection rates

a. The rejection rate is the number of items being reprocessed into a commodity shop for rework, divided by the total number of items repaired.

b. Commanders and LRCs will maintain rejection rate records for all commodity shops, to include—

(1) In-shop and final inspection rejections.

(2) Customer rejections and returns for correction of the same problem within 30 days after closeout of the work order. Customer rejections must be separately validated as actual performance faults.

c. The Army maximum rate standard for rejections of work on mechanical equipment is three percent. The Army standard for rework of electronic items is two percent. Local commanders and LRCs may establish lower standards if talent and capabilities permit.

d. Factors that could affect quality of performance of maintenance/repair procedures and validation inspections include the following:

(1) Training and competence of maintenance, repair/QC personnel.
(2) Thoroughness and rigor of in-process and final operations quality control checks and inspections.

(3) QA measures that are internal and external to commodity shop operations.
(4) Adequacy and serviceability of tools and test equipment.
(5) Calibration of tools and test equipment.
(6) Adequacy of facilities.

B–11. Equipment utilization metrics

a. The Army Standard for usage reporting metric of rolling stock and tracked vehicles will be in miles.

(1) The TELS will accept distance measuring points as identified by the MMDF (designated as miles or kilometers or both) but will provide usage reports in miles for OPTEMPO calculations.

(2) Some rolling stock and maneuver equipment such as M1 Abrams may be fielded with the capability to report in both miles and kilometers but the TELS will only accept usage inputs per the MMDF and provide auto-calculated usage reports in miles.

(3) TELS will be engineered to provide safeguards against erroneous data inputs and flag excessive usage deviations for verification.

(4) Usage metrics for other forms of equipment will be identified on the MMDF as directed by the ASA (ALT) PEO to capture equipment usage for OPTEMPO calculations. These metrics may be rounds fired, hours operated, cycles etc.

(5) PMCS tables in the TM will be considered and metrics selected must conform to the TELS ability to track usage.

b. The Army standard for usage compliance is as follows:

(1) Commands will validate at least 25 percent of equipment usage in TELS verses equipment actual odometer reading quarterly.

(2) Units will validate different equipment each quarter.

(3) If the quarterly validation determines that usage data is more than 20 percent inaccurate, the unit must validate 100 percent of unit equipment usage data and make corrections as required in this Pamphlet and DA Pam 750–8.

Appendix C

Determination of Tactical Maintenance Augmentation Requirements for Military Mechanics During Peacetime Garrison Operations

C–1. Introduction

This appendix provides instructions and a methodology on how to determine the tactical maintenance augmentation requirements for military mechanics during peacetime garrison operations. Units will use the below methodology to compute their requirements that will be used as the basis of all budget submissions.

C–2. Required documents, sources, and data

The following listed documents and sources will be used in computing tactical maintenance augmentation requirements for military mechanics during peacetime garrison operations:

a. The only authorized source for manpower requirements criteria is the Army manpower requirements criteria maintenance database (AMMDB) for maintenance burden data, which is accessible on the USAFMSA website, https://fmsweb.fms.army.mil/protected/webtaads/how_to_guides.asp.

Note. The AMMDB provides maintenance man-hours by LIN and by MOS.

Note. Annual direct productive man-hours, coded "DPUL" on the website, will be used in the determination of tactical maintenance augmentation requirements for military mechanics during peacetime garrison operations. Do not use total annual maintenance man-hours, coded "AMUL," on the USAFMSA website. The "AMUL" number includes indirect labor.

b. Authorization documents and databases, which will be used to show the number of equipment items authorized/on hand in a unit/organization. These items are identified by LIN category. Examples of the documents include Army total asset visibility reports, requisition-validation reports, and APSR.

Note. AR 570–4 outlines Army policy for computing annual man-hours available (CONUS and OCONUS) in peacetime for Soldier maintenance personnel. These numbers are called the peacetime mission availability factors.

c. An official document that reflects the man-hour costs of a contract man-year for the MOSs to be augmented in the location of the unit of concern.

Note. The Government contracting office that services the ACOM, ASCC, and DRU or the location under consideration will provide this document.

C–3. Procedures

a. The authorized equipment quantities are determined by LIN by using the authorization document that is applicable to the unit and/or organization.

b. The USAFMSA website is accessed.

c. The applicable LINs in the AMMDB are found. Requirements for all MOSs needed to maintain those LINs are computed.

d. Using the AMMDB, the total direct maintenance man-hours required for all applicable MOSs for all equipment LINs within the organization authorization document are determined. An example follows:

(1) The number of man-hours required to augment 91B mechanics in a unit motor pool to support the high-mobility multipurpose wheeled vehicle (HMMWV) are determined.

(2) The AMMDB reveals that MOS 91B maintains the HMMWV, LIN T61494. It also reveals that 167.9 direct labor man-hours (column "DPUL") are required annually to accomplish all scheduled and unscheduled maintenance tasks, known as Direct Productive Annual Maintenance Man-Hours the per AR 700–127, on each HMMWV.

(3) Thirty HMMWVs are in the unit and/or organization (167.9 is multiplied by 30 for an annual direct labor requirement of 5,037 man-hours).

(4) From the authorization document that shows the number of maintenance personnel authorized, authorizations for two Soldiers of MOS 91B are found. The number of authorized mechanics, two each, is multiplied by the appropriate peacetime mission availability factors noted in AR 570–4. In this example, it is the assigned category of "Mechanical Maintenance" in CONUS / FORSCOM. Therefore, the peacetime

mission availability factor is 116 man-hours per Soldier, per month, or 1,392 man-hours per Soldier, per year. Therefore, the total number of man-hours expected to be available annually, in peacetime, from the two authorized positions is 2,784 hours.

(5) Peacetime available man-hours (2,784) are subtracted from the required man-hours of 5,037 (see paragraph C–3d(3). This will reveal that an additional 2,253 man-hours will be needed to complete the direct labor mission on the 30 HMMWVs.

(6) To translate the shortfall into contractual terms, the shortfall (2,253) is divided by the contract man-year work hours obtained from the document in paragraph C–2. A contract man-year in FORSCOM for the year 2000 will be used in this example, 1927 man-hours. The mission short fall, in man-hours, is divided by the contract man-year, in man-hours, applicable to the location. Using the year 2000 FORSCOM, the result is a shortfall of 1.2 man-years (that is, 2,253 divided by 1,927).

e. Repeat the procedures in paragraphs C–3d(1) through C–3d(6) for the complete equipment density list and all the MOSs in the command.

Appendix D

Department of Defense Core Capability Requirements Determination Methodology

D–1. General

This appendix contains instructions for completing DoD core capability requirements determination process.

D–2. Depot maintainability core capability requirements determination methodology

a. Description. DoD depot maintenance core policy provides a sound basis for identification of the depot maintenance capabilities required to ensure a ready and controlled source of technical competence to support the force structure identified in the planning guidance promulgated by the OSD and contingency scenarios developed by the JCS. To efficiently maintain depot maintenance core capabilities, DoD facilities, equipment, and personnel accomplish a broad range of workloads in support of peacetime operations. Most of these workloads involve the overhaul or repair of combat weapons systems and components.

b. Methodology. Depot maintenance core capability requirements determination methodology is used to determine essential DoD depot maintenance core capabilities for each DoD component, and the workloads needed to sustain those capabilities. The methodology can be employed to assess requirements for individual items or processes, weapons systems, or types of capabilities as applicable. The computations involved in this methodology are performed from the perspective of the DoD component that owns the depot maintenance assets and are divided into two parts. Part 1 identifies depot maintenance core capability requirements in terms of DLH and allows for an adjustment for inter-Service considerations. Part 2 identifies the depot maintenance workloads required to cost-effectively support core capability requirements (expressed in terms of DLH). Additionally, flow diagrams and worksheets have been developed that correspond to the parts of the methodology—

c. Part 1. Depot maintenance core capability requirements determination.

(1) Part 1 includes all weapons systems and equipment operated by each DoD component regardless of where depot maintenance is performed. As illustrated in figure D–1, the starting point is the OSD-promulgated planning guidance, to define the overall DoD force structure required to execute the JCS-developed contingency scenarios.

(2) Next, applicable weapons systems are identified, and any systems that are being excluded are documented citing the authority for that exclusion from the core process. For the remaining systems, annual peacetime depot maintenance capability requirements are computed in DLH.

(3) Next, as illustrated in figure D–2, contingency requirement and resource adjustments are made to account for applicable “surge” factors during the different phases of a contingency (for example, preparation/readiness, sustainment, and reconstitution). The objective is to determine the most appropriate composite “surge” adjustment for a set of circumstances. Overall depot maintenance capability requirements are then assessed to determine whether they include redundancy. For example, a DoD component may determine that repair capabilities for specific systems are so similar that the capabilities for one system can effectively satisfy the capability requirements for another.

(4) After redundancies have been eliminated, all the remaining requirements are identified as core depot maintenance capability requirements, expressed in DLH.

(5) Applicable information regarding the results of each step should be recorded on the DoD depot maintenance core capability worksheet (see DoDI 4151.20). The block designations in the methodology relate to the column designations in the worksheet. DoD components may modify the worksheets to support internal computations (for example, by adding additional columns) if the version submitted to OSD contains the original columns.

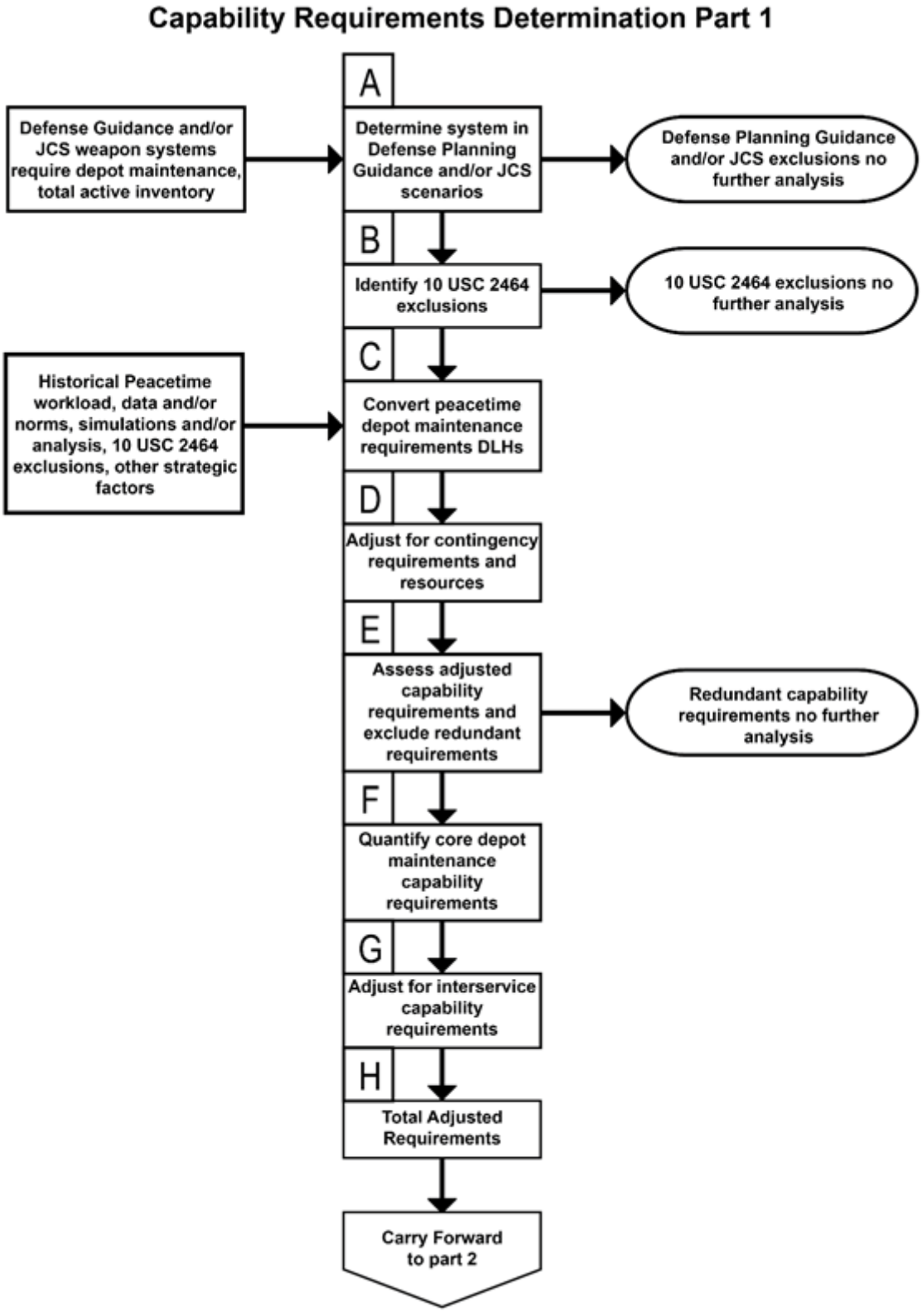

Figure D–1. Part 1–Capability requirements determination

(a) Block A—Determine systems in JCS contingency scenarios:

1. Consider all scenario-tasked platforms/weapon systems that require depot maintenance, regardless of whether maintenance is currently performed at a public sector or private sector depot maintenance facility. Platforms/weapons systems may include multiple end items, principal items, components, subsystems, parts, and materiel, and many of these items may also be separately identified as DLRs. Record in column A1 of the DoD depot maintenance core capability worksheet (see DoDI 4151.20). Quantify the total active inventory (number of units) for each platform/weapons system within the context of the DoD depot maintenance WBS at the type/model level (for example, F–15 series aircraft, LHA-Class ships, M109 family of vehicles) and record within the appropriate WBS category in column A2 on the DoD depot maintenance core capability worksheet (see DoDI 4151.20).

2. Throughout part 1, as a minimum, WBS categories are to be completed to the third level of indenture for aircraft and aircraft components; the second level of indenture for aircraft engines; and the first level of indenture for all other categories.

3. Determine how many of these platforms/weapons systems are included in the force structure for employment in support of JCS contingency scenarios.

4. Exclude quantities not required for the scenarios. Record the scenario requirements data in column A3 of the DoD depot maintenance core capability worksheet (see DoDI 4151.20).

(b) Block B—Identify Net After Exclusions. Identify any platforms / weapons systems and related DLRs that are excluded from the requirement to maintain core logistics capabilities, exclude from further analysis, and document the authority for that exclusion from the core process. Record the net result in column B of the DoD depot maintenance core capability worksheet (see DoDI 4151.20).

(c) Block C—Convert Scenario Requirements to Peacetime DLH. Use appropriate factors (for example, historical workload averages, work standards, occurrence factors, historical peacetime capabilities, technology-based requirements) to convert platform/weapons system requirements passed from Block B into annual depot maintenance DLH. Add DLH data to applicable WBS categories to account for DLRs that are installed in platforms/weapons systems or otherwise employed in JCS scenarios, but not already included in Block A platform/weapons system depot maintenance data. Record results in columns C1 and C2 of the DoD depot maintenance core capability worksheet (see DoDI 4151.20).

(d) Block D—Adjust for Contingency Requirements and Resources. The adjustment occurs in the following two steps—

1. Step D1: Adjust for Contingency Requirements. Adjust annual peacetime depot maintenance DLH data by applying a surge factor for requirements during the readiness, sustainment, and reconstitution phases of contingency operations. Base surge factors on contingency simulations, logistics support analyses/historical data for both peacetime and wartime operations. Select the most appropriate requirement for readiness, sustainment, or reconstitution capabilities and record results in DLH in column D1 of the DoD depot maintenance core capability worksheet (see DoDI 4151.20). See figure D–2 for a notional requirements and resource adjustment process.

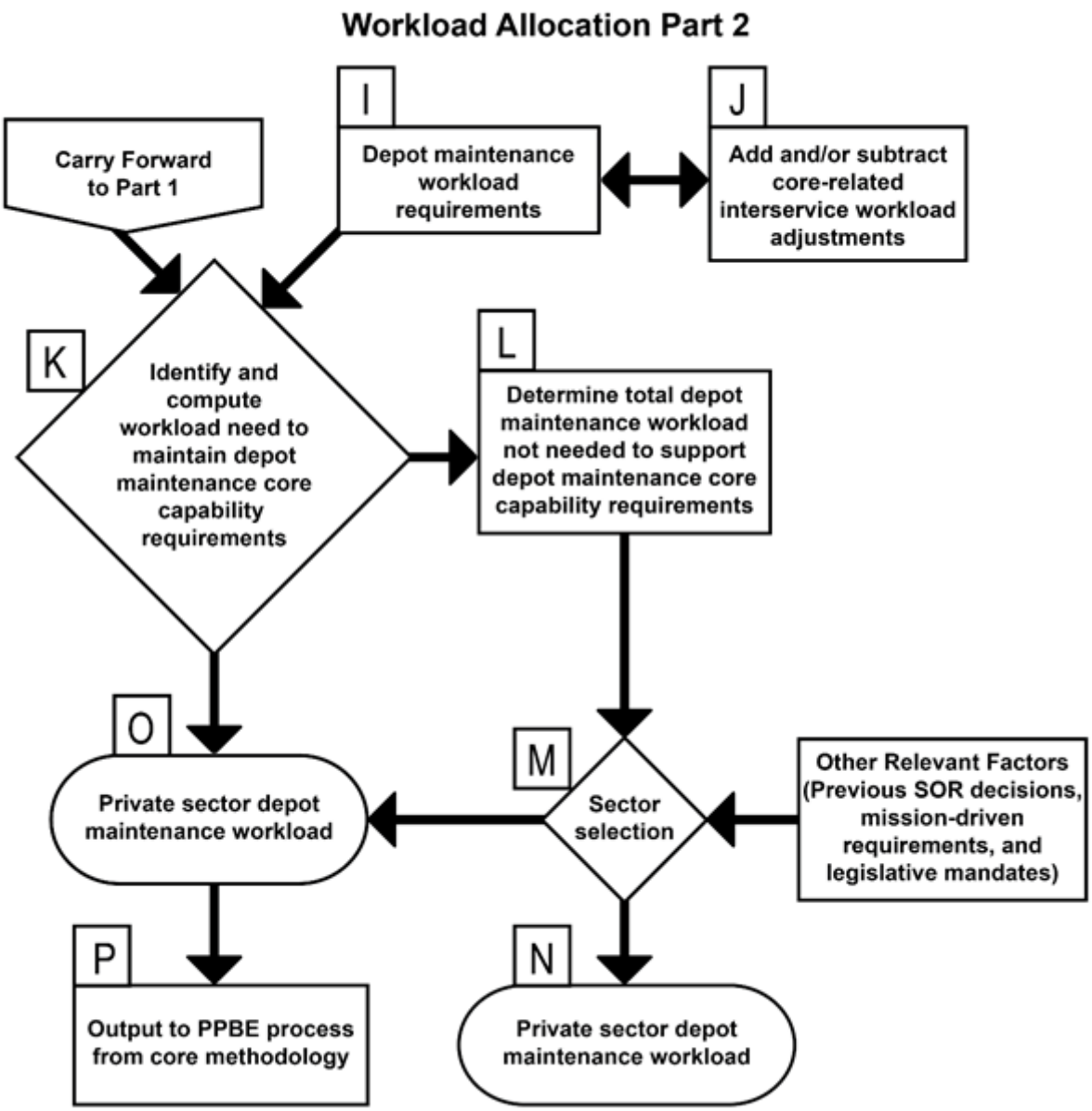

Figure D–2. Part 2—Workload allocation

2. Step D2: Adjust for Resources. Apply an appropriate resource adjustment factor (for example, 1.6) to the DLH from column D1 of the worksheet. This factor accounts for the ability of on-hand peacetime depot maintenance resources to increase production by operating additional hours without being augmented by additional facilities, equipment, or personnel. Record the results in DLH in column D2 of the DoD depot maintenance core capability worksheet (see DoDI 4151.20).

(e) Block E—Adjust for Redundant Requirements. The DoD components may adjust the size of core capability requirements to an amount deemed sufficient to assure adequate depot maintenance support for their strategic or contingency operations. Such adjustments will, however, consider the needs to prevent adverse impacts in the event of a failure to perform by any element in the sustainment process and to assure the DoD depots' adequate responsiveness to operational requirements. The DLH determined as a result of the calculations outlined in blocks A through D may be adjusted further to address

redundant capability requirements (that is, multiple platforms that are so similar they share a common or complementary base of repair processes, technologies, and capabilities; or when a large quantity of single platform requirements necessitate duplicate DoD capabilities). Each DoD component makes its own redundant core capability requirements adjustments.

(f) Block F—Quantify Depot Maintenance Core Capability Requirements. Quantify the depot maintenance core capabilities that must be provided by Government personnel, equipment, and facilities in compliance with *paragraph D–2b* . Apply adjustments required by block E to the results of block D and record the result in column F of the DoD depot maintenance core capability worksheet.

(g) Block G—Adjust for Inter-Service Capability Requirements. Determine whether any of the DLH requirements passed from block F will be satisfied by other DoD depot maintenance capabilities. Include core capability requirements necessary to support other DoD components, and exclude capability requirements that will be supported by other DoD components. Record inter-Service requirements “in” and inter-Service requirements “out” in columns G1 and G2, respectively, of the DoD depot maintenance core capability worksheet.

(h) Block H—Total Adjusted Requirements. Record the net adjusted requirements in column H of DoD depot maintenance core capability worksheet (part 1). Carry this information forward to the workload identification process described in block K (see para D–2).

(6) Part 2: Depot maintenance workload allocation.

(a) Part 2 identifies the workloads necessary to sustain the depot maintenance core capability requirements identified in part 1. In part 2, the depot maintenance workloads that are needed to maintain core capabilities are subtracted from total public sector depot maintenance funded workload, leaving those workloads that are not necessary to sustain core capability requirements available for Service SOR decisions. This part establishes a minimum level of public sector depot maintenance workloads within each DoD component. The data may also be used to assist in the identification of depot maintenance capital investments that must be made to comply with *para E–2b* requirements for establishment of core depot maintenance capabilities within 4 years of IOC. Figure D–2 is a flow diagram for part 2. Applicable information regarding the results of each step in this process should be recorded on the DoD depot maintenance core capability worksheet.

(b) Throughout part 2, as a minimum, WBS categories in the worksheet are to be completed to the third level of indenture for aircraft and aircraft components; the second level of indenture for aircraft engines; and the first level of indenture for all other categories.

(c) Block I—Quantify Total Depot Maintenance Workload. Quantify all public sector depot maintenance workloads for your own DoD component in terms of DLH. Record this workload data in column I of the DoD depot maintenance core capability worksheet.

(d) Block J—Add/Subtract Inter-Service Workload Adjustments:

1. Adjust block I workload data to account for any workloads that one DoD component is providing to another DoD component. These adjustments may either increase or decrease the total DLH quantities passed from block I, depending on whether the affected DoD component is the principal or agent for a depot maintenance workload.

2. Record inter-Service workload “in” in column J1 and inter-Service workload “out” in column J2 of the DoD depot maintenance core capability worksheet.

(e) Block K—Identify and compute workload needed to maintain depot maintenance core capability requirements. Considering the information from blocks G and H, identify workloads to be used to sustain core capability requirements. Express these workloads in terms of DLH. Substitutions of similar workloads may be made as necessary to fulfill core capability requirements for systems with limited inventories or fluctuating workload requirements. Record core-sustaining workload data in terms of DLH in column K on the worksheet. If there is a shortfall in the workloads available to sustain required core capabilities, then this shortfall must be considered in block P, or workloads currently being performed under contract should be considered for performance at a public sector facility to satisfy that requirement.

(f) Block L—Determine Depot Maintenance Workload Not Needed to Support Depot Maintenance Core Capability Requirements. Identify the depot maintenance workloads (DLH) that do not directly support core capability requirements. Record non-core sustaining workload data in column L on the DoD depot maintenance core capability worksheet.

(g) Block M—Sector Selection. The DoD components will identify the most appropriate sources of repair (public or private sector) for all depot maintenance workloads passed from block L, as follows:

1. Adjust block I workload data to account for any workloads that one DoD component is providing to another DoD component. These adjustments may either increase or decrease the total DLH quantities passed from block I, depending on whether the affected DoD component is the principal or agent for a depot maintenance workload.

2. Record inter-Service workload "in" in column J1 and inter-Service workload "out" in column J2 of the DoD depot maintenance core capability worksheet.

3. Adjust block I workload data to account for any workloads that one DoD component is providing to another DoD component. These adjustments may either increase or decrease the total DLH quantities passed from block I, depending on whether the affected DoD component is the principal or agent for a depot maintenance workload.

4. Record inter-Service workload "in" in column J1 and inter-Service workload "out" in column J2 of the DoD depot maintenance core capability worksheet.

5. Identify all other relevant data necessary to make value-driven depot maintenance SOR evaluations (for example: previous SOR decisions, mission-driven requirements, and legislative mandates).

6. Identify and allocate directed workload requirements.

7. Identify any depot maintenance workloads for which there are no known commercial sources and allocate those workloads to public sector facilities.

8. Identify any workloads needed to ensure efficient operation of core depot maintenance capabilities in accordance with the provisions of *paragraph D–2b* and allocate those workloads to public sector facilities.

9. Identify any workloads needed to ensure that not more than 50 percent of nonexempt depot maintenance funding is expended for performance by non-Federal Government personnel in accordance with the provisions of *paragraph E–2b* and allocate those workloads to public sector facilities.

10. Allocate all remaining workloads as appropriate based on best value criteria.

(h) Block N—Private Sector Depot Maintenance Workload. Quantify in terms of total funding required ($) all depot maintenance workloads performed by private sector depot maintenance facilities. Record this data in column N on the DoD depot maintenance core capability worksheet.

(i) Block O—Public Sector Depot Maintenance Workload. Quantify in terms of DLH the total amount of workload that directly supports depot maintenance core capability requirements, plus any other workload that is most appropriately performed by public sector maintenance facilities. Record this data in column O of the DoD depot maintenance core capability worksheet.

(j) Block P—Output to Service Planning, Programming, and Budgeting System. Use workload data from block K and block O to ensure that the planning, programming, and budgeting system process adequately supports depot maintenance core capabilities in accordance with *paragraph D–2b*. Compare planned capital investments to weapons systems IOC milestones to ensure capital investment decisions adequately support depot program capability within IOC plus 4 years.

D–3. Sustainment (depot) post production software support core capability requirements determination methodology

a. Post production software support core capability must be maintained within DoD organic SECs, directorates, and depots to meet readiness and sustainability requirements of Army weapon systems that support the JCS contingency scenario(s) (see 10 USC 2464). A core capability for each weapon system will be established to provide the expertise and infrastructure required to maintain each system regardless of the funding source. This includes:

(1) Software depot maintenance management activities (such as project lead and associated staff).

(2) Software QA work.

(3) Software configuration management, to include management of technical data required to maintain the system.

(4) Software Information Security assurance and implementation.

(5) Facility maintenance required to support the PPSS mission.

(6) Software certification maintenance, which includes, but is not limited to, security and safety certifications.

(7) Software testing, verification/validation capabilities associated with software changes required to ensure the functional and operational capability.

(8) Software requirements development and administration (working with PM and Training and Doctrine Command capabilities manager (TCM)).

(9) Internal software programming capability to maintain system operational capability (personnel with technical expertise of systems architecture / design to maintain system).

(10) On site software depot maintenance technical support to incorporate software releases and associated testing of the system to ensure releases are properly installed.

Note. Table D–1 provides further detail on the definitions mentioned in this paragraph.

b. The MATDEV will ensure the technical data rights, intellectual property, software source code identified by the LCMC needed for hardware and software PPSS are incorporated into the contract with the OEM and deliverable at Milestone B or earlier to the government. This capability must be developed and established at the organic depots, Software Engineering Center, and SEDs as necessary for software once the first software increment has been fielded to the first unit.

c. Core PPSS depot maintenance capabilities will comprise only the minimum facilities, equipment, and skilled software personnel necessary to ensure a ready and controlled source of required technical competence.

d. Performance of PPSS core logistics workload will not be contracted out to non-Government personnel.

e. The Army will calculate software core requirements to support weapons systems that are a program of record. PPSS core requirements will be identified in the annual O&M, Army Base budget requirement review process in accordance with definitions provided above.

Table D–1
Definition of sustainment (depot) post production software support core capability requirements

#	Requirements for a core capability	Subordinate tasks and/or functions required for completion of function
1	Software depot maintenance management activities (such as project lead and associated staff).	Provide overall management—technical and administrative—to software maintenance processes: manage incorporation / integration of addressing software anomalies (requirements from number 8); address IAVAs and security vulnerabilities identified through application of risk management framework (RMF) (former DITSCAP/DIACAP process); manage resources (plan, program, budget, monitor funding and plan/manage workforce); perform project monitoring and provide guidance/information on status of efforts; provide oversight for contractual efforts including requirements development, contract approval/termination, contract management, procurement activities/functions, assisting with selection boards; manage the purchase and maintenance of required COTS software licenses and maintenance agreements; working with user, TCM and other stakeholders to address software anomalies, defects, and vulnerabilities; work with the program manager and the TCM to ensure the system is ready to transition to software depot maintenance.
2	Software QA work.	Capability to ensure software maintenance processes are followed and implemented. Includes functions and processes to ensure software product/increment is suitable for release to the field (to include source code and configuration management analysis). All statutes and regulations have been adhered to.
3	Software configuration management, to include managing the technical data required to maintain the system.	Provide configuration and data management of all software source code, documentation, and related artifacts/data. Maintain and monitor software releases, to include status and locations of maintenance releases, government data rights, requirements documentation, test scripts and any other data required to maintain the system. Includes management of source code (to include a repository of releases/increments).
4	Software Information Security assurance and implementation.	Ability to monitor and incorporate/address security issues associated with IAVAs or any other issues that affect the security posture of the system. Includes capabilities to account for/implement RMF for ensuring security posture of system.
5	Facility maintenance required to support the PPSS mission.	Maintain software maintenance environment to perform maintenance mission, to include networks, test sets, test beds, field-level test equipment and other equipment and facilities that provide ability to perform/test software maintenance functions/updates/versions/etc. Includes purchasing parts to maintain systems/equipment, minor (under $250k) purchases of lab equipment and supporting equipment/software, etc. within the software depot facility and the maintenance and configuration of the same (to include purchases for software testing/diagnostic/etc.). Where software support is provided prior to entering software depot maintenance, associated efforts on

Table D–1
Definition of sustainment (depot) post production software support core capability requirements—Continued

#	Requirements for a core capability	Subordinate tasks and/or functions required for completion of function
		reimbursable basis and prepare facilities to perform software depot mission upon transition.
6	Software certification maintenance, which includes, but is not limited to, security and safety certifications.	Technical capabilities to manage/implement processes to maintain Authority to Operate. For applicable systems - maintain air worthiness (correct software anomalies and associated technical expertise to test/manage maintaining air-worthiness certification). Includes processes required to address issues associated with RMF—replaced DITSCAP/DIACAP process. Includes control and accountability for Classified documentation and data. Includes other authoritative ATO, such as JWICS and NSA accreditation processes.
7	Software testing/verification/validation capabilities associated with software changes required to ensure the functional and operational capability.	Ability to develop test scenarios/cases on and perform verification/validation/testing of corrections made to anomalies before releasing to field. Includes requirement for operational and technical knowledge of software design to support development of test processes, execution of test, ability to analyze outputs of test at not only systems but component(s) level (lower) and interoperability testing between this and other systems. Includes processes to ensure/validate installation of software updates to include automated testing capabilities, test reporting, and software assurance code assessments.
8	Software requirements development and administration (working with PM and TCM).	This is not the requirements of the system key performance parameters (KPP), but the requirements associated with those efforts required to maintain the operational capability of the software system. This is the knowledge base required to identify and document software anomalies/issues/updates resulting from changes to external environment(s) and determine which must be addressed or delayed and the consequential impact on systems associated with acceptable risk, etc. Specifically, these personnel will work with the PM and TCM to identify requirements to be implemented for sustainment.
9	Internal software programming capability to maintain system operational capability (personnel with technical expertise of systems architecture/design to maintain system).	Technical capabilities required to perform software changes required to maintain operational capability of the system. There are personnel with knowledge of system design/software architecture, interfaces/data structures. May include (based on systems): Knowledge of firmware and processes embedded in software to be able to analyze changes, make changes, incorporate and test maintenance modifications before release (related to 7 above); Knowledge of systems operating systems and internal design/supporting applications/software products required to modify system to address issues/requirements; ability to review issues/preliminary faults/recurring operational incidents to perform forensic investigations/analysis to causes to identify corrective actions; knowledge of internet protocols/design and impacts to how the system operates; knowledge of data structures and data compression and related management techniques/processes; knowledge of scalar/massive CPU applications/processes and how these processes impact this and integrating systems. Knowledgebase of interoperability requirements between this and other systems. Knowledge of designs to account for threats and capabilities to counter.
10	On site software depot maintenance technical support to incorporate software releases and associated testing of the system to ensure releases are properly installed.	Field-level Support core capability is specific to only the FSE efforts associated with applying/testing software maintenance releases required to maintain the operational capability of that system (not all functions performed by the FSE). Personnel would require knowledge of software for systems (and have associated system administrative rights) and how to load/adjusting system parameters/test releases in field to ensure software is maintained with most current version. This is like the hardware "depot team" that integrates MWOs in the field.
11	Software Repository for rapid delivery.	The SW Repository provides a single, consolidated website for Army software installers to download software updates and patches. Electronic delivery is a faster delivery mechanism than physical delivery, resulting in improved timeliness and availability of software to increase software readiness and reduce Army cybersecurity risk. NIPRNet: https://cecom.sw.csd.disa.mil and SIPRNet: https://cecom.sw.csd.disa.smil.mil

Appendix E

DA Form 7567 (Special Repair Authority (SRA) Approval/Disapproval Sheet)

E–1. Purpose

This set of procedures provides a standardized methodology and rationale for an AMC MSC to either approve or recommend disapproval of requests to accomplish DLRs on items with an MRC of D or L. For policy on SRA/OTR, see AR 750–1. Figure E–1 shows the request flow for an SRA/OTR.

E–2. Instructions for completing DA Form 7567

DA Form 7567 (Special Repair Authority (SRA) Approval/Disapproval Sheet) contains a series of calculations that require the input of specific values. These calculations along with other variables identified on the form are taken into consideration along with the potential impact on unit readiness to derive a tentative decision as to whether SRA should be approved or disapproved for the requesting organization. The various data elements contained in the form are described below.

a. Completion instructions:

(1) SRA NUMBER. The SRA number is assigned to a request by the MSC responsible for management of the item. The SRA number is used for tracking and reporting purposes.

(2) AS OF DATE (YYYYMMDD). Normally, this will be the date the request is received by the MSC.

(3) SUBMITTING MSC. This is the actual name of the MSC to whom the request has been submitted. Normally, it will be one of three organizations: AMCOM for aviation assets, CECOM for communications and electronic items, or TACOM for tactical and combat vehicles.

(4) SUBMITTING UNIT. This is the organization that has initiated the request for special repair authorization.

(5) ITEM MANAGER. The name of the specific item manager within one of the three MSCs who manages the item.

(6) DSN PHONE NUMBER. Phone number of the item manager.

(7) COMPONENT. Name of the component or next higher major assembly associated with the requested repair.

(8) NIIN. NIIN for the item to be repaired or its next higher assembly.

(9) SYSTEM. Noun nomenclature of the end item containing the component or assembly requiring the DLR.

(10) ITEM.

b. National RO. This is the level of requirements determined to be the objective needed to support the force at the national level. This quantity is maintained and under the visibility of the supporting MSC item manager.

c. Does the RO include War Reserves? If assets maintained in war reserves represent a portion of the RO, then the question initially requires a YES answer and the quantity of war reserve assets must be entered into the appropriate cell on the spreadsheet. If none of the war reserve assets are considered in the RO, then the response is NO and no entry is required in the assigned cell.

d. Issuable portion of the RO (quantity). The cell associated with this item reflects the difference between the issuable portion of the national RO and any assets in War Reserves.

e. What is the total number of unserviceable assets (AWCF–SMA)? The information in the cell associated with this question determines what unserviceable assets are available in AWCF–SMA that potentially could be scheduled for maintenance or repair to support the request.

f. Total number of serviceable assets less War Reserves (AWCF–SMA). The total number of serviceable assets in the AWCF–SMA represents a hard number of assets that may be issued against valid requirements. True availability, however, is determined after subtracting any war reserve assets that may also be included.

g. Quantity of procurement spares due in within the next 12 months. Another potential source that may be considered for satisfying an SRA request may be the availability of any spare assets that may be procured over the next 12 months. If known, the total quantity due-in should be entered into the corresponding cell in the spreadsheet.

h. For procurement spares due in, what is the delivery schedule by month and quantity? If there is an established schedule, enter the monthly quantity due in the corresponding cell and then provide any additional information concerning the schedule in the space provided below the question.

i. Issue priority group (IPG).

(1) Identify backorders for IPG 1. IPG 1 is a grouping of priority designators 01, 02 and 03. The total backorders for the IPG 1 should be entered into the corresponding cell for this item.

(2) Identify backorders for IPG 2. IPG 2 is a grouping of priority designators 04, 05, 06, 07 and 08. The total backorders for the IPG 2 should be entered in the corresponding cell for this item.

(3) Identify backorders for IPG 3. IPG 3 is a grouping of priority designators 09, 10, 11, 12, 13, 14, and 15.

(4) TOTAL IPG (total of IPG 1, IPG 2, and IPG 3).

j. NET assets posture (D + E + F – TOTAL IPG). The NET asset posture is calculated by combining the total number of unserviceable assets, serviceable assets and spares due in over the next 12 months minus the total of IPG 1, 2 and 3.

k. Is item excess to issuable portion of the RO? The question concerns the item for which special repair is being sought and requires only a YES or NO response in the area provided. If the item is in excess of the issuable portion of the RO, a recommendation for disapproval will be forwarded.

l. Is there a repair program in support of the AWCF–SMA (depot, contractor, below depot)? This item requires two additional separate YES or NO responses.

(1) Established repair program? Is there an established repair program in support of the AWCF–SMA?

(2) Is program at one of the specific levels cited? Self-explanatory.

m. Annual production requirement/Number produced to date. If production information is available for an established program, then enter for both parts of the question.

n. Demand information.

(1) What is the average monthly demand? Enter the average monthly demand information for the asset.

(2) What is the annual demand? Enter the annual demand.

o. Does technical data package exist to validate repair procedure? Ascertain availability of technical data package needed to support repair of the asset and enter the appropriate answer in the space provided.

p. Recommend SRA approval? Check YES or NO. Except for the actual description of the readiness impact (should be fully stated in requestor's cover memo), a response of approved or disapproved will be generated based on all the input previously entered.

q. Overrides.

(1) Are there extenuating circumstances to override recommended approval/disapproval? If there are any circumstances that would affect approval of disapproval, enter a response of YES or NO, as appropriate.

(2) If so, what? Clearly state any extenuating circumstances that could justify reversing the recommendation provide in item "q" above.

(3) 11. REMARKS. Enter the number of items requested for the SRA, pertinent rationale, and any additional information. Enter a statement for the unit to notify HQAMC upon completion of the SRA condition.

(4) 12a. FINAL SRA. After careful consideration of all the information, the item manager or MSC commander's formally designated representative should render a final decision as APPROVED or DISAPPROVED. All disapprovals at the MSC level should be formally recommended for disapproval through AMC to the DCS, G–4 (Maintenance Directorate) for final decision authority.

(5) 12b. SRA conditions. Enter a statement to limit the SRA to the total number of items or 1-year period from approval date.

(6) 12c. TYPED NAME. Type the name of the SRA approving authority.

(7) 12d. SIGNATURE. The SRA approving authority will sign in this block.

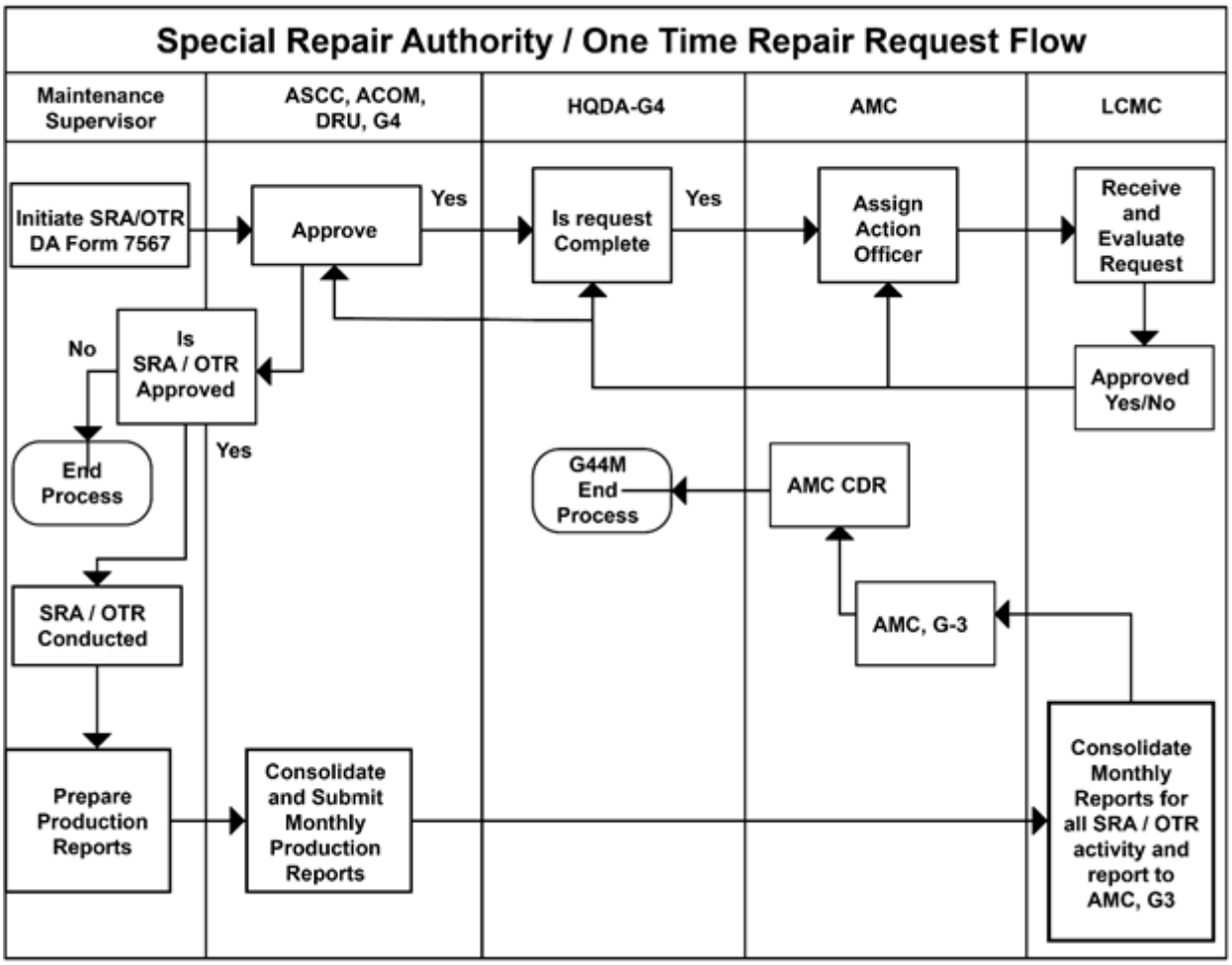

Figure E–1. Special repair authority and/or one-time repair request flow

Appendix F

Unit Corrosion Prevention and Control Program Standard Operating Procedure Example

F–1. General

The purpose of this appendix is to assist units in achieving regulatory guidance for Corrosion Prevention and Control per AR 750–1 and this pamphlet (see para 9–12). The items in the list below are suggested to have in the Unit's CPC Program SOP. An example SOP can be found at https://ta-com.aep.army.mil/sites/ilsc/public/cpc/sitepages/home.aspx.

F–2. Standard operating procedures information

See the list below.

a. Cover page.
b. Purpose and Scope.
c. References.
d. General.
e. Responsibilities—
(1) Commanders.
(2) CPC program monitors.
(3) Maintenance officer.
(4) Maintenance crews.
(5) Maintenance personnel.
(6) Supply section.
(7) Quality control.
f. Procedures—
(1) General Information.
(2) COSIS.
(3) System Washing.
(4) Corrosion Inspection.
(5) Geographical Location CPC Inspection and Wash Frequency.
(6) Operational preservation.
(7) Wash frequency.
(8) Avionics/electrical.
(9) Structural repairs.
(10) Painting.
(11) Aviation Associated Equipment:
(a) Corrosion inspections.
(b) Preservation and storage.
(12) Ground vehicles.
(13) Checklist for effective Unit CPC Program.
(14) CPC Training.

Glossary of Terms

Accountable property system of record
The government system used to control and manage accountable property records. A subset of existing organizational processes related to the life cycle management of property; the system that is integrated with the core financial system.

Adjust and/or align
To maintain or regulate an item, within prescribed limits, by bringing it into proper position or by setting the operating characteristics to specified parameters.

Administrative deadline
Procedure for taking equipment out of service if the commander or field-level maintenance officer determines it is necessary. Administratively deadlined equipment is FMC per the applicable PMCS tables, AR 385–10, and is reported FMC per AR 700–138 and DA Pam 750–8 but is not used or dispatched. The following conditions are examples of typical situations (not an all-inclusive list) when administrative deadline of equipment would apply:
a. Operation would result in a violation of published Federal, Department of the Army, local commander, or host-nation safety regulations if the equipment were dispatched or used.
b. Pending completion of an official investigation.
c. Pending transfer, turn-in, or disposition instructions.
d. Pending inspection for a safety deficiency detailed under a SOUM.
e. Pending receipt of oil resample or special sample results.
f. Pending completion of a required service.

After operation checks
PMCS performed per the TM/ETM–10 series PMCS tables at the conclusion of the mission to identify and correct faults that will preclude the next mission and to maintain the equipment to TM–10 series and TM–20 series PMCS maintenance standard. Faults that render the equipment NMC and are within the authorized level of repair of the operator/crew to correct must be corrected immediately. Faults above the operator / crew-authorized level of repair are immediately reported to field maintenance for correction prior to start of the next mission. Field maintenance performs unscheduled correction required by reports from operator/crew and performs required services per TM/ETM–20 series to maintain the equipment to the TM–10 series and TM–20 series PMCS maintenance standard.

Ammunition
All Army-adopted Class V items.

Ammunition peculiar equipment
Equipment used in depot to perform maintenance, surveillance, demilitarization, or preservation/packaging work on ammunition.

Area maintenance support activity
Provides, on an assigned geographical area basis, technical assistance, and unit maintenance support beyond the supported units' capabilities to accomplish during scheduled training assemblies. AMSA will be designated as AMSA(G)—Maintenance support for USAR ground equipment, other than aircraft.

Army aviation flight activity
An ARNG TDA activity that provides field-level maintenance functions in support of ARNG aviation assets.

Army aviation operating facility
An ARNG TDA activity that provides field-level maintenance functions.

Army aviation support facility
An ARNG TDA maintenance activity that provides field- and AVCRAD-authorized sustainment-level maintenance functions to support ARNG aviation assets.

Army Oil Analysis Program
HQDA directed program to enhance crew safety, improve equipment readiness and reduce the consumption of resources through application advanced diagnostic technology to detect premature materiel degradation and support failure trend analysis.

Army Oil Analysis Program evaluation criteria
Factors, including quantitative metal wear expressions, against which the results of oil analysis are compared to determine the condition of a component or lubricant and the necessity for maintenance.

Army Working Capital Fund
The Army Working Capital Fund is a revolving fund used to finance the continuous flow of goods and services to its customers. A revolving fund derives its name from the cyclical nature of its cash flows.

Assembly
A combination of components/modules and parts used as a portion of, and intended for, further installation in an equipment end item (for example, engine, transmission, rotor head, electronic chassis, rack/cabinet).

Associated support items of equipment
An end item required to support the operation, maintenance/transportation of a BOIP item. ASIOE is listed on the BOIP of the item it supports. ASIOE has its own LIN and is separately documented into TOE/Vertical—The Army Authorization and Documents System.

At-platform/off-platform
Maintenance support devices used at or on the platform/maintenance diagnostic systems used away from the platform

Automatic test equipment
Equipment designed to automatically evaluate the degree of unit under test performance degradation. It may be used to perform fault isolation of unit under test malfunctions.

Available days
The hours equipment is on hand in an organization and fully able to do its mission; the time that equipment is FMC.

Aviation classification and repair activity depot
An ARNG TDA maintenance activity that provides AVIM and authorized depot-level functions.

Aviation support facility
TDA activity of USARC that exercises centralized control and assures proper use and operation of USAR aviation assets, providing aviation training and logistics support beyond the capability of the supported units during training assemblies.

Battle damage assessment and repair
A wartime procedure to rapidly return disabled equipment to operational condition by expediently repairing, substituting, fabricating, short-cutting, bypassing, cannibalizing, or jury-rigging components to restore the minimum essential systems required for the support of a specific combat mission or to enable equipment to self-recover.

Before operation checks
Checks performed by the operator/crew per TM/ETM–10 series PMCS tables to identify faults that will prevent performance of the mission and must be corrected prior to start of the mission. All faults are corrected or, if above operator/crew authorized level of repair, are reported to field maintenance before the mission.

Built-in test
A test approach using built-in test equipment or other integral hardware designed into equipment or components under test to self-test and fault diagnose all/part of the equipment or component under test.

Built-in test equipment
Any identifiable, removable device that is part of equipment or components under test that is used for the express purpose of testing.

Calibration
Comparison of an instrument with an unverified accuracy to an instrument of known or greater accuracy to detect and correct any discrepancy in the accuracy of the unverified instrument.

Cannibalization
The authorized removal of components from materiel designated for disposal. Cannibalization supplements supply operations by providing assets not immediately available through the Army supply system. Costs to cannibalize, urgency of need, and degradation to resale value of the end item should be considered in the determination to cannibalize.

Capability
A measure of operational performance to quantify contribution to the warfighter. Measure consists of an evaluation of range, lethality, and effectiveness.

Combined support maintenance shop
An ARNG TDA activity that provides field- and sustainment-levels of maintenance on Federal surface equipment issued to the ARNG.

Commercial activities
Army-operated and Army-managed organizations that provide products or services that may be obtained by contract with private commercial sources. Commercial activities may be identified with an organization or a type of work but must be separate facilities that can perform either in house or by contract. Further, the commercial activities must provide products and services regularly needed. Commercial activities will not provide products and services that will be used only once, for a short time, or for support of a special project.

Communications security logistics support unit
Field/sustainment maintenance activity for the maintenance of COMSEC equipment.

Compliance
Compliance refers to the first phase of the process to qualify national maintenance providers. A national SOR is compliant once the NMM determines it has a documented quality management system in place. Continued compliance is determined by annual surveillance audits.

Component/module
A combination of parts mounted together during manufacturing that may be tested, replaced as a unit, or repaired (for example, starter, generator fuel pump, and PCB). The term “module“ is normally associated with electronic equipment.

Condition based maintenance
CBM is a set of maintenance processes and capabilities derived primarily from real-time assessment of weapon system condition obtained from embedded sensors/external test and measurements using portable equipment.

Configuration
The functional/physical characteristics of hardware/software set forth in technical documentation and achieved in a product.

Configuration status accounting
Recording and reporting of information needed to manage the configuration of a system or item effectively, including the approved technical documentation as set forth in specifications, drawings, and associated lists and documents referenced therein; the status of proposed changes to a configuration; and the implementation status of approved changes.

Contract maintenance
Any materiel maintenance operation performed under contract by commercial organizations (including the original manufacturers of the materiel).

Controlled exchange
Removal of serviceable parts, components, and assemblies from unserviceable, but economically repairable, equipment and their immediate reuse in restoring a like item of equipment to a combat MC condition.

Corrective maintenance
Corrective maintenance is a maintenance task performed to identify, isolate, and rectify a fault so that the failed equipment, machine, or system can be restored to an operational condition within the tolerance of limits established for in-service operations. See DoDD 5000.1 and DoDI 5000.2.

Corrosion prevention and control
Those efforts to deter or resist the development of corrosion through—
a. The use of effectual equipment design, materials selection, finishes, and processes.
b. The application and maintenance of protective coating systems during the entire life cycle of the equipment or system.
c. The implementation of a thorough test program aimed at identifying corrosion-prone materials/designs and making suggested improvements during the acquisition cycle, to include exposure and operation in natural field/accelerated environments where corrosion is most likely to occur.
d. The implementation of regular corrosion inspections, to include the cleaning and the maintenance painting of systems and equipment.
e. The awareness of the need to avoid conditions that induce corrosion, such as preventing water retention or exposure to particulates, acids, or dissimilar metals, plus chemical compound treatments.
f. The prompt treatment and maintenance of corroded equipment.
g. The use of protective packaging and preservation techniques during the shipping and storage of equipment and component systems.

Critical characteristics
Features (tolerance, finish, material composition, manufacturing, assembly, or inspection process) of a product, material, or process that, if nonconforming or missing, could cause the failure or malfunction of the item.

Critical safety item
Any part, assembly, subassembly, installation procedure, or production process that would have hazard probability level A, B, C, or D chance of resulting in an unsafe condition if not in accordance with design data or quality requirements.

Deferred maintenance
Authorized delay of maintenance/repair of uncorrected faults.

Deficiency
A fault or problem that causes equipment to malfunction. Faults that make the equipment NMC are deficiencies.

Department of Defense Activity Address Code
A six-digit code that gives a DoD delivery address for supplies and equipment.

Depot maintenance activity
An industrial-type facility established to perform depot maintenance on weapon systems, equipment, and components. The term includes DoD installations and commercial contractors.

Depot maintenance capability
The availability of resources (facilities, tools, test equipment, drawings, technical publications, training, maintenance personnel, engineering support, and spare parts) required to carry out a specified depot maintenance task.

Depot maintenance capacity
This is the amount of DLH (maintenance man-hours) that can be applied within a specified industrial facility or other entity during a 40-hour week.

Depot maintenance core capability
Depot maintenance core is the capability maintained within defense depots to meet readiness and sustainability requirements of the weapon systems that support the JCS scenario(s). Core capability exists to minimize operational risks and to guarantee required readiness for weapon systems. It will comprise only the minimum essential required facilities, equipment, and skilled personnel required to ensure a ready and controlled source of required technical competence.

Depot maintenance public private partnership
A public-private partnership for depot maintenance agreement may exist between an organic depot maintenance activity and one or more private industry or other entities to perform work or use facilities and equipment. Program offices, inventory control points, and materiel, systems/logistics commands may also be parties to such agreements or be designated to act on behalf of organic depot maintenance activities.

Depot maintenance work requirement
A maintenance serviceability standard for depot-level reparables designated for repair and return to AWCF stock. It prescribes the statement of work to be performed on an item by organic depot maintenance facilities or contractors/qualified below-depot sources of repair; types and kinds of materiel to be used, and quality of workmanship. The DMWR also addresses repair methods, procedures and techniques, modification requirements, fits and tolerances, equipment performance parameters to be achieved, quality assurance discipline, and other essential factors to ensure that an acceptable and cost-effective product is obtained.

Depot maintenance workload
A specific depot repair requirement for a specific item to be repaired. Units of measure include man-hours, work years, costs, and sale prices.

Depot-level reparable
A Class VIII/IX item with an MRC of D or L.

Discard and replace
Procedure to follow if selected items are designated as nonrepairable and become inoperable.

During operations checks
Checks performed by the operator/crew per the TM/ETM–10 series PMCS tables that monitor operation of equipment and identify faults in equipment performance during the mission. Faults that render the equipment NMC require immediate correction or authorization for limited operation using circle x status condition. All other faults are corrected (if above operator/crew authorized level of repair to correct) or reported during or after the mission.

Electromagnetic environmental effect
Any failure (or serious effect) apparently caused by, or related to, radio waves, electromagnetism, voltage, or current pulses (static discharge, lightning, electromagnetic pulse, or transient electricity), from whatever source.

Equipment category code
A two-position alphabetical code. The first letter identifies the primary category of equipment. The two-position ECC is used in ADP systems to produce the complete description of an item of equipment by make, model, noun nomenclature, line number, and NSN if desired or required. It is also entered in specified blocks or positions on manually produced data source documents.

Equipment concentration site
Area for equipment storage and support to USAR and other authorized units during IDT, AT, and mobilization; includes a maintenance and storage branch.

Equipment end item
A final combination of assemblies, components, modules, and parts that is designed to perform an operational function and is ready for intended use. These end items are normally type classified and assigned line item identification numbers but may require other end items to perform a mission (for example, tank, truck, radio, generators, and machine guns).

Equipment improvement recommendation
Written reports on an SF 368 to report equipment faults in design operations and manufacturing of new equipment received that is below standard quality in workmanship under AR 702–7 and AR 702–7–1.

Equipment performance data
Historical information relating to the maintainability, reliability, and supportability characteristics of systems, subsystems, and components of weapons and equipment end items accumulated during their operational application or tests simulating actual operations.

Equipment readiness code
A one-digit code explaining an item’s importance to a unit’s combat, combat support, or service support mission. The codes are assigned to items on MTOEs.

Equipment services
Specified maintenance actions performed on equipment, components, and systems when required, including providing routine checks, adjustments, changes, analysis, and lubrication, in accordance with designer and engineer specifications.

Failure
The event, or inoperable state, in which any item or part of an item does not, or would not, perform as previously specified.

Fault
A term used to indicate that a piece of equipment has a deficiency or shortcoming.

Fault isolation
Test performed to isolate faults within a piece of equipment.

Fault repair
The process used by operators and maintenance personnel to restore an equipment item to full functionality as originally designed or engineered.

Field maintenance
Field maintenance is the first operation of the Army Maintenance System. Field maintenance is characterized by the performance of maintenance tasks “on system” in a tactical environment using trained personnel, tools, and TMDE. Field maintenance is typically operator/crew maintenance and repair and return to user maintenance operations.

Field maintenance activity
A USAR/ARNG activity that provides field maintenance for Federal surface equipment issued to supported units.

Field maintenance sub-activity
A USAR/ARNG field-level maintenance sub-facility established to supplement limited available workspace authorized a parent FMS or geographic separation of supported units.

Fleet management
Fleet management is the administrative approach to organize, coordinate, and oversee routine and ad hoc system maintenance to improve efficiency and reduce cost. The fleet manager is the individual on written orders responsible for: maintaining knowledge and utilization of all fleet information and user feedback to forecast new maintenance requirements, arrange staff to provide support, maintain and monitor data management systems to organize fleet maintenance activities based on mission demands, monitor fuel requirements, develop and implement operational standards to maintain best practices, and plan and prepare an annual budget that accounts for all expenditures against financial objectives.

Fleet planning
Fleet plans provide a common operational picture for all impacted stakeholders of a weapon system's age, capability (protection/payload/performance), and affordability. Fleet plans may involve proactive plans for independent or concurrent efforts to buy new assets (Procure), modernize an existing fleet (Upgrade), increase maintainability, reliability, supportability, / survivability (Improve), repair assets to TM–10/TM–20 series (Reset), repair assets to zero-miles/zero-hours (RECAP), or remove assets from the Army inventory (Divest).

Focused recapitalization
Rebuilding and upgrading systems to the extent determined necessary through detailed engineering and economic analyses.

Forward support maintenance
Maintenance oriented toward quick turnaround to the user to maximize combat time by minimizing repair and evacuation time.

Full recapitalization
Rebuilding and upgrading systems to the extent required to meet the recapitalization standard.

Fully mission capable
A materiel condition indicating that systems and equipment are safe and have all mission-essential subsystems installed and operating as designated by applicable Army regulation. An FMC vehicle or system has no faults that are listed in the “not fully mission capable ready if ” columns of the TM–10/20 series PMCS tables and AR 385–10 provisions that apply to the vehicle/system or its sub-system required by AR 700–138. The terms ready/available and FMC refer to the same status: equipment is on hand and able to perform its combat missions.

General support forces
Training, logistics, and other support activities of the CONUS base; field activities; administrative headquarters and forces provided for peacetime-peculiar activities. Units/activities included in general support forces do not report status/readiness under AR 220–1. They are identified in Department of the Army Force Accounting System by a three-position force planning code beginning with a C.

General-purpose test, measurement, and diagnostic equipment
TMDE that is used or possesses the potential to be used without significant modifications for test, measurement, and diagnosis of a range of parameters for two or more items of equipment or systems.

Go/no–go (system)
Condition or state of operability of a system that can have only two parameters:
Go: Functioning properly.
No-go: Not functioning properly. Such conditions are displayed using meters/visual or audible alarms, sensors, or similar mechanisms.

Hardness assurance
Processes, procedures, and methodologies applied in the preproduction and production phases of the acquisition cycle to achieve nuclear hardness.

Hardness maintenance
Comprehensive procedures that are applied during the post-production phase of the acquisition cycle to ensure that the designated hardness does not degrade.

Hardness surveillance
Periodic tests, analysis, and inspections performed at the system level throughout a system’s life cycle to monitor hardness integrity.

Home station training equipment
A pool of theater-unique equipment specifically authorized by HQDA to be prepositioned at selected installations to support training requirements for equipment that would otherwise not be available to deploying units. HST provides deploying units with standard and nonstandard equipment for individual and collective training that duplicates the equipment they will use in the theater.

Initial operating capability
First attainment by the MTOE unit of the capability to operate and support effectively in their operational environment a new, improved, or displaced Army Materiel System.

Inspection
To determine the serviceability of an item by comparing its physical, mechanical, / electrical characteristics with established standards through examination.

Integrated materiel manager
The materiel manager responsible for the execution of assigned materiel management functions for selected items or selected Federal supply Classification Classes.

Inter–Service maintenance support
Maintenance operations performed by the organic maintenance capability of one military Service in support of another military Service.

Item unique identification
A system of marking items delivered to the DoD with UIIs that have machine-readable data elements to distinguish an item from all other like and unlike items. UIIs assigned to items are registered in the DoD IUID Registry.

Left behind equipment
Maintenance significant items on the unit APSR that remains at home station after the unit deploys. LBE is accounted for and sustained at home station until the unit returns or is redistributed in support of HQDA equipping priorities, or as otherwise directed by the ACOM, ASCC, or DRU to which it is assigned. The ASC assumes accountability and responsibility for the equipment and ensures that it is properly accounted for and maintained to support the SRM process.

Line item number
A six-position alphanumeric number that identifies the generic nomenclature of specific types of equipment. Standard LINs consist of one alpha character followed by five numeric characters. Standard are assigned by the AMC and are listed in EM 0007 FED LOG.

Line replaceable unit
A combination of components / modules installed in an item of equipment or system that is replaceable in the operational environment (that is, under field or combat conditions). An LRU may be a PCB, black box, component, major component, alternator, carburetor, avionics, tank engine, and road wheel assembly installed weapons. This repair by replacement is normally accomplished as far forward as possible by unit (organizational) maintenance personnel.

Logistic Readiness Center/Army Field Support Battalion
The LRC/AFSBn provides global logistical support to individual Soldiers and units assigned to or mobilize units. The LRC/AFSBn manages installation supply, maintenance, and transportation to include food service, ammunition supply, clothing issue facilities and clothing initial issue points, hazardous material, bulk fuel, personal property and household goods, passenger travel, nontactical vehicles, rail, and garrison equipment.

Logistics information system
Legacy automated systems used to communicate with other units on vertical and horizontal flow of logistics and maintenance information and status.

Maintainability
Characteristics of design that inherently provide for the retention of/restoration of a specified condition within a given period when maintenance is performed by prescribed procedures and resources.

Maintenance
All actions necessary for retaining an item in or restoring it to a specified condition.

Maintenance capability
Availability of those resources—facilities, tools, TMDE, drawings, technical publications, trained maintenance personnel, engineering and management support, and repair parts—required to perform maintenance operations.

Maintenance capacity
A quantitative measure of maintenance capability usually expressed as the number of man-hours or direct labor that can be applied within a specific maintenance activity or shop during a 40-hour week (one shift, 5 days).

Maintenance concept
The maintenance concept briefly defines the intended maintenance workload distribution within the Army Maintenance System and the force structure required to maintain the end item or weapon system. It is largely based on the organization and operation plan and is an integral portion of the logistics section of the requirement document.

Maintenance engineering
The application of techniques, engineering skills, and effort organized to ensure that the design and development of weapon systems and equipment provide adequately for their effective and economical maintenance.

Maintenance operations
The management and physical performance of those actions and tasks involved in servicing, repairing, testing, overhauling, modifying, calibrating, modernizing, and inspecting materiel in the operational

inventory and the provision of technical assistance to equipment users in support units of the Army Logistics System.

Maintenance parts explosion
A process/system that provides the information necessary to accomplish the functional mission required in forecasting repair parts requirements for depot-level, inhouse, contract, and cross-service maintenance programs worldwide. This process also provides data to be used in computing supply central studies and planning depot-level maintenance.

Maintenance significant item/materiel
An end item, assemblage, component, or system intended for issue to the Army in the field that will require corrective maintenance services on a recurring basis. End items, assemblages, components, or systems that require maintenance while in storage; generally, these are LINs contained within the Army MMDF.

Maintenance standard
A measure that specifies the minimum condition to which materiel must be restored by repair, overhaul, or some other maintenance function to ensure its satisfactory performance for a specified period of service.

Maintenance support team
A team formed from the resources of a maintenance activity, organization, or unit and specifically tailored to provide maintenance support to a designated unit or operation for specified tasks.

Maintenance technician
Full-time technician normally having dual status as a member of a USAR or ARNG unit; military technician assigned to a USAR or ARNG TDA maintenance activity.

Major assembly
Separately identified by type, model, and series and assigned item ID number (EM 0007 FED LOG). For example, receivers or receiver transmitters in radio sets and machine guns or other weapons in secondary armaments subsystems of combat vehicles.

Materiel change
Configuration change involving substantial engineering and testing efforts on major end items to increase system/combat effectiveness or extend the useful military life.

Materiel developer
The principal Army MATDEVs are the Army PEOs/PMs. For non-PEO/PM-managed systems, other MATDEVs include AMC, U.S. Army Information Systems Command, INSCOM, Chief of Engineers, USAMMDA, and Strategic Defense Command.

Materiel maintenance
The function of sustaining materiel in an operational status, restoring it to a serviceable condition, or updating and upgrading its functional usefulness through modification or other alteration.

Mean time between failure
A basic measure of reliability. The average number of failures of a specific item occurring during a specified time interval.

Mean time to repair
A basic measure of maintainability. The sum of corrective maintenance times at any specific level of repair, divided by the total number of failures within an item repaired at that level, during a interval under stated conditions.

Medical device (including dental and veterinary items)
Consists of devices used in the medical diagnosis, therapy, and treatment of injury or disease. This equipment consists primarily of Federal Supply Catalog 6500 to implement health service support for the Army. It also consists of similar commercial, nonstandard items, approved by the Food and Drug Administration and marketed as medical devices, used to provide state-of-the-art patient care. The equipment is maintained and repaired by trained BES.

Mission-essential materiel
That materiel authorized and assigned to approved combat and combat support forces that should be immediately employed to: destroy the enemy or its capacity to continue war; provide battlefield protection of personnel; communicate under war conditions; detect, locate, or maintain surveillance over the enemy; and permit contiguous combat transportation and support of forces and materiel. Equipment assigned to training missions of the same type and configuration as that assigned to combat and combat support forces and designated to be immediately employed for the purposes enumerated above is also mission-essential materiel.

Mobile contact team
USAR field maintenance personnel and AMSA/ECS maintenance technicians who visit units to provide technical assistance, make inspections, and perform maintenance when this procedure is more economical than transporting equipment or personnel to the activity.

Mobilization and training equipment site
An ARNG TDA maintenance facility which, when collocated with a CSMS, provides full-time field support to ARNG equipment assigned to the site. When not collocated, MATES provide field and sustainment support to equipment and units assigned.

Modernization
Modernization is the development/procurement of new systems with improved warfighting capabilities. The Army's recapitalization effort does not encompass modernization.

Module
An assembly containing a complete self-contained circuit or sub-circuit. It may consist of a single PCB; in which case it is synonymous with a PCB or may comprise two or more PCBs mechanically attached to one another and removable from the next high assembly as a single unit.

National Maintenance Manager
The CG, AMC is designated as the NMM and as such is responsible for implementing the National Maintenance Program.

National Maintenance Program
The NMP supports the Army's strategy to move to a centrally coordinated and controlled, repair-based logistics system. Distribution-based maintenance operations are identified as operator / crew maintenance, field maintenance, and sustainment maintenance (formerly known as national maintenance). The CG, AMC, as the NMM for the Army, is responsible for sustainment maintenance operations. Sustainment maintenance consists of tactical, installation and depot activities and is characterized by repair to a single standard, that is, the national standard, and return to stock. The primary focus is sustainment readiness.

National Maintenance Program repair standard
An NMP repair standard is the standard recognized as the single Army sustainment standard for a reparable NSN. It is defined as the highest published standard and as such may be a DMWR, a NMWR, an AMCOM engineering directive, a TM, a commercial manual, or a statement of work. It is the single standard recognized by the item manager as the sustainment repair standard.

National maintenance work requirement
A maintenance serviceability standard for field-level reparables designated for repair and return to AWCF stock. It prescribes the statement of work to be performed on an item by organic depot maintenance facilities, certified non-depot national providers, or contractors; types and kinds of materiel to be used; and quality of workmanship. The NMWR also addresses repair method, procedures and techniques, modification requirements, fits and tolerances, equipment performance parameters to be achieved, quality assurance discipline, and other essential factors to ensure that an acceptable and cost-effective product is obtained.

Nonavailable days
The number of hours the equipment was not able to do its mission; the time the equipment is NMC. This term is used on DA Form 2406 to rate equipment's ability to do its combat or combat support job.

Not mission capable
A materiel condition indicating that equipment cannot perform any one of its combat missions. NMC time is divided into NMC maintenance or NMC supply.

Not mission capable maintenance
Equipment that cannot perform its combat mission because maintenance work is underway or needed.

Not mission capable supply
Equipment that cannot perform its combat mission because of maintenance work stoppage due to supply backorders.

Off–site maintenance
Maintenance authorized to be performed by designated maintenance facilities not located where the equipment is operated.

Oil analysis
A test or series of tests (spectrometric and physical property) that provide an indication of equipment component and oil condition by applying methods of quantitative measurement of wear metals and detection of contaminants in an oil sample.

On condition oil change
An oil change directed by the AOAP laboratory as a result of diagnostic test findings relative to the serviceability of the oil and its lubricating capability.

Onsite maintenance
Maintenance authorized to be performed where the equipment is operated.

Operations and maintenance, Army
The Operation and Maintenance, Army (OMA) appropriation funds the recruiting, organizing, sustaining, equipping, and training of the Army's All-Volunteer Force for the conduct of prompt and sustained land combat operations in support of Geographic Combatant Commands.

Operator/crew maintenance
Operator/crew maintenance is the cornerstone of Army maintenance, the first and most critical operation of the Army Maintenance System. It starts with the operator/crew performing PMCS using the applicable TM–10 series. The before- and during-PMCS concentrate on ensuring equipment is FMC. Maintenance operations normally assigned to operator / crew include the following:
a. Performance of PMCS.
b. Inspections by sight and touch of accessible components per the TM–10 series and CBM indicators or instrumentation.
c. Lubrication, cleaning (including corrective actions to repair corrosive damage), preserving (including spot painting), tightening, replacement, and minor adjustments authorized by the MAC.
d. Limited diagnosis and fault isolation as authorized by the MAC. This requires appropriate resources onboard the equipment or system to perform these tasks.
e. Replacement of combat spares (unserviceable parts, modules, and assemblies) as authorized by the MAC and carried on board the equipment or system.

Overhaul
Overhaul is maintenance that restores equipment or components to a completely serviceable condition with a measurable (expected) life. This process involves inspection and diagnosis according to the DMWRs, NMWRs, or similar technical directions that identify components exhibiting wear and directs the replacement or adjustment of those items in accordance with the applicable technical specifications.

Pacing items
Major weapons or equipment systems of such importance that they are subject to continuous monitoring and management at all levels of command. Pacing items are identified in AR 220–1. Pacing items are noted on DA Form 5990–E or DA Form 2407.

Part
An item that cannot normally be disassembled or repaired or is of such a design that disassembly or repair is impractical (for example, bracket, gear, resistor, or toggle switch).

Partially mission capable
Material condition of an aircraft or training device indicating that it can perform at least one but not all of its missions because of maintenance requirements existing on the inoperable subsystem(s). PMC is divided into PMC maintenance and PMC supply.

Performance observation
The process by which the operator observes equipment performance against established standards and reports problems that degrade equipment before they become catastrophic. Performance observation is the foundation of the Army maintenance program and is the basis of PMCS that is required by all equipment TMs in the before, during, and after operation checks.

Physical property tests
Analytical tests of used oil samples to detect oil property changes resulting from changing equipment conditions or maintenance practices.

Possible days/hours
The number of calendar days/hours an item was on hand on the APSR during the DA Form 2406 report. For an item received during the reporting period, the first day/hour it was on hand is counted as a possible day. The last day an item was on hand (that is, the day it was lost from the APSR) is not counted as a possible day.

Precombat checks
Essential functional and safety checks performed by the operator/crew per the system's precombat checklist to ensure the system can perform its warfighting mission. Faults that will prevent the performance of the mission must be corrected prior to the start of the mission. All other faults are corrected or, if above operator/crew authorization to correct, reported during or after the mission.

Pre-deployment software support
Software engineering and development that occurs prior to the weapon systems achieving the Full Deployment Decision (FDD). It is software that has not been certified for release to a fielded unit and is still undergoing development.

Pre-deployment training equipment
A pool of and NS–E pre-positioned at select installations to support pre-deployment training that replicates the equipment units require to accomplish its deployed mission. PDTE is low density, high demand, theater specific equipment not available on the installation or determined unavailable for hand receipt or lateral transfer from another unit or installation to support training requirements for 90 days or less.

Predictive maintenance
Maintenance actions based on the observation of data analysis; trends, models/algorithms to assign replacement of (Class VIII/IX) components or sub-assemblies in advance of functional failure.

Preliminary source of repair decision
The SOR decisions for the system and each subsystem scheduled for depot repair/overhaul as developed by the MATDEV as soon as the system and subsystems are developed enough to conduct an SOR analysis and make analysis-based decisions. This will be the SOR decision used for planning purposes until Milestone C, when the MSC assumes the SOR decision responsibility.

Preventive maintenance
All actions performed to retain an item in a specified condition by providing systematic inspection, detection, and prevention of incipient failures.

Preventive maintenance checks and service
Preventive maintenance checks and service is the care, servicing, inspection, detection, and correction of minor faults before these faults cause serious damage, failure, or injury. The procedures and the category of maintenance to perform PMCS are found in the TM, LO, and ETM 10– and 20–series.

Prognostic and predictive maintenance
PPMx is the data- and machine learning-driven capability to measure equipment health and performance characteristics to support the commander and life cycle manager’s ability to plan and execute data-informed and fleet management readiness decisions. It is achieved through the application and integration of processes, technologies, and knowledge-based capabilities that will allow the Army to achieve and maintain targeted availability, reliability, and cost targets for weapon systems across their life cycle.

Prognostic maintenance
Maintenance actions related to using condition data to influence mitigation of functional failures of (Class VII) repairable systems/subsystems through replacement or repair of subordinate assemblies or related components.

Qualification
Qualification refers to the NMP process for certifying sources of repair as national maintenance providers. This process has two parts: compliance and technical certification. All sources of repair must be compliant. To be compliant, an SOR must demonstrate a documented quality management system. For each component for which the national standard is a DMWR or NMWR, the SOR must pass a technical certification. The technical certification validates that the SOR possesses the necessary facilities, tools, TMDE, skills, and manpower required for the repair. A technical certification is not required for components repaired to TM standard (see qualified national provider).

Qualified national provider
A qualified national provider is an SOR that possesses a documented quality management system and the necessary facilities, tools, TMDE, skills, and manpower required to repair a specific component(s) to the national standard. Qualified national provider qualification is required before facilities may initiate national maintenance repairs. Exceptions may only be granted by the NMM.

Readiness
The capability of a unit/formation, ship, weapon system, or equipment to perform the mission or functions for which it is organized or designed.

Rear detachment equipment
Nondeploying equipment that is accounted for on the units APSR by rear detachment personnel.

Rebuild
Rebuild is maintenance that restores the system to a like-new condition in appearance, performance, and life expectancy. It inserts new technology where practical to improve reliability and maintainability. The rebuild process is a total end item tear down and replacement of all expendable components, all aged components, reconditioning of structural components, and the procedures identified for overhaul of the end item. For rebuild, like-new condition includes technology insertion and results in same model new measurable (expected) life.

Recapitalization
Recapitalization is the rebuild and selected upgrade of currently fielded systems to ensure operational readiness and a near zero-time/zero-mile system.

Recapitalization standard
Recapitalization standard is near zero time/zero miles. Near zero-time standard means that selected components within the system will be replaced with new items or items overhauled to NMP repair standards, which is overhaul with a measurable (expected) life. Obsolete parts will be replaced, and selected technology insertions will be made. For recapitalization, near zero time/zero mile includes technology insertion and results in a new model-new life.

Recapitalization through spares
Replacement of components as they wear out with recapitalized components.

Regional maintenance center
A CE field/sustainment maintenance activity with fixed shops and contact teams that are managed by ASC.

Release action
An order rescinding a suspension or restriction. It puts materiel back in use or releases it from restriction(s). See TB 9–1300–385 for more information.

Reliability–centered maintenance
A logical discipline for developing a scheduled-maintenance program that will realize the inherent reliability levels of complex equipment at minimum cost.

Repair
Restoration or replacement of parts/units to maintain efficient operating conditions.

Repairable item
An item that can be restored to perform all its required functions by corrective maintenance.

Reparable
Class VIII/ IX secondary items that carry an MRC of D, F, H, or L.

Replace
Replace is defined as removal of consumable/repairable unserviceable item/component, and installation of a serviceable item/component in its place. Replace is authorized by the MAC and assigned a maintenance level which is shown as the third position of the source, maintenance, and recoverability code (Class II, III, V, and IX).

Reset
A set of actions to restore equipment to a desired level of combat capability commensurate with a unit's future mission. Reset reverses the effects of combat stress on equipment.

RESET
When viewed in all capital letters, RESET refers to the Army imperative that will systematically restore deployed units to an appropriate level of equipment, Soldier, and family readiness in preparation for future deployments and contingencies.

Restriction
An order placing special working limits on materiel. The limits are set for safety or because of degraded performance.

Retail inter–service support
Support accomplished at the post, installation, and base level and between operating commands with resources that are available to the installation commander.

Satellite material maintenance activity
A maintenance activity geographically removed from its parent installation. A satellite material maintenance activity is authorized equipment maintenance mission to provide economical and timely support maintenance to units and activities whose parent installation cannot meet their needs.

Scheduled preventive maintenance checks and services
Checks and services performed by unit maintenance personnel with assistance from the operation / crew per the TM/ETM 10 series PMCS tables and lube orders. Some equipment also requires scheduled PMCS tasks to be performed by field personnel per the equipment TM/ETM 20 series. All equipment faults are corrected or, if above the unit maintenance level authorization (per MAC) to correct, job ordered to field maintenance. Deferred maintenance is completed during the scheduled service. Upon conclusion of the service, equipment should meet the TM/ETM 10 and 20 series maintenance standards.

Selected upgrade
Selected upgrade rebuilds the system and adds warfighting capability improvements that address capability shortcomings. The result of a recapitalization selected upgrade is a system with a new model and a new life and improved warfighting capability.

Serious defect (applies to ammunition)
Defect resulting from bad design, manufacturing, handling, or storage that may cause malfunctions when ammunition is handled or fired.

Service life surveillance
Post-production inspection, test, and analysis activity that verifies the actual condition of items after periods of use or storage.

Shelf-life
The total period of time beginning with the manufactured date, cured date (elastomeric and rubber products only), assembled date, packed date (subsistence only), or packaging date (SAE AS5502 items only) and terminated by the date which an item must be used (expiration date) or subjected to inspection or test (inspect/test date), restoration, or disposal action. Shelf-life is not to be confused with service life.

Shop replacement unit
A component / module installed in an end item of equipment, system, or LRU that is replaceable only in a repair facility (shop environment) designated in the applicable MAC.

Shortcoming
A fault that requires maintenance or supply action on a piece of equipment but does not render equipment NMC.

Single-standard repair
A process that seeks to ensure a single repair standard is applied to all end items, secondary items, and components that have been repaired and returned to supply.

Special mission alteration
A materiel change, normally of a temporary nature, required for the accomplishment of a special mission.

Special purpose alteration
Materiel changes authorized in appropriate TMs to enable the operation and use of equipment for specific climatic or geographic conditions.

Special repair authority
The specific approval given to a sustainment maintenance unit or activity, with the authorized special tools, test equipment and capability, to repair DA-designated items of materiel coded D or L in MACs for a period of time not to exceed one year.

Spectrometric analysis
A method to determine the concentration of various chemical elements in an oil sample by means of spectroscopy, primarily to detect the presence of abnormal amounts of wear metal that may indicate the potential failure of a component.

Sub-shops
Sub-elements of AMSAs, CSMSs, ECSs, or organizational maintenance sub-shops established when the density of equipment is sufficient to make such an operation cost effective.

Substitute item
An item authorized issue instead of, or in place of, an authorized standard item of like nature and quality. EM 0007 FED LOG identifies items and procedures for making substitutions.

Subsystem
A separately authorized item issued or intended to work with other items to form an operational unit and/or system.

Support equipment
All ancillary and associated equipment (mobile or fixed) required to separate and support a materiel system. This includes ASIOE such as trucks, air conditioners, generators, ground handling and maintenance equipment, tools metrology, calibration and communications equipment, test equipment, and automatic test equipment with diagnostic software for both on and off equipment maintenance.

Support system
Collectively, those tangible logistic support resources required to maintain a materiel system in an operationally ready condition. It is developed with the materiel system and merged with the ongoing logistic systems upon production and development. The following elements of IPS constitute the support system such as support and test equipment, supply support, transportation and handling, technical data, facilities, and trained personnel. The other elements of IPS are how the support system is developed and implemented.

Supportability
A key component of availability. It includes design, technical support data, and maintenance procedures to facilitate detection, isolation, and timely repair / replacement of system anomalies. This includes factors such as diagnostics, prognostics, real time maintenance data collection, and Human System Integration considerations.

Surge
The act of expanding an existing depot maintenance repair capability to meet increased requirements by adjusting shifts; adding skilled personnel, equipment, spares, and repair parts to increase the flow of repaired or manufactured materiel to the using activity; or for serviceable storage.

Suspended munitions
Munitions removed from issue, movement, test, and use with or without limitations. These are removed because of a suspected or known unsafe or defective condition. See TB 9–1300–385 for definitions and instructions on suspensions, restrictions, and release of ammunition.

Sustainment maintenance
Sustainment maintenance is the second operation of the Army Maintenance System. Sustainment maintenance is characterized by the performance of maintenance tasks, “off system” in a secure environment using trained personnel, tools, and TMDE. Sustainment maintenance is typically repair and return to stock and depot-maintenance operations.

Sustainment test support package
An assemblage of support elements provided prior to and used during development and OTs to validate the field and sustainment maintenance requirements and capability. The maintenance test support package includes all required draft equipment publications (operator through sustainment maintenance equipment manuals); parts accessories; special and common tools; test, support, calibration, and maintenance shop facilities; and personnel skill requirements.

System
A combination of equipment end items, assemblies, major components, components, modules, and parts assembled as a single functional unit to perform a task or mission.

System peculiar test, measurement, and diagnostic equipment
TMDE dedicated to peculiar test and repair of a single materiel system or item of equipment.

Tactical enterprise logistics systems
Is a set of synchronized logistics applications and hardware used to track maintenance, property, cost of ownership and other financial transactions related to logistics for all Army Units within GCSS-Army.

Technical inspection
A technical inspection (TI) is a visual or instrumentation driven check performed on a piece of equipment to verify it meets the specifications and conditions required by the Army maintenance standard. TIs are performed upon receipt, prior to repair, evacuation, or turn-in of unserviceable end items, or as directed to determine equipment’s serviceability

Tentative source of repair
SOR decision made by the MATDEV prior to the data being available for a detailed cost-based analysis. Based on the combat developer’s maintenance concept and other judgment factors. The tentative SOR will be used for early depot workload planning but is subject to change as the system is developed. The tentative SOR decision will be replaced by the preliminary SOR decisions as soon as the data are available to do an analysis using the decision-tree methodology.

Test program sets
The combination of interface devices, software test programs (such as those residing in logic storage media or in permanent digital memory), and documentation (for example, TMs and technical data packages) that together allows the automatic test equipment operator to perform the testing/diagnostic action on the UUT.

Test, measurement, and diagnostic equipment
Any system or device used to evaluate the operational condition of an end item or subsystem thereof to identify and/or isolate any actual or potential malfunction. This TMDE includes diagnostic and prognostic equipment; semiautomatic and automatic test equipment, to include test program sets (with issued software); and calibration test or measurement equipment. When the term TMDE is used, it refers to both general-purpose TMDE and special-purpose TMDE.

Theater provided equipment
Permanent theater equipment that has been identified, collected, and positioned forward to offset equipment deployment requirements, fill shortages, fill DA approved operational need statements or to fill MEELs.

Unique item identifier
The UII is a globally unique and unambiguous identifier that distinguishes an item from all other like and unlike items. The UII is a concatenated value that is derived from a UII data set of one or more data elements. For DoD purposes, a compliant UII is either a Construct 1, Construct 2, global individual asset identifier, serialized global returnable asset identifier, vehicle identification number, or electronic serial number (for cell phones only), all of which have their data elements encoded in a DoD compliant two-dimensional data matrix.

Unit identification code
A six-character code assigned to a specific unit. All units' organizations and activities use their own UIC. Contractors, manufacturers, and commercial activities do not have UICs.

Unit maintenance shop
Maintenance facility located in conjunction with a USAR center or Armed Forces Reserve Center for unit training and equipment support.

Unit training equipment sites
An ARNG TDA maintenance facility, which provides full-time field maintenance support to ARNG equipment assigned to the site.

Unsafe condition
An occurrence of hazard severity Category I or II or Military Standard–882. This includes the conditions that cause loss or serious damage to the end item or major components, loss of control, death, serious injury, or illness.

User representative
The combat developer designated to represent the user in development and testing of new or improved systems.

Winterization and/or winterized
The application or installation of auxiliary kits/equipment which may include engine pre-heaters, personnel heater kits and hardtop or insulated closures necessary to pre-heat and start equipment within one hour and maintain a temperature of 41 degrees Fahrenheit in troop compartments when in a temperature range of negative 25 degrees Fahrenheit to negative 60 degrees Fahrenheit. Also includes the use of arctic grade lubricants and fluids for engines, transmissions, gear cases and other assemblies, as necessary.

SUMMARY of CHANGE

DA PAM 750–1
Army Materiel Maintenance Procedures

This major revision, dated 2 February 2023—

- Changes title from Commanders' Maintenance Handbook to Army Materiel Maintenance Procedures (title page).
- Adds material relating to Global Combat Support System–Army (para 1–6).
- Adds Army Enterprise System Integration Program (para 2–1).
- Adds Non-Combat Operations Maintenance Plans (para 4–6).
- Adds various maintenance programs (chap 10).
- Adds additive manufacturing (chap 14).
- Transfers DA Form 5480 (Maintenance Request and Assignment Register) and DA Form 7567 (Special Repair Authority (SRA) Approval/Disapproval Sheet) from AR 750–1 (app A).
- Incorporates guidance from transferred from AR 750–1 (apps B and F).
- Adds information on Unit Corrosion Control and Prevention Program (app F).
- Incorporates procedural material transferred from AR 750–1 (throughout).
- Eliminates Standard Army Maintenance System.
- Eliminates Property Book Unit Supply-Enhanced.
- Eliminates Unit Level Logistics System-Aviation Enhanced.