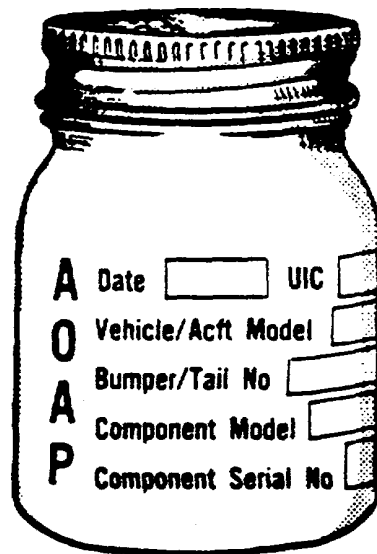
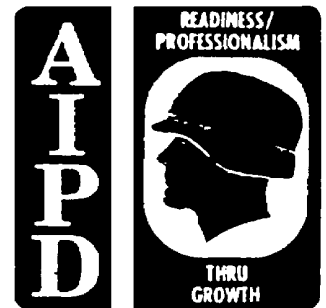


US ARMY ENGINEER SCHOOL

ENGINEER CONSTRUCTION EQUIPMENT MAINTENANCE CONCEPTS AND OPERATIONS



THE ARMY INSTITUTE FOR PROFESSIONAL DEVELOPMENT
ARMY CORRESPONDENCE COURSE PROGRAM



ENGINEER CONSTRUCTION EQUIPMENT
MAINTENANCE CONCEPTS AND OPERATIONS

SUBCOURSE NO EN5266

US Army Engineer School
Fort Leonard Wood, Missouri

Nine Credit Hours

GENERAL

This subcourse is designed to teach the knowledge and skills necessary for performing tasks relating to the administration and management of a maintenance activity at unit level. This subcourse is presented in four lessons, each corresponding to a specific learning objective.

Unless otherwise stated, whenever the masculine gender is used in this publication, both men and women are included.

***** IMPORTANT NOTICE *****

**THE PASSING SCORE FOR ALL ACCP MATERIAL IS NOW 70%
PLEASE DISREGARD ALL REFERENCES TO THE 75% REQUIREMENT.**

Lesson 1: FUNDAMENTALS OF MAINTENANCE SUPERVISION

TASK

Describe the basic procedures required for supervision of a unit-level maintenance activity.

CONDITIONS

You will be given information describing the Army Maintenance System, responsibilities for maintenance supervision, and how to write standing operating procedures (SOP).

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding correctly to 70 percent of the examination questions pertaining to this lesson.

(This objective supports Soldier's Manual (SM) Tasks 051-235,3411, Supervise Personnel Adjusting, Repairing, and Replacing Parts and/or Components on Engineer Construction Equipment; and 051-235-4420, Assist the Commander in Preparing a Shop Maintenance SOP.)

Lesson 2: FUNDAMENTALS OF MAINTENANCE OPERATIONS

TASK

Describe basic maintenance operations.

CONDITIONS

You will be given information describing workload organization, inspections, and the Army Oil Analysis Program.

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding correctly to 70 percent of the examination questions pertaining to this lesson.

(This objective supports SM Tasks 051-235-2490, Perform an Organizational Inspection; 051-235-3441, Perform an Initial Maintenance Inspection; 051-235-3442, Perform a Final

Maintenance Inspection; and 051-235-4425, Plan and Conduct Workflow.)

Lesson 3: TACTICAL AND GARRISON MAINTENANCE SITES

TASK

Describe the procedures for establishing both tactical and garrison maintenance facilities.

CONDITIONS

You will be given information describing the correct procedures for establishing tactical and garrison maintenance.

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding to 70 percent of the examination questions pertaining to this lesson.

(This objective supports SM Tasks 051-235-3424, Establish a Tactical Motor Pool; and 051-235-4430, Determine the Site for a Tactical Maintenance Facility.)

Lesson 4: FUNDAMENTALS OF SUPPLY OPERATIONS

TASK

Describe correct procedures for conducting supply operations in a unit-level maintenance facility.

CONDITIONS

You will be given information describing supply operations which must be conducted by a unit-level maintenance.

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding correctly to 70 percent of the examination questions pertaining to this lesson.

(This objective supports SM Task 051-235-3416, Inventory Tool Kits and Tool Sets.)

Extract of FM 29-2: Appendix B, Sample Battalion
Maintenance Standing Operating Procedure.....164

EXAMINATION.....E-1
STUDENT INQUIRY SHEET (SUBCOURSE CONTENT).....Following Exam
STUDENT INQUIRY SHEET (ADMINISTRATIVE).....Following Exam

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INTRODUCTION

The Army's mission "to perform prompt and sustained combat on land" implies the readiness to go at any time with what we have in manpower and material resources. Effective firepower and mobility depend on our ability to perform the maintenance necessary to keep equipment and material in operating condition. To maintain combat effectiveness, we need to strengthen our entire maintenance system, with emphasis on the user level. Our equipment continually becomes more complex. This all adds to the requirement for improved maintenance at all levels. The growing demands for force readiness mean that we must approach our maintenance responsibility with added enthusiasm. How does a supervisor manage maintenance? Why does he or she manage maintenance? What about all the other things that a supervisor must manage, such as supply, training, operations, and personnel? This subcourse answers some of those questions.

LESSON 1

FUNDAMENTALS OF MAINTENANCE SUPERVISION

TASK

Describe the basic procedures required for supervision of a unit-level maintenance activity.

CONDITIONS

You will be given information describing the Army Maintenance System, responsibilities for maintenance supervision, and how to write SOPs; an ACCP Examination Response Sheet; and a No. 2 pencil.

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding correctly to 75 percent of the examination questions pertaining to this lesson.

REFERENCES

DA Pam 738-750
FM 29-2

Lesson 1/Learning Event 1

Learning Event 1
THE ARMY MAINTENANCE SYSTEM

Unit maintenance is one part of an overall system to provide maintenance support to the Army's equipment. The system is made up of three levels, as shown in Table 1 below. Each level makes a different contribution to the overall system.

TABLE 1. THE ARMY MAINTENANCE SYSTEM

	UNIT	INTERMEDIATE		DEPOT
		(Direct Support)	(General Support)	
Who →	<ul style="list-style-type: none"> ● User 	<ul style="list-style-type: none"> ● Intermediate maintenance direct support units ● Installation support maintenance shop 	<ul style="list-style-type: none"> ● Intermediate maintenance general support units ● Installation support maintenance shops 	<ul style="list-style-type: none"> ● TDA activities ● Industrial-type activities ● Commercial contractors
When →	<ul style="list-style-type: none"> ● Equipment location ● Unit maintenance shops ● Unit maintenance collecting point (UMCP) 	<ul style="list-style-type: none"> ● Mobile maintenance shops ● Fixed shops in installations ● Equipment location ● Unit maintenance collecting point (UMCP) ● Maintenance collecting point 	<ul style="list-style-type: none"> ● Semifixed maintenance shops ● Installation maintenance shops ● Equipment location on an exception basis 	<ul style="list-style-type: none"> ● Fixed plant-type facilities ● On site on exception basis
What →	<ul style="list-style-type: none"> ● Preventive maintenance checks and services (PMCS) ● Inspections ● Lubrication and cleaning ● Preserving ● Tightening ● Minor adjustment ● Replacement of piece parts ● Recovery of unserviceables 	<ul style="list-style-type: none"> ● Diagnose and isolate faults on equipment/ components and assemblies ● Adjust, calibrate, and align components and assemblies ● Operate a direct exchange activity ● Light body repairs ● Technical assistance ● Evacuate unserviceables 	<ul style="list-style-type: none"> ● Diagnose and isolate faults on equipment, components and assemblies to the internal piece part level ● Adjust, calibrate, align and repair components, assemblies and modules ● Repair/modification of end items/ components and assemblies to the internal piece part level ● Heavy body, hull, turret, frame repair ● Collection and classification of unserviceable class VII ● Evacuate disposable material ● Technical assistance 	<ul style="list-style-type: none"> ● Overhaul of end items/ components, assemblies and modules to manufacturers tolerances ● Repairs requiring special environmental facilities ● Nondestructive testing of used parts ● Inspections/ modifications requiring extensive disassembly or elaborate test equipment ● Cyclic overhaul and special maintenance programs ● Manufacture of parts not otherwise obtainable
How →	<ul style="list-style-type: none"> ● Diagnosis & isolation of failures ● Use of built-in test equipment, simple go/ no-go indicators installed ● Instrumentation and external diagnostic/ fault isolation devices 	<ul style="list-style-type: none"> ● Replacement of components and assemblies, modules and piece parts ● Provide highly mobile maintenance support teams (MST) ● Use of direct exchange (DX) and operational readiness fleet (ORF) 	<ul style="list-style-type: none"> ● Replace components, assemblies and modules and performance of repairs not requiring restoration to original manufacturers' tolerances or specifications ● Operate cannibalization point(s) 	<ul style="list-style-type: none"> ● Wholesale level direct exchange ● Restoration of unserviceables to prescribed levels of serviceability ● Modernization of serviceable assets
Why →	<ul style="list-style-type: none"> ● Sustain material readiness 	<ul style="list-style-type: none"> ● Support using unit by repair and return of equipment to user 	<ul style="list-style-type: none"> ● Support of the theater supply system 	<ul style="list-style-type: none"> ● Support of the supply system

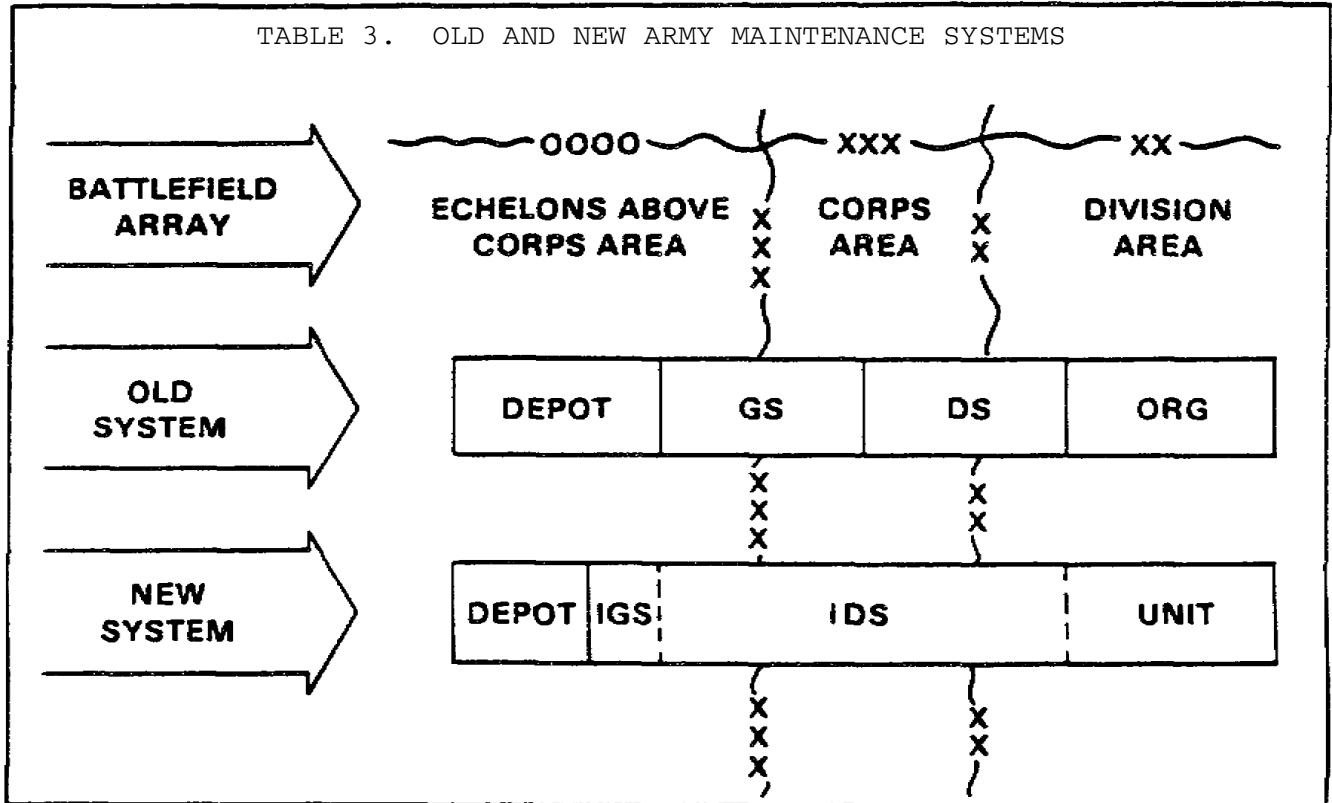
The maintenance system sustains the combat power which can be placed against the enemy. It influences the outcome of a battle by returning equipment to the combat unit while that battle is still being fought. Obviously, equipment that takes longer to repair cannot be used to help win a current battle, but it can contribute to winning future battles. Table 2 illustrates the battlefield role of the various maintenance levels.

TABLE 2. BATTLEFIELD ROLES BY MAINTENANCE LEVEL

MAINTENANCE LEVELS	ROLE ON THE BATTLEFIELD
UNIT	<ul style="list-style-type: none"> ● Perform battle damage assessment ● Keep equipment working ● Identify failures ● Conduct on-site repair ● Perform battalion trains maintenance ● Recover equipment ● Establishment and operate a unit maintenance collecting point (UMCP)
INTERMEDIATE DIRECT SUPPORT	<ul style="list-style-type: none"> ● Repair and return to user ● Establish and operate an MCP ● Provide recovery and evacuation support ● Provide on-site support with MSTs ● Designated nondivisional intermediate (DS) maintenance units provide reinforcing support to divisional maintenance
INTERMEDIATE GENERAL SUPPORT	<ul style="list-style-type: none"> ● Repair and return materiel to theater supply system
DEPOT	<ul style="list-style-type: none"> ● Repair and return items to stock ● Provide support in theater of operations

Lesson 1/Learning Event 1

The change to three-level Maintenance is based on the need to support a highly mobile and sophisticated fighting system and the relative lack of mobility by the old general support units that were in the corps area. Table 3 shows a comparison of the old and new systems and their array on the battlefield.



UNIT MAINTENANCE

This level of the new system corresponds to the operator and organizational categories of the old system. Maintenance is characterized by quick turnaround time of replacement of parts and minor repairs. Operators and maintenance personnel make maximum use of built-in test equipment (BITE) to support battle damage assessment and repair (BDAR). Systems mechanics provide in-depth technical skill at the unit level. Repair parts stockage is based on combat prescribed load lists (PLL), which consist of demand support items desired in stock and those items required for stockage by a maintenance parts list (MPL). Direct exchange (DX) is used to support quick turnaround. Repair times at this level generally do not exceed 4 to 6 hours.

INTERMEDIATE MAINTENANCE

This level has two categories: intermediate direct support (IDS) maintenance and intermediate general support (IGS) maintenance, as follows:

The IDS maintenance units are employed at different locations, but the tasks performed are the same. These units are found in the brigade, division, and corps, and in the echelons above corps (EAC) areas. Selected nondivisional IDS maintenance units provide backup maintenance support to divisional maintenance units. This type of maintenance is characterized by repair, replacement, high mobility, forward orientation, and maintaining a high-volume, fast-moving operational readiness float (ORF). Units can be readily organized into teams to support specific systems and to project support forward on the battlefield. Suitcase-type automatic test equipment (ATE) is used to support BDAR. Repair parts stockage is based on a combat authorized stockage list (ASL). Divisional IDS maintenance units are structured to provide dedicated support to brigades and battalions. This includes repair of selected high-usage components for DX. Repair times generally do not exceed 36 hours.

The IGS maintenance units are located behind the corps and provide support to the theater supply system through repair of class VII and class IX items. Their work is job or promotion-oriented and is performed by modular units with commodity-oriented platoons in semifixed facilities. Teams may be added to provide an area support capability as required. The General Support (GS)-type ATE is used to support operations. The IGS maintenance units do not have an ASL; however, they maintain a shop stock as required for assigned missions. The units maintain theater reserve stocks in overall support of theater requirements.

DEPOT MAINTENANCE

Maintenance at this level is production-line oriented and is performed in support of the supply system. Work is done by special repair activities, United States Army Materiel Command (AMC) depot employees, and/or contractor personnel. The unit missions support overseas propositioning of materiel configured to unit sets (POMCUS), repair cycle float (RCF), and war reserve stocks. Repair parts supply support for depot maintenance is limited to items to support assigned maintenance missions.

Lesson 1/Learning Event 1

As a supervisor, you must remember that unit maintenance is the foundation of the Army's maintenance system. It supports the needs of the user by keeping equipment in operation. The quality and timeliness of unit maintenance operations directly affect the combat readiness of the Army.

Learning Event 2

MAINTENANCE SUPERVISION RESPONSIBILITIES

All supervisors have certain responsibilities for personnel and maintenance supervision. Personnel are the most important resource and, as a supervisor, you must ensure that this resource is not wasted. A goal for the maintenance supervisor to establish is to have all table(s) of organization and equipment (TOE) slots filled with personnel holding the correct military occupational specialty (MOS) and pay grade. One of the most difficult jobs of the maintenance supervisor is to establish priorities in the face of conflicting requirements. The supervisor must work with the assigned personnel to ensure that they--

- Are used correctly within the unit.
- Are accounted for.
- Are supervised.
- Are motivated.
- Have their skills developed.

All personnel, from the battalion commander to the vehicle driver, play an important part in the supervision of resources such as manpower. All resources must be in sufficient quantity when needed, if the maintenance job is to be completed.

In this learning event, the maintenance responsibilities of each level of command, from squad leader to battalion commander, will be discussed and you will be shown how each level interfaces with the other levels.

PERSONNEL RESPONSIBILITIES

Platoon Leader. The platoon leader is responsible for all matters relating to the discipline, training, welfare, and control of personnel assigned to the platoon. The platoon leader is directly responsible for--

- Advising the unit commander of platoon requirements in the maintenance program.
- Executing the maintenance program at the platoon level.

Lesson 1/Learning Event 2

- Recommending program changes to the company commander to facilitate mission requirements.
- Coordinating platoon maintenance requirements with the motor officer.
- Ensuring platoon compliance with the unit maintenance SOP.
- Managing the platoon maintenance training program.
- Accounting for the availability and serviceability of platoon equipment.
- Reporting vehicle and equipment status to the motor officer as required.
- Ensuring the availability of all personnel when required services are due on platoon equipment.
- Accounting for everything the platoon does or fails to do in the maintenance area.

Platoon Sergeant. The platoon sergeant assists the platoon leader in all matters relating to discipline, training, welfare, and control of personnel assigned to the platoon. The platoon sergeant's maintenance responsibilities include--

- Advising the platoon leader on maintenance requirements.
- Assisting the platoon leader in the execution of the maintenance program.
- Recommending changes to the platoon leader to facilitate mission accomplishment.
- Ensuring the availability of needed expendables to support the platoon maintenance program.
- Coordinating platoon maintenance requirements with the unit motor sergeant.
- Supervising the platoon maintenance program.
- Ensuring that the platoon vehicle and equipment status reports are prepared and submitted.

Squad Leader. The squad leader is the link between the platoon sergeant and the personnel in the squad. He assists the platoon sergeant in matters relating to maintenance, discipline, training, welfare, and control of personnel assigned to his squad. He is responsible for the accountability of his personnel at all times. The squad leader ensures that his personnel comply with the maintenance SOP and is responsible for ensuring that his vehicles and equipment are scheduled for maintenance when necessary and are always in an operational condition.

Motor Sergeant. The unit motor sergeant is the noncommissioned officer-in-charge (NCOIC) of the maintenance section. He assists the motor officer in all matters relating to discipline, training, welfare, and control of the people assigned to the maintenance section. The motor sergeant supervises and assists the unit's maintenance personnel and equipment operators/crews in the proper performance of unit maintenance on organizational vehicles, materials handling equipment, electrical power generating equipment, and similar unit items. The motor sergeant's responsibilities include the following:

- Controlling the daily dispatching of unit vehicles and equipment.
- Maintaining required records and reports pertaining to equipment operation and maintenance.
- Instructing and assisting less skilled personnel in the proper operating and maintenance practices and procedures.
- Assisting motor pool personnel in the correct interpretation and application of instructions contained in appropriate technical manuals, technical bulletins, lubrication orders, modification work orders, and other publications and directives pertaining to the maintenance of vehicles and equipment.
- Planning and organizing work schedules and coordinating equipment downtime for maintenance with the using section.
- Assigning duties to the unit mechanics and personnel under his control.
- Drafting and implementing the unit shop operations SOP.

Lesson 1/Learning Event 2

Motor Officer. The motor officer position is an additional duty assigned to an officer, normally the executive officer, of the unit. The motor officer is responsible for the following:

- Developing the unit maintenance program.
- Coordinating maintenance operations with supporting units.
- Drafting the unit maintenance SOP.
- Briefing all incoming officers and noncommissioned officers (NCO) on the unit maintenance SOP.
- Keeping the commander informed daily on the operational status of all equipment.
- Monitoring all aspects of unit maintenance operations to ensure maximum effective utilization of resources and equipment.
- Planning and organizing work schedules and coordinating equipment downtime for maintenance with the using section.
- Assigning duties to the unit motor sergeant.

First Sergeant. The first sergeant is the senior NCO of the unit. The first sergeant should be the source of most of the guidance received by the platoon sergeants and the unit commander's source of information and advice on all matters pertaining to the soldiers. In the maintenance realm, the first sergeant sets the example for all other soldiers by--

- Attending scheduled maintenance periods.
- Ensuring that all first-line supervisors, platoon sergeants, and staff NCOs attend and participate during scheduled maintenance periods.
- Knowing the unit's personnel gains, losses, strengths, and weaknesses and advising the commander accordingly.
- Checking maintenance operations continually, from the operator through the motor sergeant, and correcting where necessary.

- Identifying maintenance operational weaknesses and executing corrective actions through the NCO chain, advising the commander as appropriate.

Unit Commander. The unit commander is responsible for all matters relating to mission accomplishment, discipline, training, welfare, and control of personnel and equipment assigned to the unit. He must supervise and ensure timely completion of all company activities. His responsibilities include--

- Analyzing the unit maintenance situation.
- Directing the unit motor officer to prepare the unit maintenance program in line with the battalion program.
- Providing command guidance to the unit motor officer.
- Directing implementation of the unit maintenance program.
- Supervising the execution of the maintenance program.
- Evaluating the maintenance program.
- Suggesting changes to the battalion maintenance program.

Battalion Maintenance Sergeant. The battalion maintenance sergeant is the NCOIC of organic motor pool operations. He is directly responsible for the following:

- Supervising shop operations.
- Making daily work assignments.
- Supervising scheduled maintenance services, tests, troubleshooting repairs, use of tools and test equipment, replacement of parts, safety, and on-the-job (OJT) programs.
- Drafting and maintaining the shop operation SOP.
- Controlling the daily dispatching of battalion vehicles.
- Providing assistance to company motor sergeants when needed.

Lesson 1/Learning Event 2

Battalion Maintenance Technician (Combat Service Support units only). The battalion maintenance technician is the technical expert in the battalion maintenance operation. He is the principal assistant to the battalion maintenance officer (BMO). His responsibilities include--

- Organizing and supervising the records and quality control sections.
- Supervising unit maintenance of material and auxiliary equipment.
- Controlling the flow of repair parts requests and assisting in the scheduling of maintenance and repairs from the companies to the IDS unit.
- Monitoring preventive maintenance services, directing quality control inspections of maintenance operations and records, and analyzing equipment deficiencies and failures.
- Recommending new maintenance procedures to the BMO.
- Reviewing equipment status reports for the BMO.
- Serving as battalion maintenance officer in the absence of the BMO.

Battalion Maintenance Officer. The BMO is the battalion commander for maintenance operations. The BMO keeps the commander and staff informed of the operational status of material and auxiliary equipment. The BMO's responsibilities include--

- Analyzing the maintenance situation.
- Planning and evaluating the maintenance program.
- Coordinating operations with IDS units and other units, as required.
- Supervising prescribed load list (PLL) supply as well as recovery and evacuation of equipment, components, and parts.
- Supervising maintenance services and monitoring the training and licensing of vehicle drivers and equipment operators.
- Monitoring and coordinating unit maintenance operations.

- Compiling and consolidating material condition status reports for the commander.
- Ensuring that all recurring maintenance reports are consolidated and forwarded to higher headquarters as required.
- Drafting and maintaining the maintenance annex to the battalion SOP.
- Briefing all incoming officers on the maintenance SOP.

Battalion Supply Officer. The battalion supply officer (S4) is very important to the maintenance and supply operations of the battalion. The S4 is responsible for--

- Monitoring equipment shortages.
- Monitoring vehicle age and mileage.
- Coordinating with the BMO on turn-in procedures.
- Monitoring changes in equipment (deletions and additions of basic issue items (BII), tool sets, and kits).
- Allocating funds for tools and housekeeping items.
- Ensuring that organic and attached units are provided rations, water, gasoline, lubricants, unit and individual supplies, and ammunition.
- Advising the battalion commander on the status of unit supply and maintenance.
- Maintaining property books for organic units when required.
- Ensuring that unit supply operations are conducted according to regulations, including repair parts supply.

Lesson 1/Learning Event 2

Command Sergeant Major. The battalion command sergeant major is the senior NCO of the unit. The command sergeant major should be the source of most of the guidance received by the first sergeant, and should be the battalion commander's source of information and advice on all matters pertaining to soldiers. In the maintenance realm of responsibility, the command sergeant major sets the example for all other soldiers by--

- Attending scheduled maintenance periods.
- Ensuring that the unit first sergeants and staff NCOs, as well as first-line supervisors, attend and participate in scheduled maintenance periods.
- Checking maintenance operations continually, from the operator through the battalion motor sergeant, and correcting where applicable.
- Identifying maintenance operational weaknesses and executing corrective action through the NCO chain.
- Knowing the units' personnel gains, losses, strengths, and weaknesses and advising the battalion commander accordingly.

Battalion Executive Officer. The battalion executive officer (XO) acts as principal assistant and advisor to the battalion commander. The XO supervises the details of operation and administration, thereby enabling the commander to devote maximum time to new or unusual problems. The XO keeps abreast of the logistical and tactical situations and future plans and is constantly prepared to assume command in the absence of the commander. The responsibilities of the XO in the maintenance field are--

- Supervising plans and reviewing periodic and special reports to be submitted to higher headquarters.
- Serving as battalion logistics readiness officer.
- Directing staff analysis of the maintenance situations.
- Evaluating the maintenance program.
- Recommending changes to the maintenance program.

Battalion Commander. The battalion commander commands and provides direction to the units of the battalion. He assigns the duties of the staff officers and establishes the necessary policies and guidelines that will enable the battalion to effectively accomplish its maintenance program. The battalion commander's specific responsibilities in the maintenance program include--

- Rendering advice and assistance in planning the program for unit maintenance that is performed by maintenance personnel on battalion equipment.
- Exercising command supervision over maintenance activities throughout the battalion.
- Advising brigade or higher headquarters of all aspects of maintenance and repair parts supply requirements and repair parts supply support, problem areas, recommended solutions, and anticipated requirements.
- Directing maintenance and repair parts supply policies and guidelines within the battalion.
- Monitoring The Army Maintenance Management System (TAMMS) data accumulators, analysis, and transmission.

SAFETY RESPONSIBILITIES

Safety is a command responsibility, and commanders at every level are responsible for conducting a continuous, vigorous effort to prevent accidents in all operations and activities. Commanders must ensure that adequate provisions for safe practices and physical standards are incorporated into all directives, SOPs, and training doctrine.

All supervisory personnel assist the commander in the unit accident prevention program by requiring adherence to established safety procedures. They orient new personnel, teach safe practices, enforce rules and regulations, investigate accidents, prepare and submit accident reports, and conduct safety inspections and safety meetings as required. No one is better qualified or in a more strategic position to discover and correct safety hazards than the supervisors within an activity. They deal directly with both the worker and the job. They are in the best position to improve the worker's skill, knowledge of the job, and attitudes toward the job. Additionally, they insist on safe

Lesson 1/Learning Event 2

practices on the job and ensure that unsafe working conditions are corrected. When they fail in any one of these responsibilities, they can expect inefficient and costly results. Supervision is a method of preventing accidents through continuous instruction and guidance, official persuasion, and recourse to enforcement when necessary. Supervision is a basic accident-prevention control; it is based on the principle that safety standards can be ensured if the training and development of good work habits are provided. Individual competency will then be ensured regardless of whether or not the supervisor is in the area. When a supervisor fails in this respect, constant observation and frequent enforcement become necessary.

During this learning event, we discussed the maintenance responsibilities from the squad leader to the battalion commander and how they interface with each other. Remember that however well developed a program may be, it will fail or be inefficient if the supervisors do not apply themselves.

Learning Event 3

MAINTENANCE SUPERVISION

Maintenance management is the way the commander brings together people, equipment, tools, supplies, repair parts, facilities, publications, and time to promote operational readiness.

SUPERVISORY FUNCTIONS

The supervisory process is organized into five functions: planning, organizing, coordinating, directing, and controlling. The supervisor usually deals with several or all of them at the same time. Feedback enables the supervisor to evaluate the situation and adjust the process to reach the desired goal. Let us look briefly at each of the supervisory functions.

- Plan. Planning shows the way to reach a goal or objective. The supervisor must have a clear idea of what needs to be done. Once the objective is known, the supervisor outlines the steps to reach it. Judgment and experience are used to develop a plan that will get the job done on time, within required standards, and with the least resources.

- Organize. The organizing function provides a tentative list of required resources and a schedule for meeting the plan.

- Coordinate. Detailed coordination ensures that resources will be available and that the organization can support the plan.

- Direct. When resources have been organized and coordinated, the supervisor directs their application according to the plan.

- Control. The supervisor controls the use of resources to ensure that work is on schedule and according to the desired standards. The chain of command usually assists in this function. Feedback from reports and personal observation ensures that the operation is being carried out. When the objective or level of resources changes, the supervisor may need to modify the original plan. The cycle repeats until the job is done.

SUPERVISORY TECHNIQUES

Maintenance supervision is a demanding and difficult job and is influenced by many factors. There is usually a high sense of urgency to get results. There are conflicting demands for the supervisor's time. Each supervisor develops an individual style to meet the challenges of the job. There are different approaches to supervision, but the following are most common:

Reactive Management. The inexperienced supervisor usually reacts to requirements as they occur and confronts one challenge at a time. This is called reactive or crisis management. The theory is to concentrate resources against a particular requirement, overwhelm it, and move on. This works well in a true crisis. In day-to-day maintenance operations, however, there is seldom one crisis at a time. Unit mission requirements and the training schedule change frequently. What is important today may not be so important tomorrow. The reactive manager has to constantly juggle limited resources and stays too long on individual projects to effectively manage the overall operation.

Proactive Management. The strategy of proactive management is to influence events before they happen. The proactive manager anticipates requirements and plans for the best use of resources. Time is his most important resource and he uses it to gain the most benefit for the organization. He directs the efforts of personnel productively while finding time for management. The most important part of supervision is identifying objectives and priorities. The proactive manager knows that effective planning depends on determining what needs to be done and in what sequence. He directs available resources first toward those actions that will be most productive for the organization.

SUPERVISORY FACTORS

Maintenance supervision deals with various factors--command emphasis, management supervision, motivation, skill, and resources--which affect the way the unit does its maintenance mission. The supervisor uses these factors as tools to help him guide the effort in the proper direction. Failure to achieve desired results often stems from failure in one or more of the maintenance factors. Corrective action depends on the supervisor's ability to recognize which factors need to be influenced.

Command Emphasis. The commander sets the tone for what is and is not important within his command. To place command emphasis on maintenance operations, the commander must show an active interest in maintenance operations and the material readiness of unit equipment. Command emphasis, the most important supervisory factor, influences maintenance and the supervisor may use it to support the mission. Personal examples, words, and actions are the best means to demonstrate the areas to be emphasized.

Management. The maintenance supervisor must constantly strive to improve operations. Since the management process itself plays a key role in maintenance operations, the supervisor should always be alert for ways to improve planning, organizing, coordinating, directing, and controlling, as well as obtaining feedback on results. Under the stress of day-to-day operations these elements lose visibility and may not seem to have a direct bearing on material readiness. However, a small improvement in the "system" brings greater overall benefits than a "heroic" effort on one or two items.

Supervision. The commander depends on the first-line supervisor for accomplishing the mission and ensuring the welfare of the soldiers. The supervisor is a vital link in the chain of command. Receiving instructions and turning them into tangible results and passing along the commander's requirements are only minor responsibilities. The major challenge lies in making sure the people being supervised can accomplish the mission. The supervisor is the individual soldier's primary source of assistance and further professional development. Knowing proper maintenance procedures and being technically proficient in the tasks to be done by the soldiers, the supervisor also needs to know the standards and objectives set by the chain of command so that the efforts of the soldiers are guided in the proper direction. Being constantly aware of mission requirements and the capabilities and limitations of the soldiers, the supervisor must look beyond peacetime day-to-day operations and train soldiers to support the needs of the battlefield. Next to the mission, the welfare of the soldiers and their professional development should be most important.

Lesson 1/Learning Event 3

Motivation. Motivation is the desire of the individual to perform a specific task. The leadership demonstrated by commanders and supervisors greatly influences the motivation of soldiers under their control. Strong leadership is the key to motivation. The strong leader defines the objectives, communicates them, evaluates how well they are being achieved, and provides feedback to the people doing the work. Most soldiers want to perform well, but they must know "the rules of the game," the standards expected of them, and how they are doing. Superior achievement should be recognized, and the supervisor should have an active interest in the unit award program.

Skill. Skill is the technical ability to do the tasks associated with one's duty position. Training is the means which provides skills to individuals. The skill of the soldiers is one of the commander's most important assets. The Army training system depends on the unit commander to continue the training process begun during advanced individual training. A large number of training resources are available, and the commander and maintenance supervisor should use these to the maximum advantages. Soldier's manuals, individual job books, skill qualification test (SQT) results, and personal observation provide the first-line supervisor the means to evaluate and improve the skills of the soldiers.

Resources. Resources are the tangible and intangible assets needed to get the job done. They include people, tools and test equipment, repair parts, publications, facilities, time, skills, funds, and other items. The maintenance supervisor's goal should be to maintain readiness at the required level with the least amount of resource expenditure. The supervisor determines the resources needed to support specific mission requirements and advises the commander on the logistic impact of various courses of action.

Learning Event 4

STANDING OPERATING PROCEDURE

A standing operating procedure provides the foundation of the unit maintenance program. The SOP is the standing order of the commanding officer. It carries the same weight and authority as any other lawful order of the commander. Failure to comply with the SOP may subject individuals to disciplinary action. The SOP is developed for common and repetitive situations. It frees the supervisor to work on nonroutine projects or problem areas. A sound maintenance SOP is essential to the success of tactical operations and administrative and logistical procedures. The SOP provides a guide for inexperienced personnel. Copies of the SOP should be available for ready reference. New personnel should be briefed on the unit program and either provided a copy of the SOP or shown where they can get one.

The SOP is a "living" document. It should be tailored to the needs of the unit. Duties and responsibilities of maintenance personnel need to be spelled out. The soldiers need to know how they are expected to contribute to the overall program. The SOP should be printed in the most effective and convenient form. When a better way is found to do an operation, it should be included in the SOP. Changes to the maintenance program should be posted in the unit SOP. If it is impractical to post the changes to all copies, one or two complete record copies should be maintained. When pen and ink changes interfere with clarity or continuity, a new printing is needed. The commander must ensure that changes to the SOP are coordinated and that everyone understands the new procedures.

CONSIDERATIONS FOR AN SOP

1. The SOP must provide a functional organization for maintenance and recognize the need for mission accomplishment, quality workmanship, and tool control.
2. Command policies should be brief statements of what will be done.
3. Appendixes should be used for detailed organization and procedures.
4. Terms that are not common should be defined.

Lesson 1/Learning Event 4

5. Workflow, inspection, and verification of services should be continuous.
6. Scholarly treatment, staff jargon, and directives readily available in Army regulations, technical manuals, and other official publications should be avoided.

SOP FORMAT

An SOP generally has a standardized format that includes a heading, a body, and a close (authentication).

Heading. The heading identifies the unit which prepared the SOP, its location, and mailing address. It gives the date of issue, provides a file or SOP number for reference, and gives the SOP title.

Body. The information in the body of the SOP is tailored to the needs of the preparing unit.

Close (Authentication). The close of the SOP contains the signature of the commander, a list of the annexes to the SOP, and the distribution. When the SOP is an annex to a higher-level document, the close contains the signature of the authenticating officer of the responsible staff element. In this case, the signature of the commander is not required. Refer to Extract of FM 29-2, Appendix B, Sample Battalion Maintenance Standing Operating Procedure.

LESSON 1

REVIEW EXERCISE

Check your understanding of Lesson 1 by completing this review exercise. Try to complete it without looking back at the lesson. When you have completed the exercise, turn to the solutions at the end of the lesson and check your responses. If you do not understand a solution, go back and restudy the section in this lesson where the information is given.

1. Which maintenance level operates from semifixed shops?
 - A. Unit
 - B. IDS
 - C. IGS
 - D. Depot

2. Which maintenance level operates a direct exchange activity?
 - A. Unit
 - B. IDS
 - C. IGS
 - D. Depot

3. Which maintenance level supports the theater supply system?
 - A. Unit
 - B. IDS
 - C. IGS
 - D. Depot

Lesson 1/Review Exercise

4. Repair times at unit level generally do not exceed _____ hours.
- A. 4 to 6
 - B. 6 to 8
 - C. 8 to 10
 - D. 10 to 12
5. Repair times at intermediate direct support level generally do not exceed _____ hours.
- A. 12
 - B. 24
 - C. 36
 - D. 48
6. An authorized stockage list is not maintained at _____ level.
- A. Unit
 - B. IDS
 - C. IGS
 - D. Depot
7. Divisional IDS maintenance units provide dedicated support to _____ .
- A. Battalions and brigades
 - B. Brigades and divisions
 - C. Divisions and corps
 - D. Corps and Army

Lesson I/Review Exercise

8. Suitcase-type automatic test equipment (ATE) is used to support _____.
- A. ORF
 - B. BDAR
 - C. ASL
 - D. AMC
9. Who is responsible for executing the maintenance program at platoon level?
- A. Platoon leader
 - B. Platoon sergeant
 - C. Squad leader
 - D. Motor sergeant
10. Who is responsible for ensuring that all first-line supervisors, platoon sergeants, and staff NCOs attend and participate during scheduled company maintenance periods?
- A. Platoon leader
 - B. Platoon sergeant
 - C. Company commander
 - D. First sergeant
11. Which of the following tasks is not a maintenance responsibility of the battalion XO?
- A. Evaluating the maintenance program
 - B. Serving as battalion logistics readiness officer
 - C. Recommending changes to the maintenance program
 - D. Allocating funds for tools and housekeeping items

Lesson 1/Review Exercise

12. The most important supervisory factor in the maintenance mission is _____.
- A. Command emphasis
 - B. Management
 - C. Supervision
 - D. Motivation
13. The unit SOP carries the same weight and authority as a/an _____.
- A. Army regulation
 - B. Post regulation
 - C. Command bulletin
 - D. Lawful order
14. The standardized format for an SOP includes a body, a close, and a/an _____.
- A. Introduction
 - B. Reading
 - C. Index
 - D. Preamble
15. The technical ability to do the tasks associated with one's duty position is a/an _____ .
- A. Resource
 - B. Act
 - C. Trade
 - D. Skill

REVIEW EXERCISE SOLUTIONS

1. C (page 2)
2. B (page 2)
3. C (page 2)
4. A (page 4)
5. C (page 5)
6. C (page 5)
7. A (page 5)
8. B (page 5)
9. A (page 7)
10. D (page 10)
11. D (page 14)
12. A (page 19)
13. D (page 21)
14. B (page 22)
15. D (page 20)

Lesson 2

LESSON 2

FUNDAMENTALS OF MAINTENANCE OPERATIONS

TASK

Describe basic maintenance operations.

CONDITIONS

You will be given information describing workload organization, inspections, and the Army Oil Analysis Program; an ACCP Examination Response Sheet; and a No. 2 pencil.

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding correctly to 75 percent of the examination questions pertaining to this lesson.

REFERENCES

AR 725-50
AR 750-1
AR 750-22
DA Pam 738-750
FM 29-2
FM 29-23
SB 700-20
TB 43-0002 Series
TB 43-0140
TB 43-0210

Learning Event 1 WORKLOAD ORGANIZATION

The unit maintenance workload can be organized into broad categories for management control as shown in Figure 1. During maintenance operations the right personnel, tools, equipment, publications, records and reports, supplies, repair parts, and time must be brought together to do the job. These operations fall into the areas of operator/crew preventive maintenance checks and services (PMCS), unit level repair, provision of repair parts, requests for higher-level support, scheduled services, and dispatch of equipment. The procedures to guide these operations should be provided by the unit SOP. This learning event provides a type of workload organization which may be adapted to suit individual unit requirements.

MAINTENANCE CYCLE

Most maintenance requirements are part of the maintenance cycle shown by Figure 1 on page 30. The requirement is usually identified while the equipment is in use. The equipment is taken out of use, the required maintenance operation is performed, and the equipment is put back into use.

OPERATOR/CREW PMCS

The daily PMCS is the foundation of the unit's maintenance program. Some types of maintenance requirements are identified by other means, such as malfunctions, oil analysis, and command checks. However, the daily PMCS ensures that the readiness of all applicable equipment is checked on a recurring basis and that a record is made of faults which cannot be corrected on the spot. Maintenance record keeping begins with Department of the Army (DA) Form 2404 (Equipment Inspection and Maintenance Worksheet). Figure 2 on page 31 shows the workflow for the daily PMCS. The operator/crew follow the PMCS inspection steps listed in the applicable operator's manual. On-the-spot corrections are made whenever possible.

Faults beyond the operator's/crew's capability and those which require parts must be recorded on the DA Form 2404. This ensures that repairs are made or parts demand data are recorded. If no faults are noted, the date is recorded on the DA Form 2404 "Daily" and the equipment is made available for use. If a fault beyond the ability of the operator/crew to repair is found, they report it to their supervisor and the equipment dispatcher for corrective action by unit maintenance personnel.

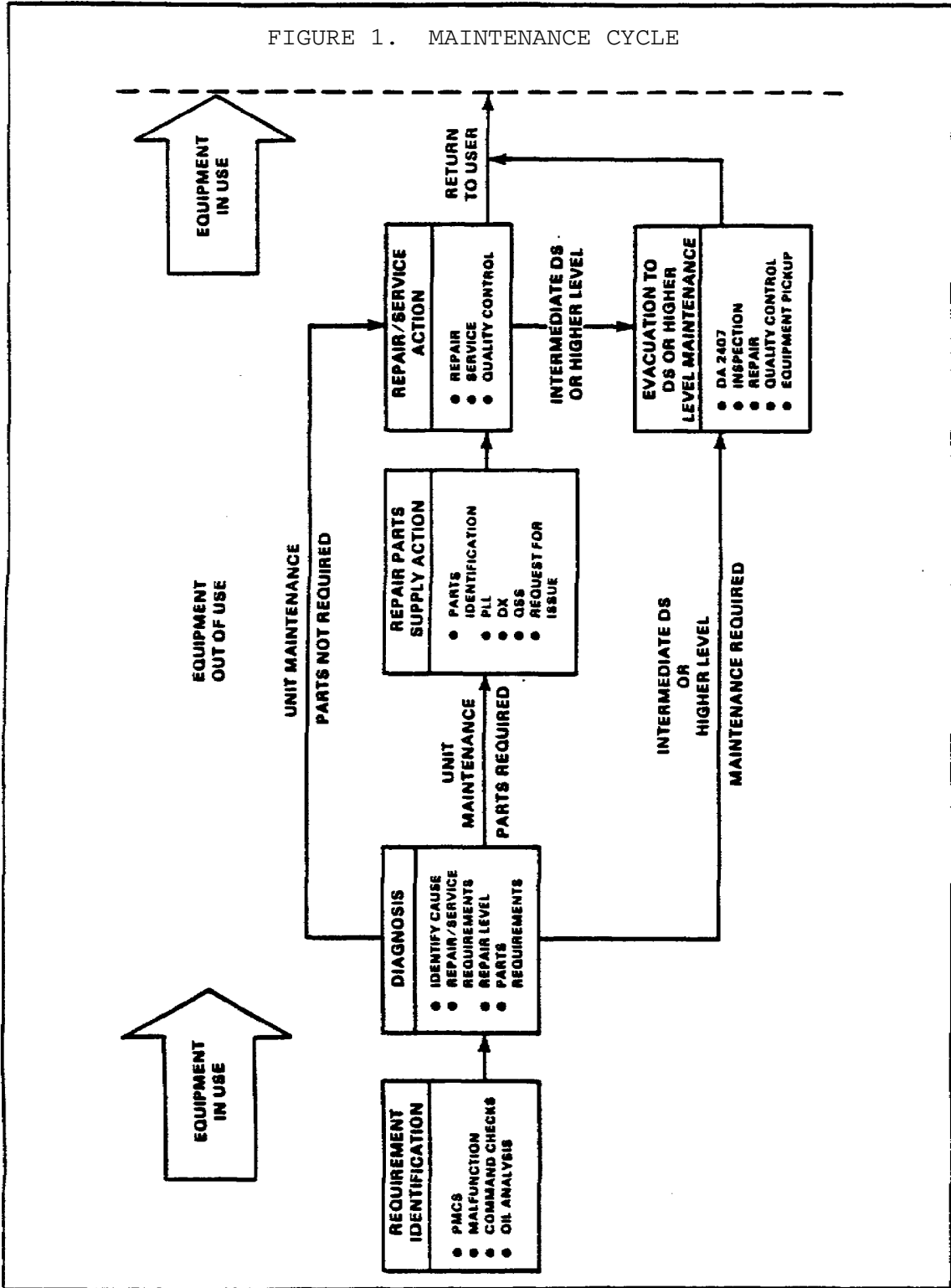
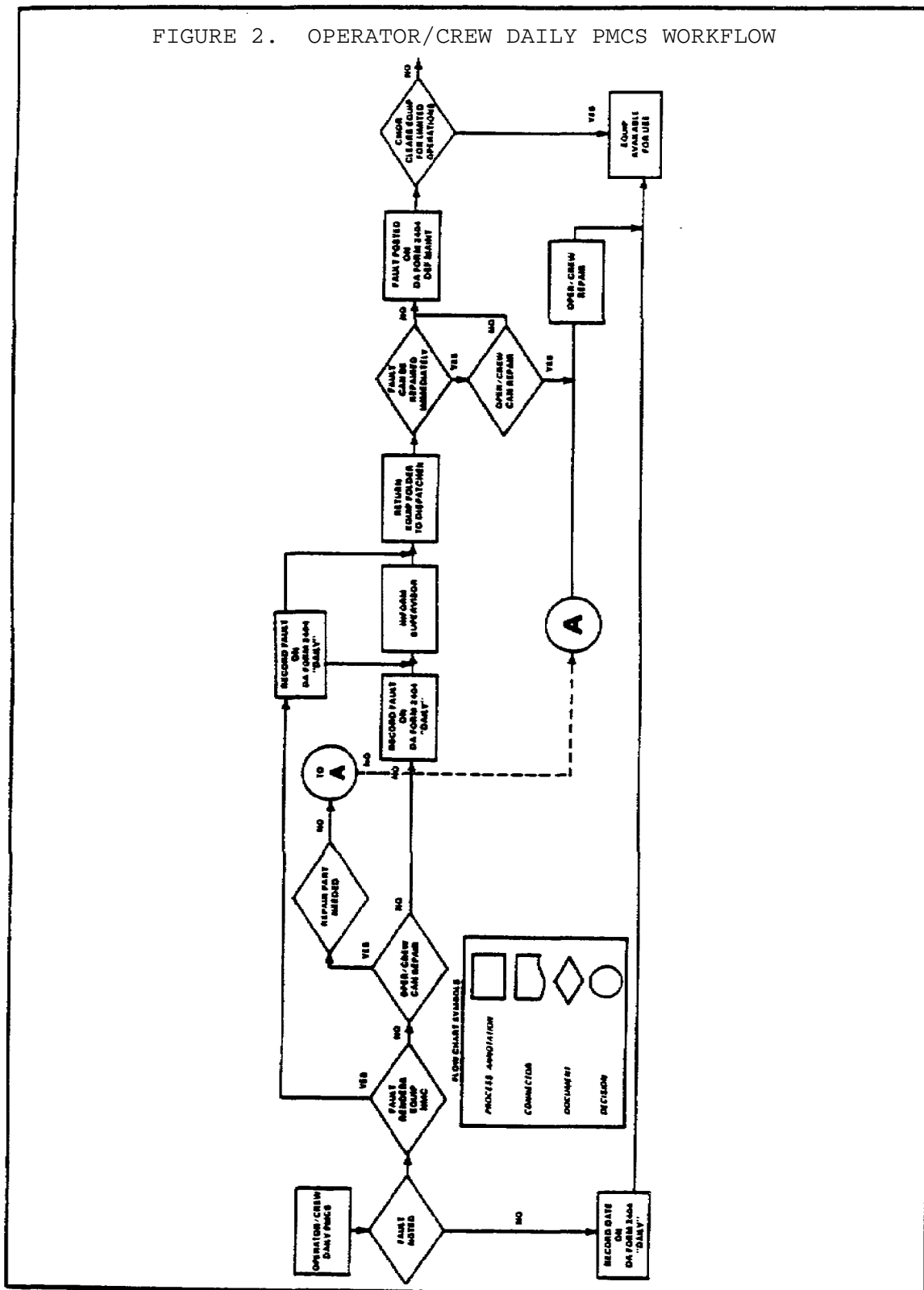


FIGURE 2. OPERATOR/CREW DAILY PMCS WORKFLOW

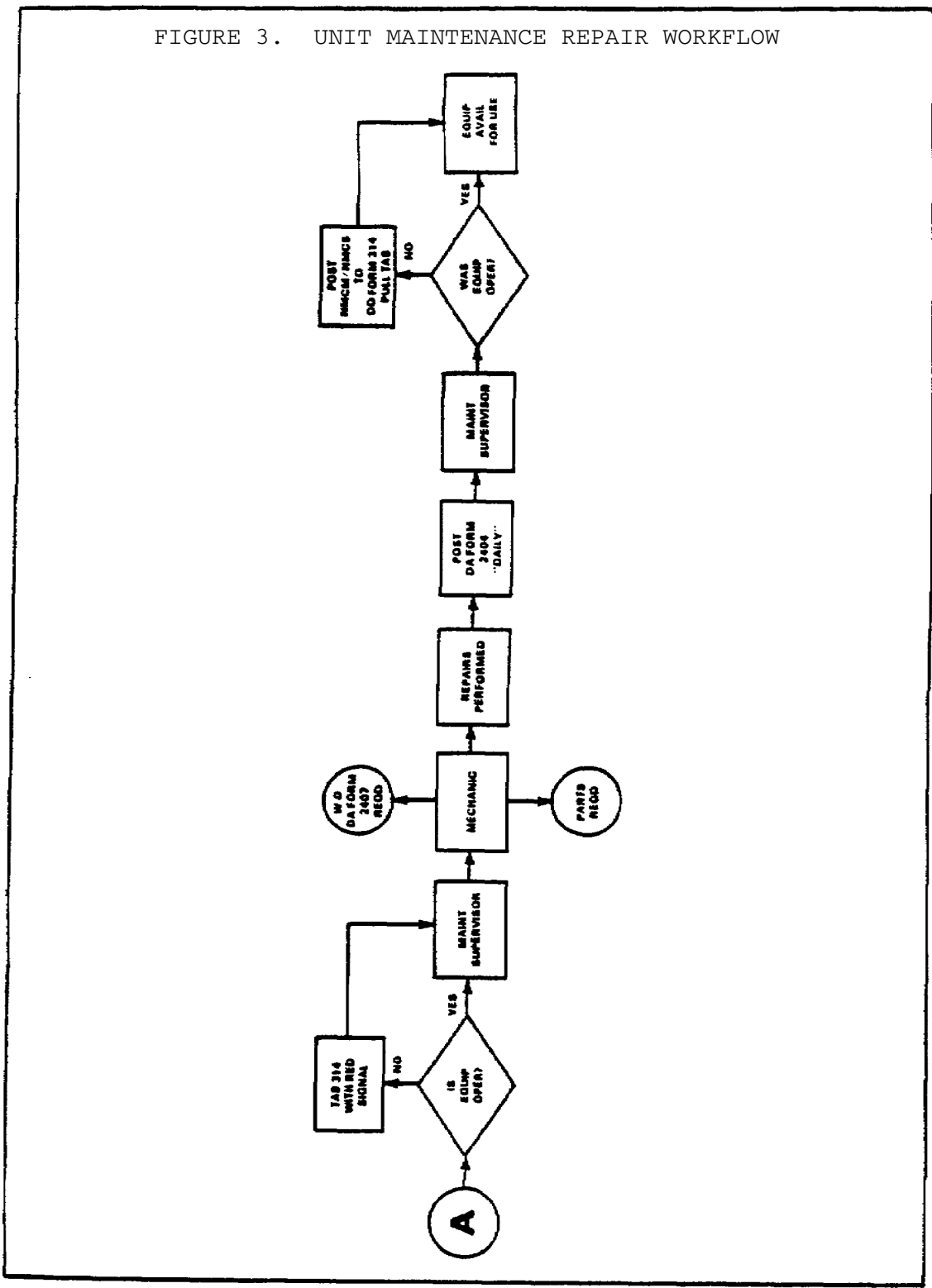


UNIT MAINTENANCE REPAIR

Unit-level repairs begin with the identification of a unit maintenance requirement. The workflow for unit repair is shown by Figure 3. The records clerk receives the DA Form 2404 from the operator/crew. If the equipment has a fault but is operational, the DA Form 2404 is given to the maintenance supervisor. If the equipment is not operational, Department of Defense (DD) Form 314 (Preventive Maintenance Schedule and Record) is marked with a red tab, in accordance with DA Pam 738-750, before forwarding the record to the maintenance supervisor.

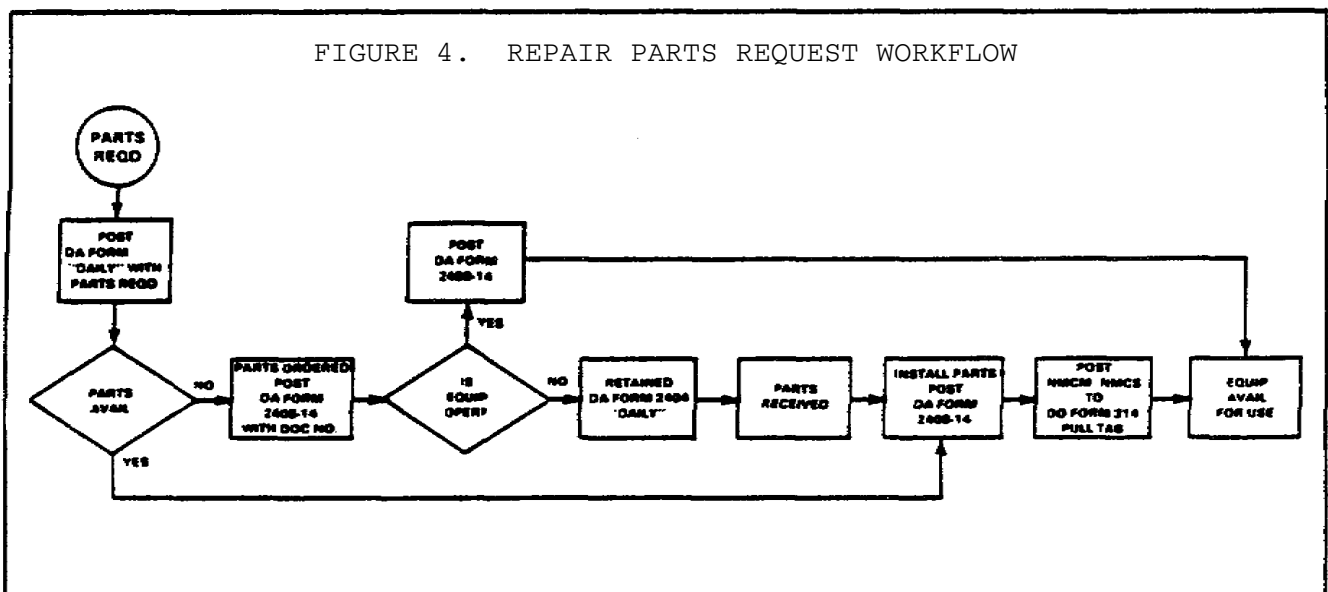
The maintenance supervisor reviews the documents and assigns a mechanic to do the work. The mechanic verifies the reported faults. If the maintenance allocation chart shows the fault can be corrected at the unit, the mechanic completes the repair work. If the work is beyond the unit level, a maintenance request is initiated. When repairs are finished, DA Form 2404 is posted and the document is forwarded to the maintenance supervisor, who verifies that repairs have been completed and returns the document to the dispatcher. The dispatcher makes the item available for use and posts the equipment records with the current status so that pertinent documents can be annotated, if applicable.

FIGURE 3. UNIT MAINTENANCE REPAIR WORKFLOW



REPAIR PARTS PROCEDURES

The general workflow for repair parts requests is outlined in Figure 4. Local procedures may modify the workflow. When parts are needed to correct a unit fault, they are posted on DA Form 2404 "Daily." The PLL clerk issues parts. If parts are not available, the national stock numbers (NSN) are verified using the -20P technical manual or the Army Master Data File (AMDF) and placed on order. For nondeadlined equipment, document numbers for the ordered parts are posted on DA Form 2408-14 (Uncorrected Fault Record). The equipment records clerk receives the DA Form 2404 "Daily." If the equipment remains operational, it may be used until the parts are received. If the equipment is inoperative, DA Form 2404 "Daily" is retained until the parts are received.

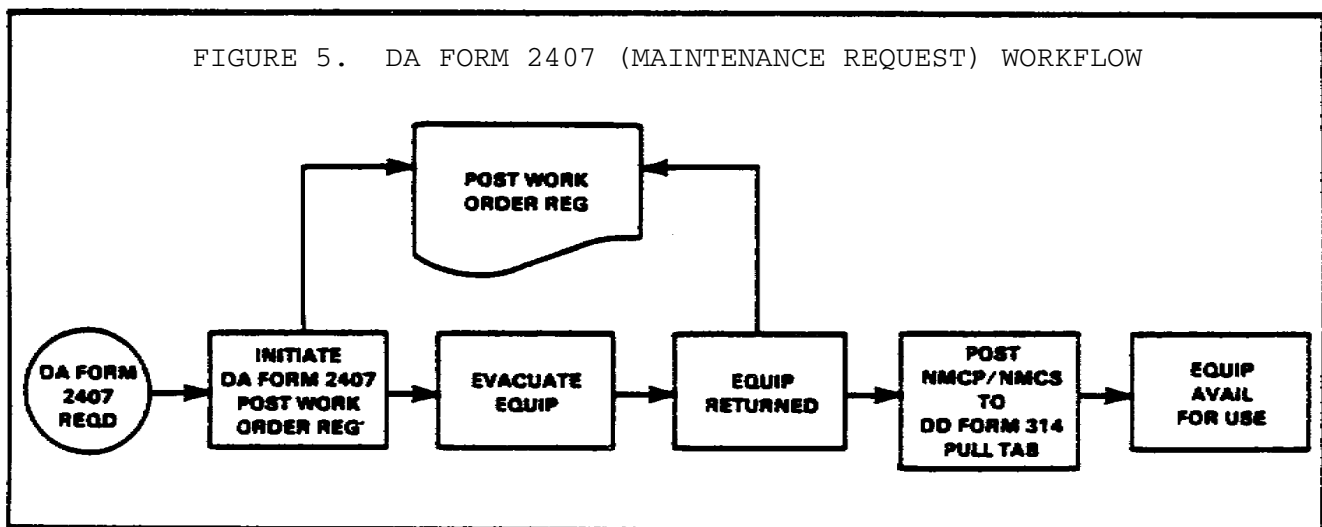


When the parts are received, the mechanic installs them. The DA Forms 2404 and 2408-14 are posted as the faults are corrected. The equipment records clerk posts not mission-capable supply/not mission-capable maintenance (NMCS/NMCM) data on DD Form 314 and releases the equipment.

MAINTENANCE REQUESTS

The workflow for maintenance requests is outlined in Figure 5. The DA Form 2407 (Maintenance Request) is used at unit level maintenance for—

- Requesting maintenance from supporting activities.
- Reporting warranty claims.
- Requesting application of modification work orders (MWO) by support.
- Reporting MWOs done at unit level.



The unit mechanic verifies that the equipment has a higher-level fault and ensures that all unit faults have been corrected. The DA Form 2407 is initiated and recorded on DA Form 2405 (Maintenance Request Register). The equipment is then taken to the supporting maintenance unit. The inspection section will confirm that direct support (DS) work is required and that all maintenance has been performed. The supporting maintenance unit will notify the supported unit when the equipment is repaired. After the equipment is returned, DA Form 2405 is posted to show the maintenance request is closed. The unit and/or support maintenance NMCS/NMCM time is posted onto DD Form 314 and the equipment is made available for use.

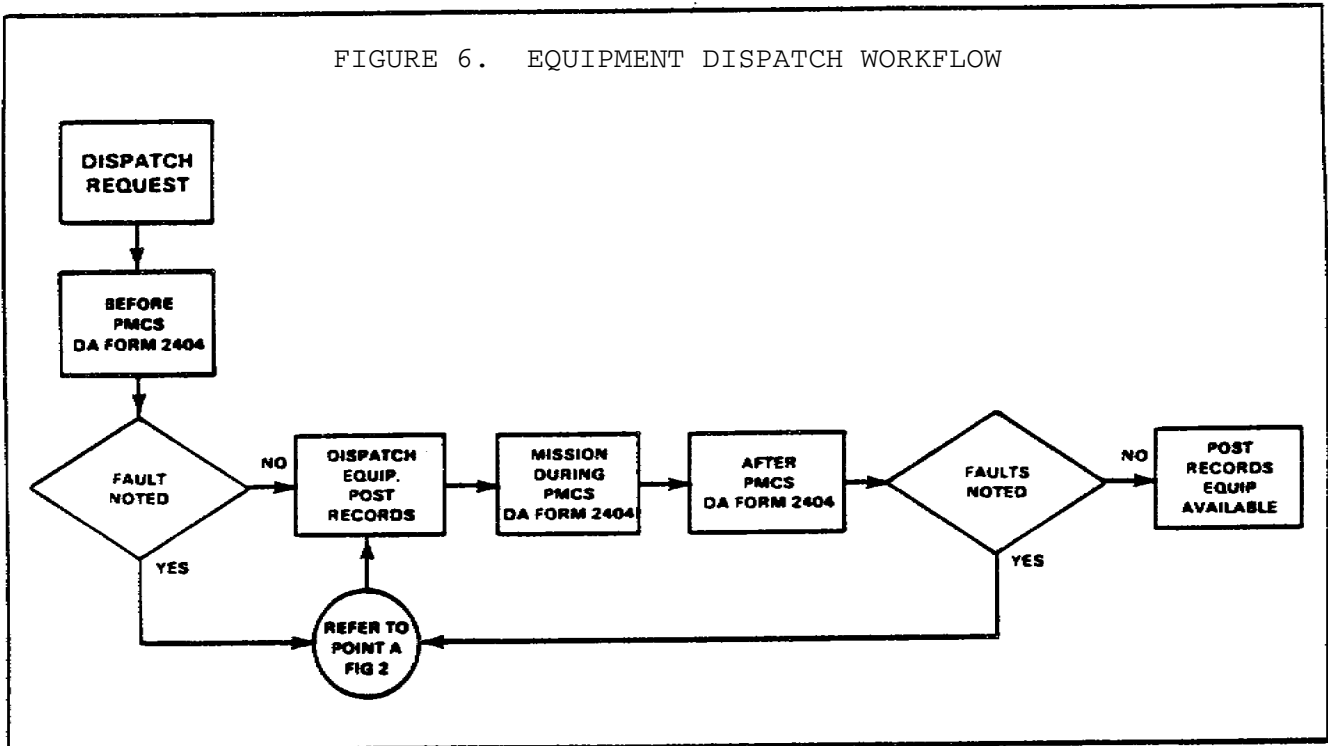
SCHEDULED MAINTENANCE SERVICES

Equipment technical manuals and lubrication orders show maintenance and lubrication services which must be performed at prescribed intervals. The DD Form 314 is used to schedule maintenance services and also to show when services were actually performed. The use of this form is described in DA Pam 738-750.

DISPATCH PROCEDURES

The dispatcher uses DA Form 2401 (Organization Control Record for Equipment) to identify the user and location of equipment while it is on dispatch or in use. This tells the commander who is using that equipment, where it is located, and the expected time of return. Figure 6 shows the sequence of actions for equipment dispatch. Additional controls may be set locally by the unit commander.

FIGURE 6. EQUIPMENT DISPATCH WORKFLOW



The following general procedures apply:

1. The equipment operator performs PMCS.
2. If faults are found, action is taken as shown in Figure 6. If no faults are found, the dispatcher initiates DD Form 1970 (Motor Equipment Utilization Record) and issues it with the equipment and DA Form 2404 to the operator.
3. Equipment operators complete applicable portions of DD Form 1970 as they use the equipment. Faults found during operation are noted on DA Form 2404.
4. At the end of the mission, the operator performs after-operations PMCS, completes DD Form 1970 and DA Form 2404, and returns them to the dispatcher.
5. When faults have been noted, the dispatcher copies time of return and other pertinent remarks from DD Form 1970 to DA Form 2401. After the information is transcribed, the DD Form 1970 is destroyed unless its retention for administrative purposes is directed by the local commander.

MAINTENANCE PLANNING

Maintenance planning deals with what needs to be done and how to do it. The maintenance supervisor, guided by the training and operational plans of the commander, uses past experience and estimates to make forecasts of maintenance requirements to support the commander's operational plan. The unit's long-range training plan outlines the major activities of the unit over an extended time period. It represents events to be supported with operational equipment. The maintenance supervisor forecasts the unit's maintenance resource requirements. Estimates of the operational pieces of equipment required to support the schedule, the number of items in scheduled and unscheduled maintenance, and maintenance personnel available are included. Figures 7 through 10 on pages 38 and 39 show a sample long-range training plan and a combined requirements forecast. Personnel availability is forecast to enable the supervisor to compare resources with requirements.

The supervisor analyzes the unit activities and identifies when demands on maintenance resources will be heavy, moderate, or light. Since the training schedule is subject to change, the maintenance supervisor may have to change the support plan accordingly.

FIGURE 7. FORECAST OF UNSCHEDULED MAINTENANCE REQUIREMENTS

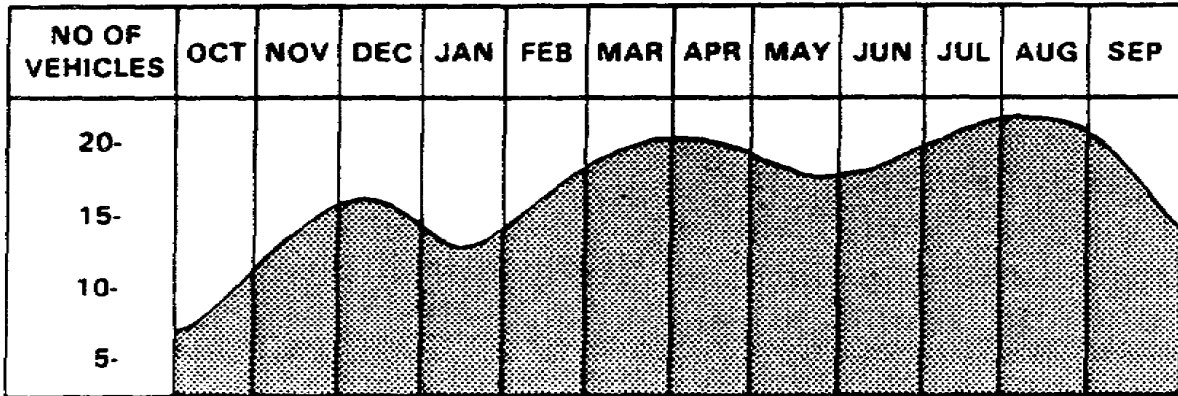


FIGURE 8. FORECAST OF SCHEDULED MAINTENANCE REQUIREMENTS

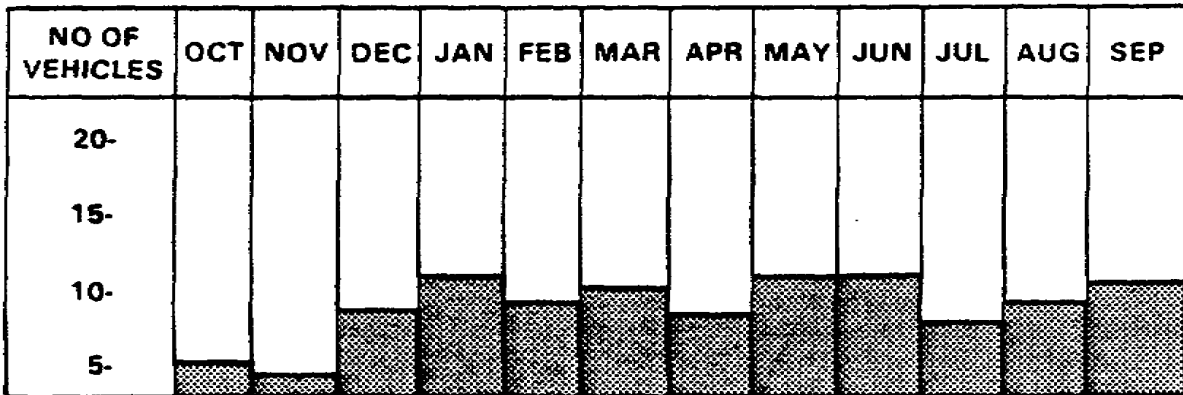
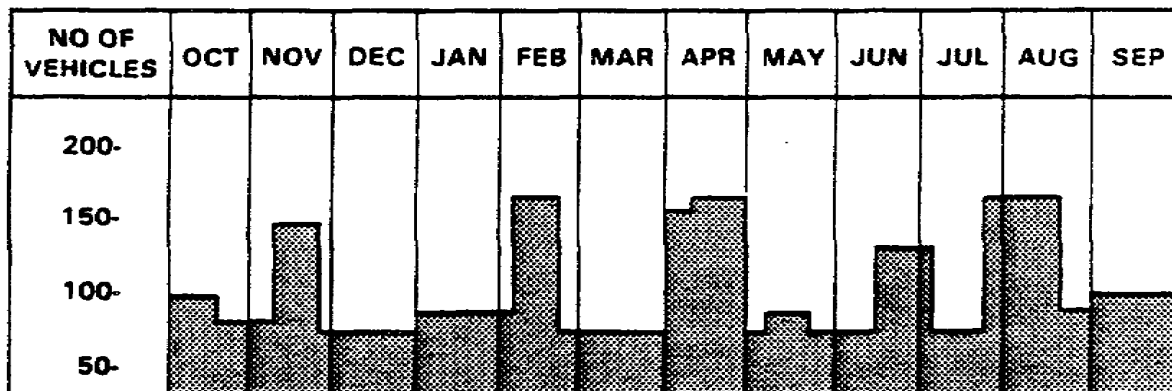


FIGURE 9. LONG-RANGE PLANNING CALENDAR

OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
CBR EX 1-7	FTX 15-18			MTA 11-22		CO FTX 8-24	CPX 12-16	UNIT TNG M1A 15 3 23 7				
POST OPT			POST OPT			POST OPT					POST OPT	

FIGURE 10. FORECAST OF OPERATIONAL EQUIPMENT REQUIREMENTS



Lesson 2/Learning Event 1

The following observations are made on the sample training plan:

1. Heavy demands in equipment occur during November, February, April, July, and August. The maintenance supervisor must ensure that unit equipment is in good condition. Personnel needs and maintenance times must be identified.
2. Moderate demands on equipment will be made during October, May, and June.
3. Light demands on equipment will be made in December, January, March, and September. The supervisor can recover from heavy demands during these times.

Equipment Operational Requirements. The unit will need all vehicles at the major training areas. Unit training will require about 75 percent of the unit vehicles.

Scheduled Services. Scheduled services must be performed according to the technical manual. The supervisor may need to use the 10-percent variance to plan services around periods of anticipated heavy use.

Unscheduled Maintenance. Unscheduled maintenance requirements and services increase with usage. Older vehicles will require more unscheduled maintenance. Much unscheduled maintenance will take place during periods of heavy use.

Personnel Requirements. Personnel availability is affected by departures, arrivals, leaves, details, and other administrative losses. Available personnel can be compared against anticipated requirements. Supervised on-the-job and cross training can be programmed against anticipated shortages.

MAINTENANCE CONTROLS

Maintenance controls at the unit level consist of supervisory tools which provide visibility to the situation and assist in maintenance operations. Some of the tools, such as TAMMS forms and records, are prescribed by regulations. Some are developed and maintained on an informal basis.

1. **Equipment Status Chart.** An equipment status chart lists assigned wheeled and tracked vehicles and other selected major items. It also identifies the assigned operator and shows the equipment status. The Remarks column explains the faults, when applicable, and supply and maintenance information. The status chart is usually maintained by the motor sergeant or a designated representative.

2. **Workload Control Board.** A workload control board (Figure 11) provides the repair or service status of the items in the shop. This board may be used for daily review or planning meetings, assigning work, briefing the commander, and verifying the accuracy of applicable TAMMS documents.

FIGURE 11. WORKLOAD CONTROL BOARD

UNIT, EQUIPMENT IDENTIFICATION	DATE NMC	REQUIRED ACTION	DATE PARTS REQUESTED	DATE REPAIR STARTED	DELAY DATE	DELAY REASON	NMCS REQUEST NO.	WORK ORDER NO. & DATE
HQ. 4. Truck, 1/4 ton	3162	Distributor	3163		3163	S	3163-G100	
B 12. Truck, 2 1/2 ton	3168	Radiator		3168		M (in process)		B-186-3172

3. Work Assignment Sheet. At the close of the duty day, the unit motor sergeant should review the work accomplished and organize for the following day using a work assignment sheet as shown in Figure 12. Previous sheets show the work still in progress and the mechanics who are involved. A new sheet for the following day assigns new work or reallocates old work. The work assignment sheet provides the basis for the initial daily work assignment and the review meeting at the start of the duty day. The Remarks column may be used to record an individual mechanic's performance or the need for additional training.

FIGURE 12. WORK ASSIGNMENT SHEET

WORK ASSIGNMENT SHEET							
							a. DATE: _____
b. NAME	c. UNIT NUMBER	d. WORK ASGD	e. EST TIME	f. PUBLI- CATIONS	g. TOOLS	h. ACTUAL TIME	i. REMARKS

Learning Event 2

INSPECTIONS

Inspections are means by which commanders can determine the serviceability of equipment and promote efficient maintenance operations. Although the most desirable inspection may be one made personally by the commander, the type of inspection most often conducted is one made by technicians and specialists under the direction of the commander or the commander's appointed representative. A commander who is not on the scene of an inspection must rely on a report of the results. This report must mean the same thing to the commander as it did to the inspector who prepared it. The commander's view of this report, actions to require correction of reported faults and of conditions which cause unsatisfactory equipment and maintenance operations, and actions to commend superior performance are almost as important as the inspection itself.

An inspection limited to the condition of equipment and requiring correction of identified faults indicates to the commander the readiness of equipment to perform the mission. The larger the sample inspected, the more valid or reliable is the indication. Some equipment inspections, such as preparation for overseas movement or equipment transfer inspections, must be total in nature in order to accomplish their objective.

An inspection of a unit's maintenance program should include inspections of-

- Sample quantities of various types of equipment.
- Records of operation, maintenance, and equipment.
- Personnel strength, training, organization, and productivity.
- Maintenance and supply procedures and shop operations.
- Adequacy of tools, facilities, publications, supplies, and repair parts.
- Personnel capabilities, as determined from results in evidence and from questions and answers during the inspection.

Lesson 2/Learning Event 2

The inspection of overall maintenance management and the degree of material readiness should include the areas listed in the preceding paragraph as well as various repair parts requests and maintenance requests, with a follow-up to supporting maintenance activities.

An inspection for its own sake may be worse than no inspection at all. Most inspections are somewhat harassing, disrupt normal operations and schedules, and generally result in extra policing efforts, "eyewash," and 'paper maintenance' that add little to equipment readiness or productive maintenance. Therefore, commanders should establish and make known the standards by which they will inspect or will have the command inspected. They should ensure that these standards can be attained within the time, resources, and support available to the unit and that the soldiers in the command understand what is expected of them. Each inspection must have a purpose. The results must be critiqued with the responsible personnel and followed up to provide assistance, if needed, so as to ensure that the original inspection objective has been reached.

FREQUENCY OF INSPECTION

Periodic inspections or services are directed for specific items of equipment by the applicable technical manual. The inspection intervals vary by type of equipment, the level of maintenance by which the service is to be performed, and the services to be accomplished. These inspections are scheduled and conducted by organizational or support maintenance personnel.

The Department of the Army does not prescribe the frequency for maintenance management inspections. Generally, command and maintenance inspections will be prescribed by directives from Army field commands or other intermediate headquarters. In determining their own requirements for inspections, commanders should consider the degree to which these inspections meet existing needs for the types of information they provide. Duplication of effort by conducting one inspection on the heels of another may then be avoided both at the command level and at the inspected unit level.

Unsatisfactory phases of inspections should be followed up by a reinspection within 2 to 6 weeks. The reinspection is not a duplication of effort in its effect. The inspection may be conducted by a command subordinate to the headquarters which performed the initial inspection, but it

should be at least one or preferably two command levels higher than the unit to be reinspected. If a reinspection is made by a command other than the one which conducted the initial inspection, the procedures and standards to be used must be clearly stated and understood.

Each time a transfer of equipment occurs between two organizations, an inspection of the equipment involved should be completed by a common headquarters. In addition to acting as an arbitrator, the inspecting team can evaluate the maintenance program of the owning unit. At the same time, the inspecting team can demonstrate to the unit receiving the equipment the inspection and maintenance standards acceptable to the command.

PREVENTIVE MAINTENANCE (PM) INDICATORS

The term "PM indicator" is used to describe salient features of personnel, materiel, supplies, procedures, and facilities, the known condition of which will indicate the quality of preventive maintenance. The formal definition of the term is "areas of possible failure or malfunction in equipment which can be detected by localized application of the sense of sight, sound, touch, and smell and which indicate the condition and quality of maintenance."

Commanders should determine prior to an inspection which items of equipment or maintenance functions they are going to inspect. They should select a few indicators for each item and become thoroughly familiar with them. This will develop a feeling of confidence and impress personnel of the inspected unit with the commander's interest in maintenance. Different indicators for the same equipment should be selected for succeeding inspections so that personnel will not fall into the habit of maintaining only what they know will be inspected.

The program of PM guides for commanders has been established by the Department of the Army to provide consolidated PM information for use by any commander. The PM guides can assist in estimating PM requirements, planning and managing a PM program, instructing subordinates, scheduling and conducting inspections, and evaluating the effectiveness of PM programs. During an inspection, commanders should always remember that the most important indicator of all is the item's performance of the functions for which it was designed, and the relative chances that it will continue to do so based on the care that it is receiving.

There are three primary reasons for commanders to use PM indicators:

1. The commander should inspect. The most critical single factor in an effective maintenance program is the personal inspection of equipment by the commander. There is a common tendency to consider the physical inspection of equipment as a function reserved for the equipment specialist and beyond the capability or activity of the commander. This is a misleading notion of the command function and could undermine an otherwise enthusiastic maintenance effort.

2. The commander is not a specialist. A commander's inspection must be limited in scope for practical reasons. The relative complexity of modern equipment, the extensive technical knowledge required of specialists, and the normal length of assignments in command positions make it impractical for most commanders to know highly technical details or to inspect for them. The PM indicators are a logical compromise solution to this problem.

3. Time is a limiting factor. Even if the commander were a technician, the attention he must devote to other command responsibilities limits the time available for thorough inspections of equipment. The use of PM indicators to concentrate on significant, readily accessible inspection points makes the most efficient use of the commander's time.

EQUIPMENT PM INDICATORS

Equipment PM indicators are in most cases detailed and specific. They enable the commander to know precisely what to look for. However, in addition to specific equipment indicators, there are several PM indicators which may have a general application to many types or categories of equipment. The commander or inspector should be alert for evidence of the general indicators. The following fall into categories of general equipment PM indicators:

1. Adjustments. Proper tolerances, clearances, and travel are required in many areas. Evidence of chafing, binding, cracking, rips, or split seams, and erratic operation indicates improper adjustment. Improper adjustment may frequently be quite evident in the amount of play in belts, pulleys, levers, or gears, and the amount of lateral movement which may be felt in bearing adjustment.

2. Color and Marking. Conspicuous colors are used in areas of caution or safety. Decals and data plates contain very specific, purposeful information and those which are missing or illegible should be replaced. Color codes are generally applicable for various types of ammunition, high pressure tubing, and electrical circuits.

3. Cleanliness. Cleanliness as it relates to maintenance must be considered from the standpoint of its effect upon the proper functioning of equipment. Uncleanliness may conceal deficiencies and shortcomings resulting in further damage to the item. Functional surfaces should be generally free of foreign matter so that cracks, dents, corrosion, or rust can be readily detected, and so that it will not interfere with the proper operation or function in areas such as metal-to-metal bearing surfaces, filters, or areas requiring lubrication. Fuel and lubricant leaks create safety hazards. The accumulation of foreign matter, grease, and oil cannot be tolerated in areas subject to fire.

4. Equipment Records. Records must be up-to-date, legible, accurate, and must indicate the true status. Outstanding MWOs, other deferred maintenance, and the amount of uncorrected faults, along with the supply action and timely scheduling of maintenance, can be determined from equipment records as an indicator of the quality of maintenance. Pencil, ink, or typed entries do not necessarily indicate the quality of maintenance.

5. Lubrication. Lubrication orders should be on hand and in active use. No evidence of grittiness or binding should be evident in bearings or areas requiring lubrication. Grease fittings should be clean and clear, and the proper tools should be on hand.

6. Safety Features. Compliance with commonsense safety requirements is a sound indicator of a good PM program. Fire extinguishers, emergency exits, and safety devices should be easily accessible and conspicuously marked. Containers for poisonous or flammable liquids must be isolated and properly labeled. Electrical grounding systems must be of an approved type, in place, secure, and provide a positive ground. Warning systems, buzzers, or lights should be tested to ensure proper operation. Observe for the presence of protective clothing, guards, shields, or screens, where appropriate, to preclude injury.

Lesson 2/Learning Event 2

7. Smell. An inspector should be alert for the presence of unusual odors. Abnormal odors may be due to electrical circuits shorting out, overheated motors or other components, lubrication failure, or leaks. A strong smell of gasoline or other fuels should not be present. Mildew or rot due to prolonged storage in confined areas gives characteristic odors which should be investigated.

8. Stowage. Most major items are used with some ancillary or basic issue list items of equipment, and the methodical stowage of such material is indicative of good preventive maintenance. The location and positioning of tools, accessories, and repair parts in stowage must be such that they are protected from damage and deterioration. Any stowed material must be serviceable. Doors, catches, hinges, and handles on stowage compartments must be secured and functional. Periodic, routine airing of canvas, camouflage, nets, and blankets is needed to dispel mildew and mold.

MAINTENANCE MANAGEMENT INDICATORS

No organization or unit which does its own organizational maintenance is too small to perform some maintenance management functions. A commander's evaluation of maintenance management within his organization is coequal in importance to determining the status of equipment. One or more of the management indicators of maintenance, at one level or another, is generally the source to which equipment problems can be traced.

Figure 13 shows an incomplete checklist of maintenance management indicators. The checklist is organized as follows:

1. The paragraph title shows the subject area covered by the indicators.
2. A suggested guide for the frequency of checks appears in parentheses after the title.
3. Specific checks are cross-referenced to the six key supervisory factors discussed in Lesson 1/Learning Event 3--command emphasis, management, supervision, motivation, skill, and resources.

FIGURE 13. MAINTENANCE MANAGEMENT CHECKLIST

			PRIORITIZED MAINT FACTORS						
PMCS INDICATORS (DAILY)	MET STANDARDS		COMD	MGMT	SUPV	MOTV	SKILL	RESC	
	YES	NO							
Sufficient time is provided for PMCS on training schedule.	YES	NO	1	2	3				
Specific maintenance objectives are assigned for each scheduled period of preventive maintenance.	YES	NO	2	1	3				
Operators/crews are present during scheduled periods of preventive maintenance.	YES	NO	3	2	1				
Vehicle commanders/unit leaders are present during scheduled periods of preventive maintenance.	YES	NO	1	3	2	3			
Operator/crew complete PMCS before-, during-, and after-operation checks.	YES	NO	2	3	1	3	3		
Operator/crew use -10 level TM in performing PMCS.	YES	NO	3	3	1	2	3	3	
Operator/crew use DA Form 2404 and complete it correctly	YES	NO	3	2	1	3	3		
Maintenance faults are promptly reported.	YES	NO	3	3	1	2	3		
Inspections reveal few unreported faults	YES	NO	3	2	1	3	3		
Operator/crew maintenance is seldom deferred for correction during services.	YES	NO	3	2	1	3	3		
			PRIORITIZED MAINT FACTORS						
OIL ANALYSIS INDICATORS (MONTHLY)	MET STANDARDS		COMD	MGMT	SUPV	MOTV	SKILL	RESC	
	YES	NO							
AOAP sampling requirements are met on time	YES	NO	3	1	2	3	3		
AOAP resamples are seldom required.	YES	NO	3	2	1	3	3		
Field feedback is submitted on AOAP lab recommendations.	YES	NO	3	1	2				
Equipment and containers necessary for sampling are on hand.	YES	NO	3	1	2				

FIGURE 13. MAINTENANCE MANAGEMENT CHECKLIST (CONTINUED)

		PRIORITIZED MAINT FACTORS						
SCHEDULED SERVICES INDICATORS (WEEKLY)	MET STANDARDS		COMD	MGMT	SUPV	MOTV	SKILL	RESC
	Schedule for periodic maintenance services is maintained	YES	NO	2	1	3	3	3
Time or mileage limits between scheduled services are usually met	YES	NO	2	1	3	3	3	
Deferred maintenance is corrected during services.	YES	NO	3	2	1	3	3	
Lubrication orders are on hand for each type of equipment serviced.	YES	NO	3	1	2	3		3
Lubrication area has sufficient resources (grease guns, oil cans, and so forth)	YES	NO	2	1	3	3		3
		PRIORITIZED MAINT FACTORS						
INSPECTION INDICATORS (PERIODICALLY)	MET STANDARDS		COMD	MGMT	SUPV	MOTV	SKILL	RESC
	Unit/vehicle commander checks performance of PMCS.	YES	NO	1	2	3	3	3
Unit has a dispatch inspection point.	YES	NO	2	1	3			3
Roadside spot checks, when conducted, do not reveal unrecorded maintenance faults.	YES	NO	2	1	3			
Battalion maintenance has a program for spot inspections.	YES	NO	1	2	3			3
MAIT is used or scheduled.	YES	NO	1	2	3			
MAIT visit reveals few unreported deficiencies and shortcomings.	YES	NO	3	2	1		3	
Materiel readiness checks are conducted and are scheduled at irregular intervals.	YES	NO	1	2	3			
Equipment is usually accepted at first intermediate forward unit acceptance inspection	YES	NO	3	2	1	3	3	

FIGURE 13. MAINTENANCE MANAGEMENT CHECKLIST (CONTINUED)

			PRIORITIZED MAINT FACTORS					
PERSONNEL INDICATORS (WEEKLY)	MET STANDARDS		COND	MGMT	SUPV	MOTV	SKILL	RESC
	Equipment has assigned operator/assistant operator.	YES	NO	1	2	3		
Operators are licensed for assigned equipment.	YES	NO	2	1	3			
Assigned maintenance personnel are working in their MOS.	YES	NO	2	1	3			3
Mechanics are accounted for during working hours.	YES	NO	3	2	1			
Mechanics are present for duty in shop and have high work output.	YES	NO	3	2	1	3		3
Mechanics are attentive to quality of work.	YES	NO	3	3	1	2	3	
Mechanics show initiative - do tasks without being told.	YES	NO	3	3	2	1		
Supervisors supervise and mechanics perform repair tasks.	YES	NO	3	2	1			
			PRIORITIZED MAINT FACTORS					
PUBLICATIONS INDICATORS (MONTHLY)	MET STANDARDS		COND	MGMT	SUPV	MOTV	SKILL	RESC
	Operators have -10 level TMs and LOs for equipment.	YES	NO	3	1	2		
Mechanics have -20 level TMs for equipment.	YES	NO	3	1	2			3
Current and past issues of PS Magazine are on hand.	YES	NO	3	1	2			
Publications are conveniently available to mechanics.	YES	NO	3	1	2			3
Missing publications are on order	YES	NO	3	1	2		3	
Publications on hand are current, changes posted, and no pages/sections missing.	YES	NO	3	1	2			
Shop office has copies of AR 11-14, AR 220-1, AR 710-2, AR 725-50, DA Pam 738-750, FM 29-2, unit SOP, and intermediate forward external SOP	YES	NO	3	1	2			

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4. Rank-order numbers have been assigned to the maintenance factors opposite each indicator. These assist the manager in identifying trends and determining the basic cause(s). When the answer to a particular indicator is "No," the numbers, beginning with "1", show the maintenance factor which is the most probable cause for the failure.

The checklist may be used by anyone concerned with maintenance operations. Daily checks are routinely performed by first-line supervisors during day-to-day maintenance operations, and by others as required. The manager should informally perform the weekly, monthly, quarterly, and seasonal checks in the area of responsibility and encourage others to do the same. The manager's overall program of checks should ensure that all aspects of the operation for which the manager is responsible are periodically covered.

In preparation, before making indicator checks, the manager should determine the objective for the check. This will normally be to determine the adequacy of some specific aspect of maintenance operations. The manager then selects the indicators that will best provide the desired information.

After the checks are made, the results are analyzed. Since the checks are only a sample, the manager must use care in drawing conclusions, either good or bad, from the results. The results are best used to spot general trends for further evaluation or action. For example, a relatively large number of "1" and "2" rank-order numbers under a particular maintenance factor should prompt the manager to take a closer look in this general area.

When the underlying cause has been determined to the manager's satisfaction, required corrective action is formulated. As needed, the unit chain of command assists in its implementation. Care must be taken so that the corrective action treats the cause and not the symptom. Correction of only the specific individual faults uncovered by the check is of limited value. After corrective action has been implemented, follow-up checks are essential to verify that the desired results have been achieved.

TYPES OF INSPECTIONS

Command Inspections. Command inspections are made to ensure proper use of equipment to maintain supply economy, to ensure compliance with the established procedures, and to evaluate operational readiness. Command inspections are made periodically by unit commanders and/or their superiors. There are two types of command inspections: formal and informal.

1. Formal Command Inspections. This inspection covers all unit activities. The unit to be inspected is notified in advance. The notice should include instructions on inspection procedures and on the arrangement of the tools, vehicles, and shop. It should also include the date and hour of the inspection, and the name, rank, and responsibility of each member of the inspecting party. The inspection should be conducted rapidly, thoroughly, and efficiently. The inspectors should follow a logical sequence around each vehicle and through the shop. The findings of formal inspections on all types of equipment are recorded on DA Form 2404 and compiled for study and corrective action.

2. Informal Command Inspections. An informal command inspection may be made at any time. No advance notice is given and no set procedure is required. This type of inspection provides a better picture of the conditions within the unit. The commander sees the unit as it is operating and improper practices and malfunctions are more easily detected.

Annual General Inspections. Annual general inspections provide commanders with a continuing assessment of the operational and administrative effectiveness of their commands. The heads of DA agencies and commanders of Army field commands and installations that are authorized an inspector general (IG) on their staff are responsible for making annual inspections of all elements of their commands, installations, or activities. The overall annual general inspection objectives are to—

1. Evaluate management procedures and practices pertaining to personnel, administration, material, and fund resources.
2. Identify problems, situations, or circumstances that impair mission performance, and isolate associated causes.

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3. Determine the command or activity best suited for corrective actions and evaluate the adequacy of past corrective actions.

4. Determine the state of discipline and morale throughout the command.

During the maintenance portion of the inspection, the IG inspects unit maintenance operations and recordkeeping procedures. Unit material is inspected for systematic servicing, preservation, adjustment, repair, and prevention of abuse. In the inspection of organizational maintenance activities, the IG determines if—

- The unit has the technical skills, spare parts, and tools to perform its maintenance functions.
- Applicable MWOs have been applied to the equipment and entered on DA Form 2408-5 (Equipment Modification Record).
- The unit is performing only the level of maintenance for which it is responsible.
- The unit has a current readiness profile of selected items of equipment listed in DA Pam 738-750.
- The operators are reporting accurate equipment status and are recording data on the applicable TAMMS records.
- The operators are familiar with their equipment and its capabilities and limitations.

Technical Inspections. Technical inspections of equipment are made by DS maintenance personnel. These inspections determine whether equipment should be kept in service or withdrawn for overhaul or salvage of component parts. Technical inspections also check the condition of the equipment at the time of transfer or issue. If technical inspections reveal that organization maintenance is substandard or that PM deficiencies exist, a report is made to the commanding officer of the unit concerned. Inspection results are recorded on the DA Form 2404.

Spot-Check Inspections. Spot-check inspections are often used to ensure the adequacy and effectiveness of organizational maintenance and supply and to detect possible failure of equipment before unserviceability occurs. Some spot checks are conducted periodically, others when requirements develop, and some as a matter of operational

routine. These inspections are conducted for specific purposes and include the following:

- Inspections of work in progress by first-line supervisors.
- Safety inspections by unit or higher safety personnel.
- Inspections of equipment by designated personnel to ascertain the effectiveness of the maintenance program.
- Inspection of TAMMS, property accountability, and repair parts supply documents.
- Roadside spot-check inspections of vehicles to verify serviceability, operator qualifications, and compliance with regulations.

Visits. A visit can serve as an informal inspection. Unit personnel are more likely to talk freely with a visitor who is interested in their problems than they are with an inspector. The commander and maintenance manager should visit the various unit maintenance activities as a matter of routine. Subjects discussed and observations made during such visits may include—

- Degree of satisfaction with the support received from the supporting DS unit.
- Problem encountered in obtaining support.
- Future operations of the unit that may place heavy demands on equipment and require increased maintenance and repair parts support.
- Requirements for technical assistance.
- Adequacy of the unit maintenance program.
- Proper use of personnel.
- Adequacy of repair parts support.

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Perpetual Inspection. The most important of all types of inspection, however, is the kind that every officer and NCO performs continually as a normal part of their daily military activities. Subordinates should be indoctrinated with the concept that they need to inspect every piece of equipment they see. All officers and NCOs are responsible for making on-the-spot corrective actions whenever and wherever they find deficiencies in the condition or operation of equipment. They should do this whether or not they are members of the unit to which the equipment belongs. When a unit acquires this philosophy of consistent correction as part of the attitude known as "maintenance consciousness," every member of the command will soon recognize their responsibility for maintaining equipment.

Learning Event 3
ARMY OIL ANALYSIS PROGRAM

The Army Oil Analysis Program (AOAP) analyzes equipment lubricant condition to detect impending component failures through periodic evaluation of oil samples. Oil analysis provides a diagnostic tool to determine the interval conditions of engines, gear boxes, transmissions, and other oil-lubricated systems and components. For policies, objectives, and responsibilities concerning the AOAP, refer to Army Regulation (AR) 750-22. For detailed procedures, refer to Technical Bulletin (TB) 43-0210.

The purpose of the AOAP is to-

- Detect potential component failure.
- Determine oil serviceability and necessity for oil change.
- Extend oil life and conserve resources.
- Reduce maintenance costs through preventive maintenance prior to major repair.
- Develop a data bank relating to component wear or failure.

DESCRIPTION

Oil analysis is used as a diagnostic tool to determine the physical condition of used oil and the internal condition of engines, gear boxes, transmissions, and hydraulic systems.

Spectrometric analysis is used to determine the concentration of various wear metals in oil samples. Wear metals are metal particles of microscopic size, produced by the friction of moving parts within mechanical systems, that enter the oil stream and are dispersed and suspended throughout the lubricating oil system. The kinds of metal particles and the quantities in which they are present are detected by spectroscopy. Analysis helps determine which component parts may have generated the particles. By periodically sampling and testing the oil from mechanical systems, abnormal wear can be detected and worn parts can be repaired or replaced before they cause damage.

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Physical property tests are analytical tests used to detect property changes in used oil. For example, changes in viscosity, fuel dilution, or water content may be indicative of faulty equipment, operating conditions, or maintenance procedures.

A resample is a sample, specifically requested by the laboratory, of the same oil taken under the same conditions as the previous sample. Selected equipment/components are those enrolled in the AOAP.

RESPONSIBILITIES

Unit commanders will--

- Implement local AOAP policies and procedures within their unit.
- Ensure that all AOAP-designated equipment is enrolled in the program and that samples are submitted at prescribed intervals.
- Ensure that oil changes conform to warranty requirements.
- Ensure that laboratory recommendations are complied with immediately.
- Ensure that unit personnel are trained in AOAP procedures.
- Appoint a unit AOAP monitor.

SAMPLING

Only the equipment/components listed in the appendices of TB 43-0210 or other equipment/components authorized by the PM AOAP will be sampled. Routine samples are to be submitted at prescribed intervals as established in the appropriate appendix of TB 43-0210. (See Figure 14 for an example.) Sampling intervals are not the same for all items of equipment. Samples should be taken as near the prescribed interval as possible. Sampling at the prescribed time is not always possible. In such instances, a 10-percent variance before or after the scheduled date, hours, or miles for sampling is permissible.

FIGURE 14. CONSTRUCTION EQUIPMENT IN THE AOAP

<i>End Item Model</i>	<i>Nomenclature</i>	<i>Component</i>
JD-410	Tractor, Backhoe	JD 4-2-19DT-03
F1500M	Road Grader	DD6V53
C350B	Roller, Tandem	DD 3-53
RS28	Roller, Vib	DD 4-53
K300	High Sp Compactor	Cat 3206
D6K	Tractor, FT	Cat D342
2380	20T Crane Carrier	Cummins V8-265
2380	20T Crane	Cummins JN6
2386	20T Crane Carrier	Cummins V8-265
2386	20T Crane	Cummins JN6
F5070	20T Dump Truck	NTC-296
MT250	25T Crane	DD6V53N
175B	Scoop Loader	DD6V71N
M450	Tractor, FT	G188D
HD-6M	Tractor, FT	AC-7.000
TL-645	Scoop Loader	AC-3500
3000M	Scoop Loader	C-180
4D	Road Grader	DD 4-025
865BG	40T Crane-Shovel	Cat D333TA
264B	100T Barge Crane	
	(a) 25 KW Generator	Starting Engine Co-GAB4
	(b) 125 KW Generator	White Motor Co-6EN668
	(c) 125 KW Generator	Enterprise Eng Co-DSM-6
	(d) 125 KW Generator	Fairbanks Morse-31 A6
	(e) 125 KW Generator	White Motor Co-5EN668
	(f) 125 KW Generator	
KA-60	Bitum Mat'l Mixer	AC-3500
W15A	Distrib. Water	Mech ENDT-673

NOTE: This equipment listing is incomplete. See TB 43-0210 for a complete equipment listing and the sample intervals.

Special samples are samples other than those routinely scheduled. Special samples will be submitted to the laboratory under the following circumstances:

- At the request of the laboratory.
- Immediately before transfer among commands or overseas deployment of equipment.
- After indication of a problem; for example, overheating or excessive oil loss, or loss of oil pressure.

When a vehicle is in storage, no sampling is required until the vehicle is scheduled for operation use. Maintenance float equipment will be sampled after 25 hours of operation or quarterly, whichever occurs first. When a vehicle is used for developmental purposes, as a training aid, or for static display, authorization to discontinue sampling or to sample at longer intervals may be granted by the applicable major command. When the equipment returns to normal operations, sampling intervals established in the appendices of TB 43-0210 will once again apply.

Special samples will be clearly marked SPECIAL and banded with red tape or marked in some other conspicuous manner so that the laboratory may easily identify them. The DD Form 2026 (Oil Analysis Request) that accompanies the sample to the laboratory will be marked SPECIAL in the Remarks block, and its borders will be outlined in red.

To support the AOAP, your unit will need to maintain an adequate level of forms and sampling supplies. Supplies required for oil sampling operations are listed in Figure 15. Quantities are determined by number and types of assigned equipment enrolled in the AOAP and the frequency at which they are sampled.

FIGURE 15. OIL SAMPLING SUPPLIES

Item	NSN	Unit of Issue
Tubing, Nonmetallic (1/4" OD)	4720-00-964-1433	Roll (1,000 ft.)
Pump, Oil Sampling	4930-01-119-4030	Each (1)
Bottle, Oil Sampling	8125-01-082-9697	Box (120 ea.)
Bag, Plastic	8105-00-837-7754	Box (1,000 ea.)
Sack, Shipping	8105-00-290-0340	Box (250 ea.)

The following listed forms are necessary to support the AOAP:

- DO Form 2026, Oil Analysis Request.
- DA Form 2407, Maintenance Request.

- DA Form 2408-20, Oil Analysis Log.
- DD Form 314, Preventive Maintenance Schedule and Record.
- DA Form 3254-R, Oil Analysis Recommendation and Feedback.

The AOAP cycle operates as follows:

1. The TB 43-0210 identifies equipment for the AOAP. A DA Form 2408-20 is prepared for each component to be sampled.
2. Sampling supplies are obtained.
3. Sampling dates are scheduled on DD Form 314.
4. An oil sample is obtained and noted on DA Form 2408-20 (Figure 16).

FIGURE 16. DA FORM 2408-20 (OIL ANALYSIS LOG)

FOR USE OF THE REGULAR AND THE RESERVE AND GUARD RESERVE IN OIL LOGS.

1. IDENTIFY			2. SAMPLE FREQUENCY		3. COMPONENT	
a. NOMENCLATURE TANK			25 HRS 30 DAYS		a. NOMENCLATURE AND TYPE ENGINE AVDS 1790-2C	
b. GRADE OR TYPE M60A3					b. SERIAL NUMBER 50658	
c. SERIAL NUMBER 1515					c. TIME SINCE LAST OIL CHANGE 72 HRS	
DATE	4. OIL			5. REASON FOR SAMPLE	6. RESULTS	7. SIGNATURE
	END ITEM	COMPONENT	LAST OIL CHANGE			
8 JAN 84	361	72	12	ROUTINE	NORMAL	<i>[Signature]</i>
5 FEB 84	374	92	32	ROUTINE	NORMAL	<i>[Signature]</i>
4 MAR 84	380	108	48	ROUTINE	WATER IN OIL - 1.0% CHECK OIL RESIDUE - 0.8%	<i>[Signature]</i>
11 MAR 84	384	113	5	SPECIAL	NORMAL	<i>[Signature]</i>
10 APR 84	402	136	30	ROUTINE	NORMAL	<i>[Signature]</i>
28 APR 84	420	164	56	ROUTINE	NORMAL	<i>[Signature]</i>
27 MAY 84	430	179	71	ROUTINE	NORMAL	<i>[Signature]</i>
23 JUN 84	438	191	83	ROUTINE	EXCESSIVE SOOT IN OIL IN OIL RESIDUE - 1.1%	<i>[Signature]</i>
24 JUN 84	438	192	1	SPECIAL	NORMAL	<i>[Signature]</i>

SAMPLE

DA FORM 2408-20
MAY 61

OIL ANALYSIS LOG

a. REMARKS
AOAP LOG - FORT KNICK

Revised by DA Form 2408-20

5. The DD Form 2026 is prepared requesting an oil analysis (Figure 17).
6. The label on the sample bottle is completed, and the bottle and DD Form 2026 are carried or mailed to the supporting oil analysis laboratory.
7. The oil analysis laboratory analyzes the sample for metal content and oil quality, notes results on DD Form 2026, and returns the form to the originating unit.

FIGURE 17. DD FORM 2026 (OIL ANALYSIS REQUEST)

OIL ANALYSIS REQUEST		KEYPURCH CODE
TO	Oil Analysis Lab FT. HOOD	1-8
FROM	MAJOR COMMAND FORSCOM	6
	OPERATING ACTIVITY (Include ZIP Code/AFPO/DO/DAAD) HQ Co 176 ARMOB, 2 AD (WAB570) FT HOOD, TX 76544 685-3788	8-10
DEPARTMENT SYMBOL AND DEPARTMENT SER. NO.	ENGIN AVDS 1790-20 A 0606	11-14 15-20
ENGINE ITEM NO. (MIL. NO.)	TANK M60A1	
ENGINE ITEM SER. NO./PIC	6486	
DATE SAMPLE TAKEN (DD, MO, YR)	16 APR 80	21-26
HOURS SINCE OVERHAUL	346	28-30
HOURS SINCE OIL CHANGE	67	30-35
REASON FOR SAMPLE	LAB <input type="checkbox"/> TEST <input type="checkbox"/> OTHER <input checked="" type="checkbox"/> TROUBLE	36
OIL ADDED SINCE LAST SAMPLE (GAL. OR GALS)	1 GAL	38-39
ACTION TAKEN		
ORDER JUSTIFIED		
HOW MALFUNCTIONED		
HOW FOUND	<input type="checkbox"/> LAB REQUEST <input type="checkbox"/> AIR OR GROUND CREW	
HOW TAKEN	SAMPLE TEMPERATURE <input checked="" type="checkbox"/> HOT <input type="checkbox"/> COLD	37-38
TYPE OIL	DE 30	
REMARKS QUARTERLY DUE 1 MAY 80		
FOR LAB USE ONLY		
SAMPLE RESPONSE TIME		39-42
PE 41-43	AS 44-46	AL 47-49
CR 50-52	CU 53-55	MS 56-58
FE 59-61	SI 62-64	SI 65-67
SI 68-70	SI 71-73	SI 74-76
LAB RECOMMENDATION		77-78
SAMPLE NO.	SIGNATURE	FILE NO. 79
		DATA SER. 80

DD FORM 2026 1 NOV 77 PREVIOUS EDITION WILL BE USED

8. In addition, maintenance recommendations are annotated on DA Form 3254-R and forwarded to the using unit for action (Figure 18).

FIGURE 18. DA FORM 3254-R (OIL ANALYSIS RECOMMENDATION AND FEEDBACK)

OIL ANALYSIS RECOMMENDATION AND FEEDBACK <small>For use of this form, see TB 43-0103 and TB 43-0110; the processing agency is DARCOM.</small>		REQUIREMENT CONTROL SYMBOL CSBLD-1813
1. USE FIELD (Include ZIP Code and Telephone Number)		3. LAB RECOMMENDATION NUMBER
HQ. BTRY. 7/7 FA ATTN: MAINTENANCE OFFICER Bldg. # 17082 Ft. Hood, TX 76544 (621-9992)		84-109
		4. ENG ITEM MODEL
		M35A2
		5. ENG ITEM SERIAL NUMBER
		7125-26773
2. FROM LABORATORY (Include ZIP Code)		6. COMPONENT TYPE
Ft. Hood Oil Lab Bldg. # 17082-A1 Ft. Hood, TX 76544		ENGINE
		7. COMPONENT SERIAL NUMBER
		4876929
		8. COMPONENT TIME (Hours/Min)
		41/3
9. RECOMMENDATION AND REASON FOR ACTION		
SAMPLE INDICATES HIGH COPPER + LEAD WEAR METAL. DETERMINE THE CAUSE + IF UNABLE, REMOVE FROM VEHICLE + SEND TO DX POINT FOR TRANSFER TO DIO MAINTENANCE DIVISION.		
SAMPLE		
10. SIGNATURE AND TITLE OF INVITATOR		11. DATE (Day-Month-Year)
<i>Nanda Miller</i> , LAB CHIEF		13 AUG 86
12. NOTE FOR ARMY AVIATION ONLY: <small>Quality Deficiency Report (QDR), SF 388, will be submitted when maintenance is performed due to operating or support failure indicated by oil analysis. Feature Code 010.</small>		13. QDR NUMBER
14. FEEDBACK (Maintenance Performance Action Topics)		
ENGINE HAD SPENT BEARING, REPLACE BEARING AND RINGS.		
15. FROM FIELD/DEPOT MAINTENANCE PERSONNEL		16. DATE (Day-Month-Year)
<i>Jerry R Roberts</i>		15 NOV 86
17. TO LABORATORY		NOTE FOR ARMY AVIATION ONLY: Copy of this form with SF 388 (QDR) attached will be sent to Commander, CCAO ATTN: DISTS-MER, 300 45 Camp Chum, TX 76519

DA FORM 3254-R
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EDITION OF JUN 78 IS OBSOLETE.

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9. The unit takes the appropriate action indicated by the laboratory (DA Form 2407).
10. The DD Form 2026 is filed and DA Form 2408-20 is completed.
11. Once maintenance actions have been completed, the supporting AOAP laboratory should be notified of the results of the servicing action by completing DA Form 3254-R, with feedback annotated.

Samples may be taken without warming a component to operating temperature, if the equipment has been operated within the last 30 days. If the equipment has not been operated within the last 30 days, it must be brought to operating temperature before sampling. This applies to both routine and special samples. There will be occasions when the laboratory may request that a component be operated before sampling. This request will be complied with.

Samples taken from an oil reservoir immediately after addition of new oil will not be representative and will not become representative until complete mixing of the old and new oil has taken place. This requires operation until normal operating temperature has been obtained.

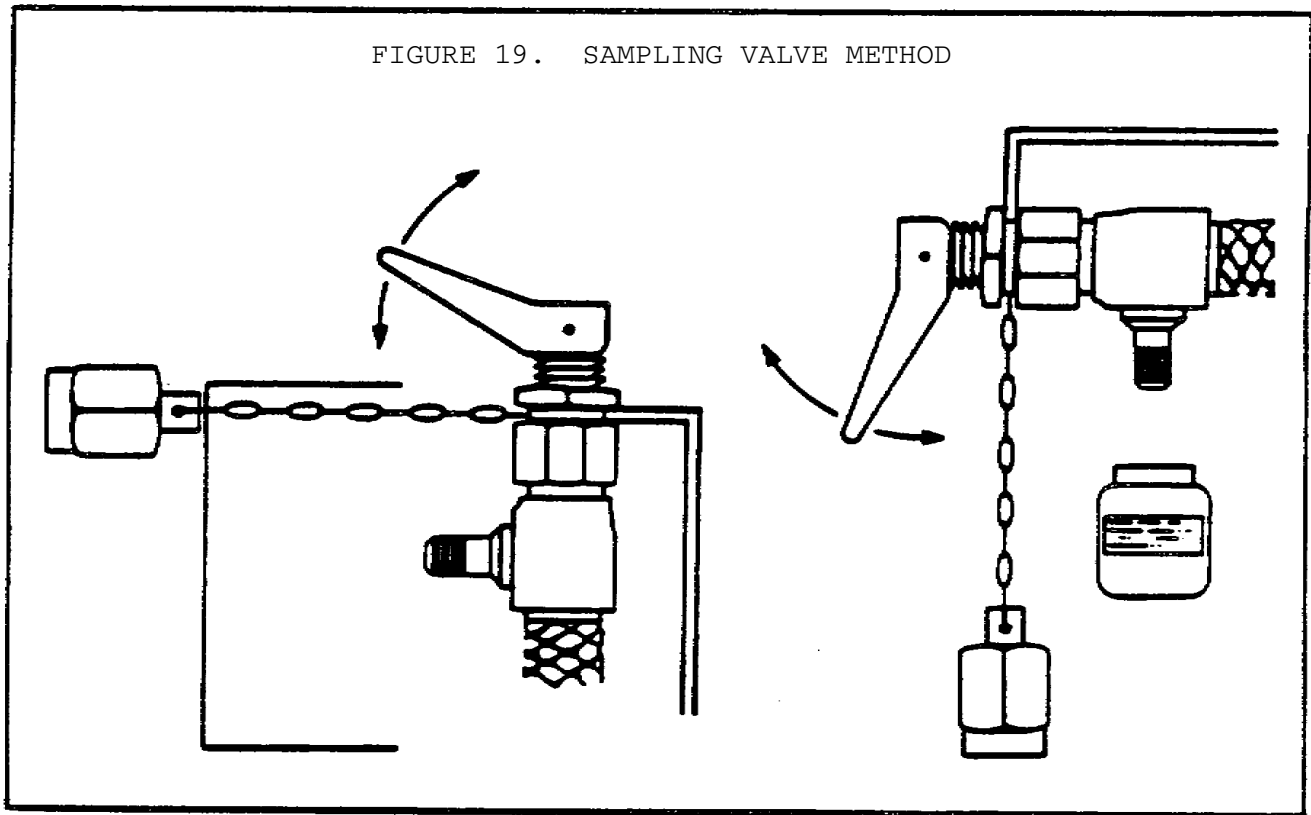
SAMPLING METHODS

To take an oil sample using the valve method shown in Figure 19--

1. Remove dust cap assembly.
2. With the engine idling, open (lift handle) sampling valve and drain out about a pint of oil; then shut off sampling valve.

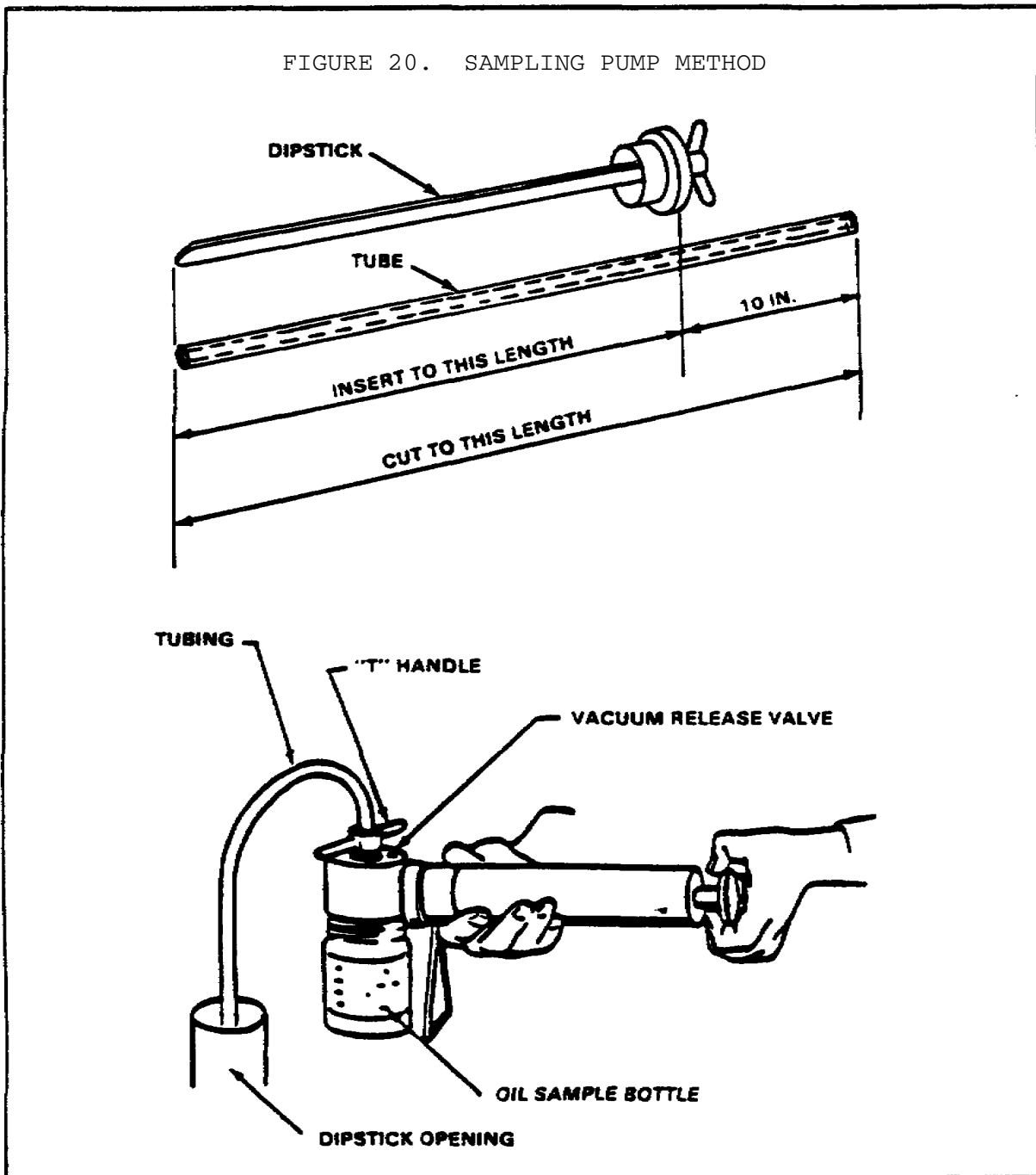
NOTE: if sampling valve is mounted directly to the pressurized gallery, no draining is required.

3. Place sample bottle under valve and fill to 1/2 inch from top, and cap bottle.
4. Return drained oil to reservoir.



The pump (Figure 20) is used to take samples through the oil filler neck or through the dipstick hole. The procedure is as follows:

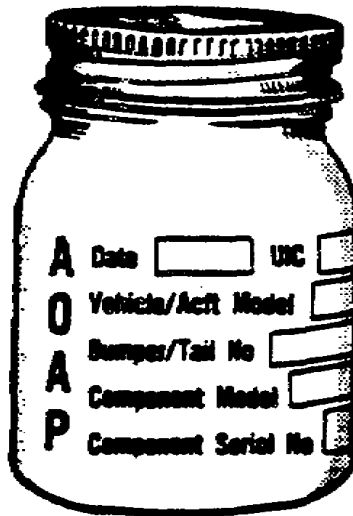
1. Determine how far the tubing has to be inserted into the reservoir by using the dipstick as a gauge (Figure 20). Cut tubing to a length approximately 10 inches longer than the dipstick.



2. Attach tubing to sampling pump by inserting tubing through "T" handle opening. Allow tubing to extend approximately 1/4 inch below pump head threads, and tighten "T" handle.
3. Attach the bottle to the sampling pump.
4. Carefully insert tubing into reservoir. Do not allow the tubing to touch the bottom or sides of the reservoir, since any sludge entering the tubing will contaminate the sample.
5. Hold sampling pump horizontally and pump until oil starts entering the bottle. Fill the bottle to approximately 1/2 inch from the top. Depress the vacuum relief valve (on top of pump) to stop flow.
6. Withdraw tubing from reservoir. Loosen "T" handle and remove tubing from pump. Discard tubing.
7. Replace reservoir cover.

Once you have drawn a sample, fill in your equipment bumper number and component serial number on the sample bottle label (Figure 21) to avoid confusion with other samples taken.

FIGURE 21. OIL SAMPLE IDENTIFICATION



Lesson 2/Learning Event 3

OIL SAMPLE SHIPMENT

Complete a DD Form 2026. This form must accompany all oil samples to the laboratory. The following instructions explain the information required for each block on the DD Form 2026 (Figure 17).

1. To Oil Analysis Lab. Enter the name of your supporting laboratory.
2. From Major Command/Operating Activity. On the first line, enter your major command (for example, FORSCOM, TRADOC, USAREUR, EUSA). On the second line, enter the full unit designation, and address, unit identification code (UIC), and telephone number.
3. Equipment Model/APL. Enter the nomenclature and model number of the component; for example, Engine AVDS 1790-2A, XMSN CD 850-6A, Hydr Sys.
4. Equipment Serial No. Enter component's serial number.
5. End Item Model/Hull No. Self-explanatory.
6. End Item Serial No./Equipment identification code (EIC). Self-explanatory.
7. Date Sample Taken. Enter day, month, and year sample was taken.
8. Local Time Sample Taken. Leave blank.
9. Hours/Miles Since Overhaul. Enter cumulative number hours/miles on the component since new or last overhaul.
10. Hours/Miles Since Oil Change. Enter number of hours/miles since last oil change on the component. If neither the component nor the end item has an odometer or hourmeter, enter the total estimated hours.
11. Reason For Sample. Check the block that is applicable. When the reason is other, explain under Remarks; for example, initial sample, loss of engine power, excessive smoke.
12. Oil Added Since Last Sample. Self-explanatory.
13. Action Taken. Leave blank.
14. Discrepant Item. Leave blank.

15. How Malfunctioned. Leave blank.
16. How Found. Leave blank.
17. How Taken. Self-explanatory.
18. Sample Temperature. Self-explanatory.
19. Type Oil. Self-explanatory.
20. Remarks. Self-explanatory.

When samples are to be mailed, use the shipping sack. Insert the oil sample bottle into the plastic bag and place the completed DD Form 2026 into the shipping sack along with the plastic bag. Send it by first-class mail to your supporting laboratory. Do not use bulk mail or parcel post.

When delivering the oil sample directly to the laboratory by courier, fold the completed DD Form 2026 in half (lengthwise), wrap it around the oil sample bottle, and secure it with a rubber band. Dispatch by courier to the laboratory. Regardless of shipping method used, oil samples are to be dispatched to the laboratory on the same day they are taken.

FEEDBACK DATA

Laboratory recommendations will be annotated on DA Form 3254-R (Figure 18) for components, when the oil sample analysis indicates a problem. The form will be used only when a maintenance action is recommended and not to request resamples or recommend oil change. The DA Form 3254-1 will be forwarded to the using unit. This form may be reproduced locally on 8 1/2-inch by 11-inch paper.

After personnel in the using unit have performed the laboratory-recommended inspection or maintenance action, they will complete the lower portion of DA Form 3254-R.

Block 14 will be used to explain any diagnostic performed, discrepancies found, and actions taken to return the component to a serviceable condition. The DA Form 3254-R will be returned to the laboratory within five working days after maintenance is accomplished.

If a component is evacuated for repair, a copy of DA Form 3254-4 will accompany it along with other appropriate paperwork. The support maintenance or overhaul facility

Lesson 2/Learning Event 3

will record the maintenance accomplished on the DA Form 3254-R and return it to the originating laboratory within five working days after maintenance is accomplished.

NOTE: The AOAP pressure-sensitive labels will be used on components going to a maintenance/overhaul facility. Two labels will be affixed to opposite sides of the component and two on the opposite sides of the outside of the shipping container. These labels will be supplied by the laboratory along with the DA Form 3254-R.

To summarize--

1. Remember to follow TB 43-0210.
2. The AOAP is a very effective maintenance diagnostic tool. It is not a substitute for good maintenance.
3. For equipment under warranty, follow manufacturer's instructions for oil/filter changes.
4. Keep sampling supplies and forms on hand.
5. Keep up your good maintenance.

LESSON 2

REVIEW EXERCISE

Check your understanding of Lesson 2 by completing this review exercise. Try to complete it without looking back at the lesson. When you have completed the exercise, turn to the solutions and check your responses. If you do not understand a solution, go back and restudy the section of the lesson where the information is given.

1. The foundation of the unit's maintenance program is _____.
 - A. Initial inspection
 - B. Daily PMCS
 - C. Final inspection
 - D. Scheduled maintenance

2. Maintenance recordkeeping begins with the _____.
 - A. DA Form 2404
 - B. DA Form 2406
 - C. DA Form 2407
 - D. DD Form 314

3. If an item of equipment is not operational, _____ is marked with a red tab in accordance with DA Pam 738-750.
 - A. DA Form 2404
 - B. DA Form 2406
 - C. DA Form 2407
 - D. DD Form 314

Lesson 2/Review Exercise

4. National stock numbers (NSN) are verified using the Army Master Data File (AMDF) or the _____.
 - A. -14 technical manual
 - B. -20P technical manual
 - C. DA Form 2404 "Daily"
 - D. DA Form 2408-14

5. When repair parts are received and installed by the mechanic, the DA Form 2404 and DA Form _____ are posted showing faults have been corrected.
 - A. 2402
 - B. 2408-1
 - C. 2408-9
 - D. 2408-14

6. When repairs have been completed and the equipment is operational, the records clerk posts NMCS/NMCM data on _____.
 - A. DA Form 2406
 - B. DA Form 2407
 - C. DD Form 314
 - D. DD Form 518

7. When a DA Form 2407 is initiated, it is recorded on DA Form _____.
 - A. 2402
 8. 2404
 - C. 2405
 - D. 2406

8. The DA Form _____ is used to identify the user and location of equipment while it is on dispatch.
- A. 2401
 - B. 2402
 - C. 2403
 - D. 2404
9. At the end of the mission, the operator performs after-operations PMCS, completes DA Form 2404 and DD Form _____, and returns them to the dispatcher.
- A. 314
 - B. 348
 - C. 1150
 - D. 1970
10. Which of the choices listed below is not a primary reason for the use of PM indicators?
- A. Time is a limiting factor
 - B. Commander should inspect
 - C. Commander is not a specialist
 - D. Probability of continued misuse
11. A variance of _____ percent before or after the scheduled sampling date is permissible under AOAP.
- A. 5
 - B. 10
 - C. 15
 - D. 20

Lesson 2/Review Exercise

12. Special oil samples will be submitted in all cases except _____.
- A. At the request of the laboratory
 - B. As scheduled by the maintenance shop
 - C. After indication of a problem
 - D. Immediately before transfer among commands
13. An authorization to discontinue oil sampling may be granted for equipment used for _____.
- A. Rescue missions
 - B. Civic action projects
 - C. Training aids
 - D. ROTC support
14. Oil sampling dates are scheduled on _____.
- A. DA Form 2407
 - B. DA Form 3254-R
 - C. DD Form 314
 - D. DD Form 2026
15. To request an oil analysis, _____ must be prepared.
- A. DA Form 2408-20
 - B. DA Form 3254-R
 - C. DD Form 314
 - D. DD Form 2026

REVIEW EXERCISE SOLUTIONS

1. B (page 29)
2. A (page 29)
3. D (page 32)
4. B (page 34)
5. D (page 34)
6. C (page 34)
7. C (page 35)
8. A (page 36)
9. D (page 37)
10. D (page 46)
11. B (page 58)
12. B (page 59)
13. C (page 60)
14. C (page 61)
15. D (page 62)

Lesson 3

LESSON 3

TACTICAL AND GARRISON MAINTENANCE SITES

TASK

Describe the procedures for establishing both tactical and garrison maintenance facilities.

CONDITIONS

You will be given information describing the correct procedures for establishing tactical and garrison maintenance facilities, an ACCP Examination Response Sheet, and a No. 2 pencil.

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding correctly to 75 percent of the examination questions pertaining to this lesson.

REFERENCES

- FM 29-2
- FM 29-23
- FM 55-30
- FM 63-1
- FM 63-2

Learning Event 1

TACTICAL MAINTENANCE SITES

The tactical situation and mobility requirements may limit the type and size of facilities which can be established. Therefore, available resources must be organized for maximum production. Each unit must develop SOPs for moving to a new area, establishing and conducting maintenance operations, and moving on to a new location, if necessary. The speed with which the maintenance element can set up shop at a new location has a direct bearing on the productive maintenance time available.

SITE SELECTION

The unit commander will make a map reconnaissance before occupying an unfamiliar bivouac area. After this, the commander sends out a reconnaissance party to select operating sites and explore primary and alternate routes of march. The ideal field maintenance site should--

- Have ready access to supported elements, the main supply route (MSR), and the local road Net.
- Be large enough to spread out yet small enough to defend, with room, if possible, for vehicles, facilities, repair parts, and supply storage.
- Be reasonably flat, with firm soil and good drainage to permit parking and movement of heavy vehicles.
- Be free of nuclear, biological, chemical (NBC) contamination and be upwind from known contaminated areas and likely NBC attack targets.
- Be easy to secure, with streams and marshes, where available, used for flank security.
- Have terrain features that provide cover and concealment. Those features between the site and likely NBC targets should give added protection.
- Be outside Natural air corridors to reduce the chance of air attack and to assist in air defense.
- Have a source of potable water, if possible.

Lesson 3/Learning Event 1

The reconnaissance party briefs the unit commander on their findings. The commander then selects the site which has the most favorable characteristics. The commander organizes and briefs an advance party to occupy and prepare the area for the unit.

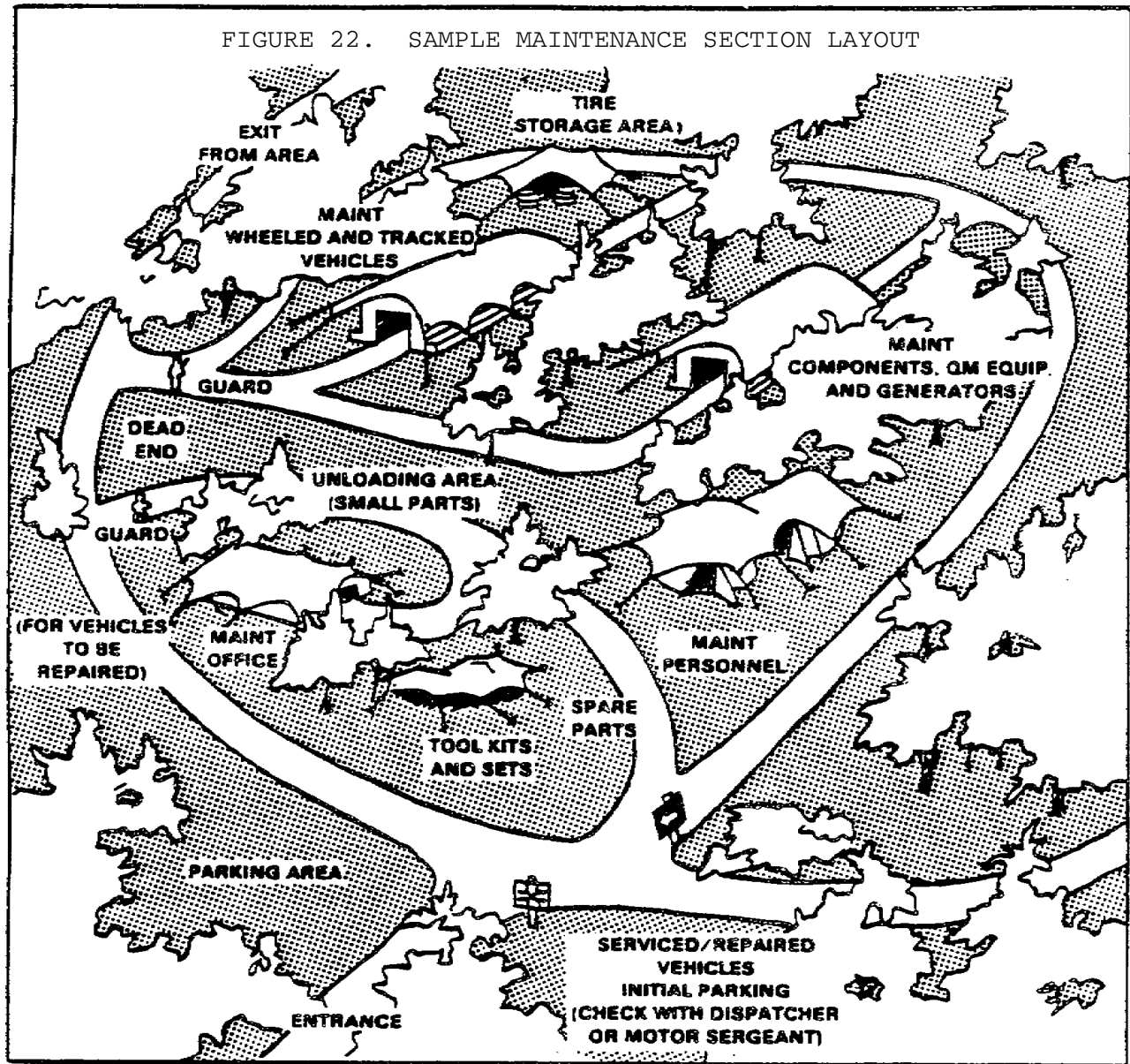
ADVANCE PARTY COMPOSITION

The makeup and size of the advance party is governed by two things: the tactical situation and the amount of work required to prepare the site for occupancy. Personnel in the advance party may include--

- First sergeant.
- Assistant section chiefs/platoon sergeants.
- Food service personnel.
- Tactical wire operations specialist.
- Field sanitation team.
- Maintenance personnel.
- Additional troops for labor and security.

ADVANCE PARTY DUTIES

The advance party will place road guides and route markers from the old bivouac site to the new location. These will be picked up by the last vehicle in the convoy. The first task of the advance party on arrival is to clear and secure the new site. After dismounting, the troops are organized into fire teams. These fire teams move through the area searching for mines, booby traps, information of intelligence value, and any other signs of the enemy's presence. As soon as the area has been cleared, a light security screen is provided around the bivouac site. This is done by establishing observation posts and strong points along likely avenues of approach to provide early warning and limited protection during the occupation of the bivouac site. The tentative location of the company and platoon command posts (CP) should be identified and provision for wire communications made. Platoon and maintenance section representatives select and mark off their areas. See Figure 22 for a sample maintenance section layout.



Roads and trails should be selected which provide for a one-way traffic pattern. Alternate exits should be selected and marked to provide emergency exits, if the main exit is blocked. Individual parking areas should be determined, with special consideration being given to the heaviest and most awkward vehicles, such as tractors and trailers. Assistant platoon sergeants should thoroughly reconnoiter their assigned areas, determining tentative locations for individual foxholes and carefully locating crew-served weapons.

Lesson 3/Learning Event 1

If possible, latrines and garbage sumps should be dug and screens and tents erected. As the main body of the unit arrives, the vehicles should rapidly clear the approach route, be guided into the bivouac site, and be parked. Drivers should perform after-operations maintenance and top off fuel tanks. Assistant drivers and operators should maintain their positions on the perimeter and begin preparation of fighting positions and other defense measures.

BIVOUAC LAYOUT

Mess Facilities. Special attention must be given to the selection of the mess area. It should be-

- Centrally located within the perimeter.
- Away from interior roads to avoid contamination of food by dust.
- Located a minimum of 100 yards from latrines.

Serving Lines. These should be-

- Marked with engineer tape.
- Located to take advantage of available cover and concealment.
- Planned so that 5-yard intervals can be maintained between personnel.

Latrines. Latrines should-

- Be located on the side of the bivouac opposite prevailing winds.
- Be at least 100 yards downhill from the water supply.
- Be adequate for a minimum of 8 percent of the unit at one time.
- Have hand-washing facilities located near the exits.

Maintenance. The selection of the maintenance location is dependent upon accessibility of entrance and exit routes. The area should be centrally located within the perimeter. The maintenance tent should have an entrance and exit at both ends. See Figure 22 for an example of an organizational maintenance layout.

Figure 23 shows a sample unit motor pool office layout housed in a general-purpose medium cent. The sidewall of the tent may be rolled up to allow the prescribed load list (PLL) clerk to issue parts and to move small items from the off-loading area to the storage location.

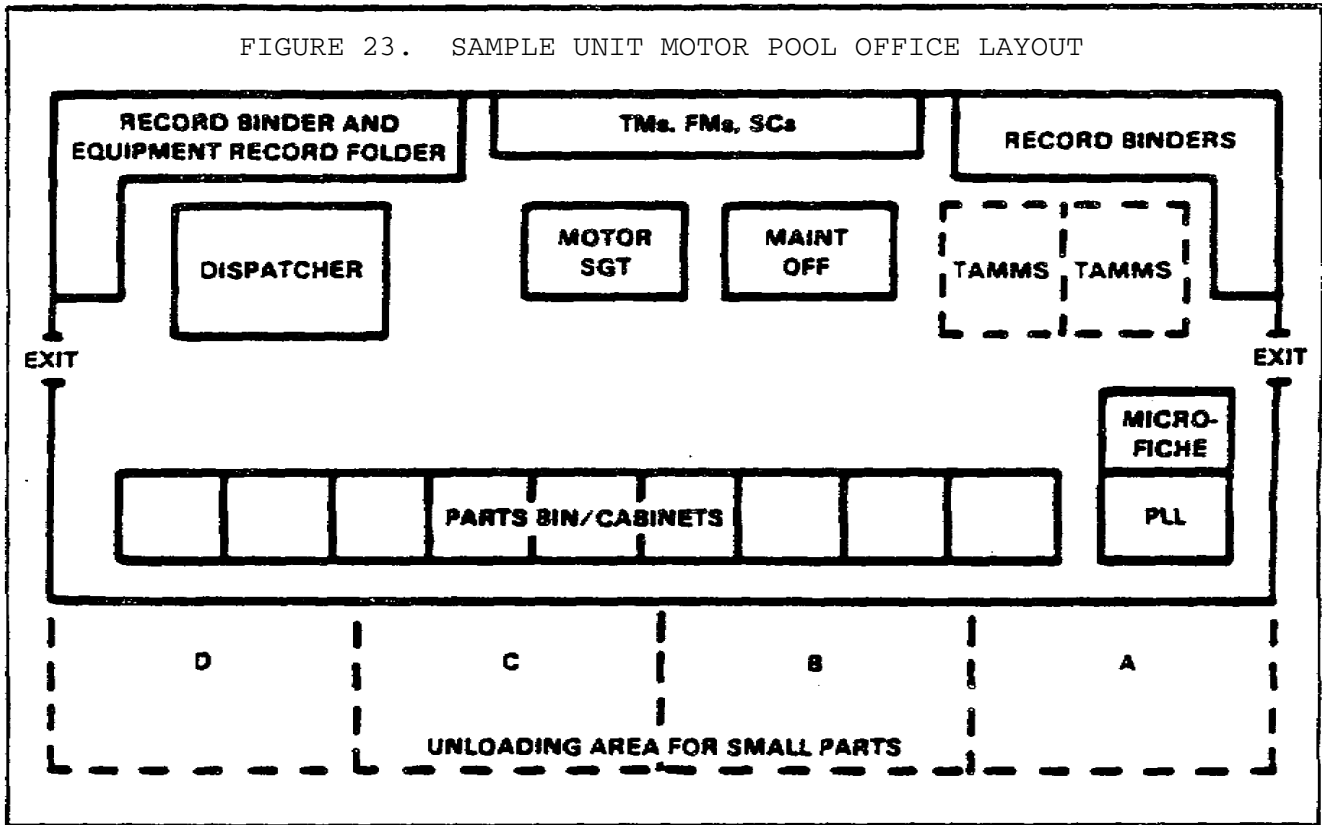
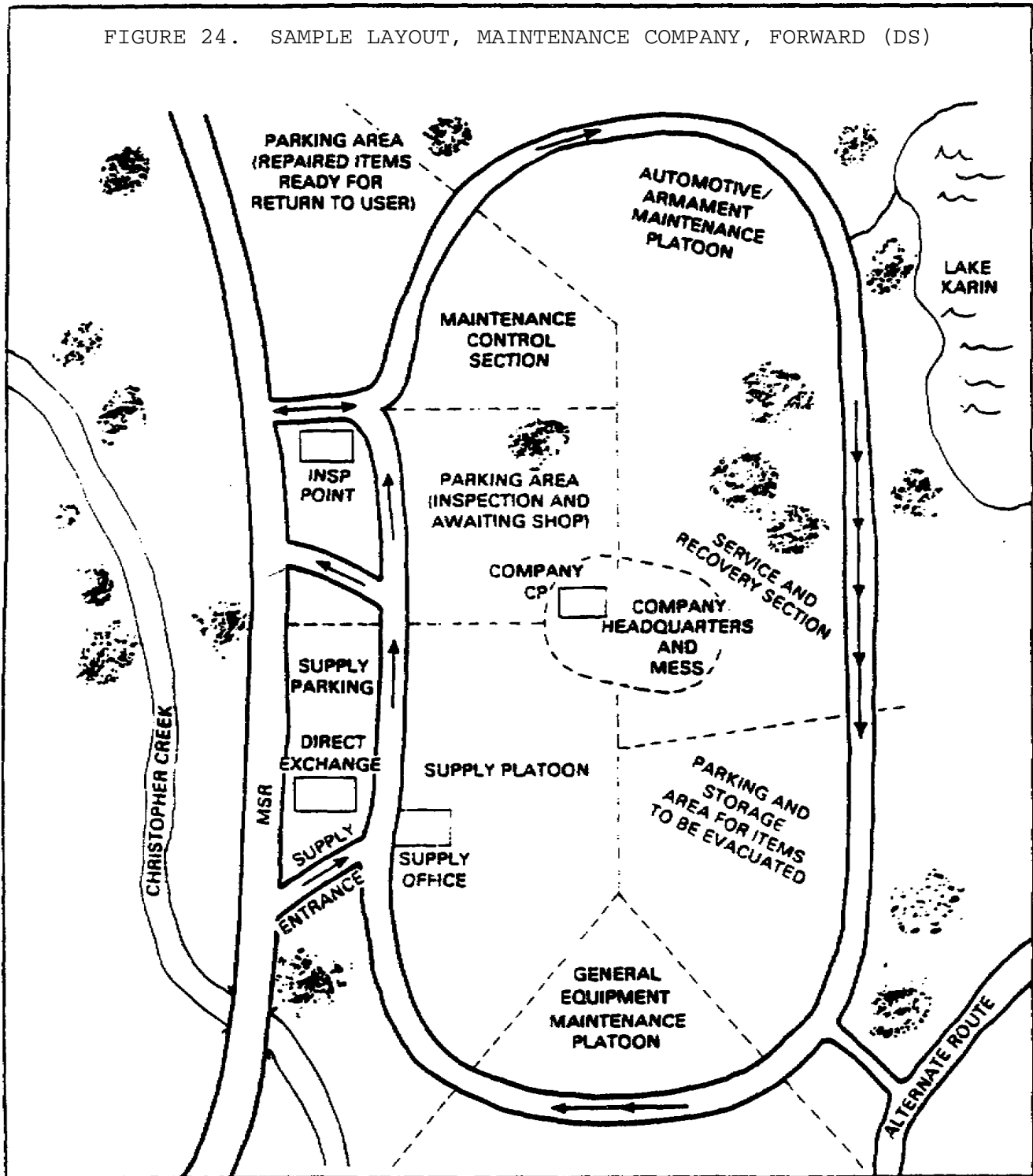


Figure 24 depicts a layout example of a maintenance company, forward (DS) in a field environment.



It is estimated that a minimum of 25,000 and a maximum of 40,000 square meters of usable area are required for a DS company forward. The minimum area would provide for vehicle dispersion of approximately 12 meters. From the standpoint of passive defense, the maximum area is more desirable. It is the largest dispersion that can be attained without serious degradation of unit efficiency and without increasing vulnerability to guerrilla attacks. The maintenance company, rear, because of larger size, more vehicles, greater supply stockage, and more workload, would require an area one and one-half to twice as large.

Command post. The CP must be centrally located within the perimeter. From here, it can exercise control over the company, remain well defended, and have lines of communications with subelements.

Fuel Tankers. The fuel tankers should be located as near as possible to the primary entrance where returning vehicles are topped off, and then moved to a protected position within the perimeter (away from likely avenues of attack) that offers protection to the tanker as well as to adjacent facilities.

Ammunition. The basic load of ammunition should be removed from the transporting vehicles. It must be stockpiled and protected by sandbags or an earth revetment, and located near the supply tent.

Troop Areas. Personnel will be permitted to sleep only in designated areas. These areas should be close to the section of the perimeter these troops are to defend. Vehicles will not be allowed to move without ground guides in areas where troops are sleeping.

BIVOUAC DEFENSE

As soon as the main body closes the bivouac site, primary emphasis should be on establishing and improving the defenses of the area. Platoon leaders and the company commanders should confirm the CP locations and quickly review the placement of the perimeter. Special emphasis is placed on siting crew-served weapons to ensure all-around defense. Where authorized, provisions should be made to ensure construction of road blocks, placement of antivehicular and antitank mines on likely avenues of high-speed approach, and the laying of a defensive antipersonnel minefield. If available, barbed concertina wire, trip flares, and booby traps should be emplaced. Individual and crew-served positions are prepared and camouflaged, and wire

Lesson 3/Learning Event 1

is laid to CPs and observation and listening posts. A secondary wire net over different routes should be provided, if possible, to ensure effective communications if the primary wire is cut by enemy action. If possible, the RC-292 radio antenna at the company CP should be removed several kilometers from the bivouac site to confuse enemy direction-finding equipment. Trucks and tents should be camouflaged with natural vegetation or the lightweight screening systems. Range cards for each individual position and crew-served weapon should be prepared. Coordination with supporting artillery, mortars, and reaction forces should be made, and defensive map overlays prepared.

ACTIVE DEFENSE

Active defense of a maintenance company's site does not include fighting beyond the perimeter of the bivouac area. Troops who man observation and listening posts must go beyond the bivouac boundaries. Other members of the unit do not go beyond the bivouac boundaries. Enemy ground forces may strike a company at several points at the same time before mobile defense forces can reach it. Therefore, the company commander must be prepared to use his own forces effectively at all times. Here, it is assumed that the maintenance unit is without outside assistance.

NOTE: A maintenance unit uses concealment, dispersion, and deception to protect itself. It does not take offensive action.

ALERT SYSTEM

The alert system for a maintenance unit provides for a two-stage alert. The first stage, "attack likely," warns unit personnel by audible or visual signal that an attack will probably take place. Troops are positioned in pairs, and one soldier remains alert at all times. (If the situation permits, the other member of the team may sleep.) During the 'attack likely' alert, as many soldiers as possible man their defensive positions. But every effort should be made to continue with the unit's normal mission. When the second-stage alarm, "attack imminent," is given, all personnel stop their normal duties and man their defensive positions. The reserve force is held in position near the CP until deployed by the unit commander. Personnel remain in their defensive positions until the all-clear signal is given.

FIRING ON THE ENEMY

When enemy forces are observed advancing on the bivouac, fire on them with long-range weapons. This fire must cover the withdrawal of outposts when the enemy threatens their security. Attackers must be kept under accurate fire as they approach. When they are within 150 yards or less, they should be hit with fire from all weapons. Enemy combat elements sighted in the vicinity should not be fired on when it is apparent that they intend to bypass the unit bivouac. However, information of enemy troops in the area should be rapidly forwarded to the nearest senior commander of friendly forces.

NOTE: Fire from machine guns should be strictly controlled to avoid premature disclosure of their positions.

COUNTERATTACKING

Make every effort to destroy the enemy if they penetrate the perimeter defense. The commander may use his reserve forces to destroy attackers and restore the integrity of the unit's position, or to block further advance by the enemy. Supporting artillery and air support and the shock action of armor may not be available. Therefore, the advantage of counterattacking must be balanced against the advantages of continuing the fight from positions which offer some cover from enemy fire. The chance of a successful counterattack by maintenance troops is not good. Remember; defense of the area does not include pursuit of hostile forces, only elimination of the enemy from the bivouac area.

WITHDRAWING

When faced with a superior force which threatens large-scale defeat or destruction, withdraw. But first get approval of the next higher command. However, when withdrawals are necessary, the immediate commander must make a decision fast. The commander will want to withdraw before the defending force is heavily engaged. When withdrawal from contact is necessary, a small detachment is used to cover the withdrawal. Before withdrawing from the area, destroy all equipment, supplies, and ammunition of value to the enemy. When possible, the security force covering the withdrawal is provided motor transportation. During periods of fighting with the enemy, the platoon leaders should continuously provide situation and status reports to the company commander. Use all means of communications to keep the company commander informed. The commander must have information in order to make sound, timely decisions.

PASSIVE DEFENSE

Passive defense measures are taken to keep the enemy from seeing the bivouac area. Passive security measures include concealment, camouflage of positions, control of movement, noise and light discipline, and minimum radio and telephone traffic. Concealment and dispersion are important passive defense measures against attack from the air. Construct two-man foxholes with adequate overhead concealment immediately after occupying a site. Foxholes are usually camouflaged with growth from the surrounding area. To conceal, use wooded areas and blackout lights, cover reflective surfaces, use protective shadows, and limit movement. Use radios and telephones as little as possible. One method of deceiving the enemy is to make vehicle tracks into an unoccupied wooded area and conceal tracks leading into the real bivouac area.

CLEARING THE BIVOUAC AREA

A unit normally starts preparing to clear a bivouac soon after it receives word to move. The sequence used to clear a bivouac area can vary every time. A good rule to follow is to concentrate the efforts of the unit in the areas that take the most time.

1. Loading. First, unit members should pack their individual clothing and equipment. Then, organizational equipment not immediately required for defense of the area can be loaded on vehicles and secured for the move. One exception to this procedure may be the kitchen equipment, which may be used to serve a hot meal just before departure. This is preferable to feeding individual rations while the unit is en route.

2. Vehicles on Dispatch. Drivers of vehicles on dispatch should be permitted to deliver their cargo. Companies about to move must either tell supported activities that support will be discontinued or the location of the new area.

3. Maintenance Section. The maintenance section will try to get all inoperative vehicles in operating condition as rapidly as possible. Vehicles which cannot be moved with the unit should be evacuated to the nearest maintenance support activity. In a DS company, equipment which cannot be repaired or evacuated will be destroyed.

4. Refueling. Fuel tanks of all vehicles should be topped off. If petroleum, oils, and lubricants (POL) supplies are

Lesson 3/Learning Event 1

available, the basic load should be replenished. Any fuel that cannot be moved will be destroyed.

5. Mess. When possible, personnel should be served a hot meal before the unit's departure. When this is not feasible and the distance of the move is great enough to permit, serve a hot meal en route. To accomplish this, dispatch the kitchen ahead of the main body. Give the mess steward instructions to rendezvous with the main body. The rendezvous should be a predetermined point where adequate parking facilities are available. After serving this meal, the mess section may be directed to join the advance party. The mess section should depart with a full supply of water, fuel, and rations.

6. Garbage Sumps and Latrines. Fill garbage sumps with at least 2 feet of dirt. When closing latrines, spray with an approved insecticide to kill flies and other insects. Spray the contents of the pit, and side walls, and the ground surface. Spray at least 2 feet around the pit. Then, fill the pit to the top with successive 3-inch layers of earth. Pack each layer down and spray its surface with insecticide. Mound the latrine over with at least 1 foot of earth. Finally, mark the covered latrine with a sign reading LATRINE CLOSED and the date.

7. Road Clearance. The road clearance is obtained from higher headquarters or traffic control headquarters. Request road clearance as soon as the unit is alerted to move.

8. Communications. Wire communication will be discontinued and all wire recovered. Radio nets will be opened in accordance with the unit signal operation instructions (SOI).

9. Closing Bivouac. After the unit is prepared for departure, the entire area is policed. When the main body has moved from the area, a small detachment should inspect the bivouac site. The detachment checks for proper police and searches for items of equipment that may have been overlooked.

DESTRUCTION OF EQUIPMENT

Equipment may have to be destroyed to prevent its capture and subsequent use by the enemy. The authority for ordering destruction of equipment is vested in division and/or higher commanders, who may delegate authority to subordinate commanders when the situation requires.

Lesson 3/Learning Event 1

DEGREE OF DAMAGE

Destruction should be such that the equipment and essential repair parts cannot be restored to operation either by repair or cannibalization. Classified equipment must be destroyed to prevent the enemy from gaining knowledge about its operations and functions. Associated classified documents must also be destroyed to render them useless to the enemy.

METHODS OF DESTRUCTION

Detailed methods of destroying specific items are in applicable technical publications. The following methods may be used singly, or in combination:

1. Improper operation--overloading, short-circuiting, or operating without lubricants.
2. Fire--use of gasoline, kerosene, diesel fuel, incendiary grenades, flame-throwers, or thermal devices.
3. Weapons fire--any rifle, machine gun, antitank weapon, or other weapon which may be accurately aimed.
4. Demolition--any military high explosive and fragmentation grenades.
5. Mechanical destruction--smashing, bending, cutting, or slashing using sledges, hammers, axes, rocks, heavy wrenches and similar hand tools, crowbars, cutting torches, and so forth.
6. Use of natural surroundings--submergence, burial, concealment, or scattering using shovels, spades, hoes, or other digging equipment.

PRIORITIES FOR DESTRUCTION

Priority must always be given to the destruction of classified equipment and associated documents. High priority is also given to destruction of weapons and ammunition. When lack of time or means limits complete destruction of equipment, priority is given to destruction of essential parts. These same parts are to be destroyed on all like equipment.

Learning Event 2

GARRISON MAINTENANCE SITES

Maintenance units operating in a garrison-type environment usually operate in buildings. These may be expressly designed as shop buildings, warehouses, aircraft hangars, or similar structures. In this type of operation, the size of the area and the number, types, and sizes of available buildings determine the area layout. A well-organized motor pool is essential for control, management, and support of maintenance operations. The unit mission and type of equipment will determine the type of facility.

FACILITIES LAYOUT

Garrison maintenance facilities include buildings, hardstands, water supply, electrical power, road nets, fences, and other real property. The largest shop area is used for wheeled and tracked vehicles. Maintenance facilities must--

- Provide easy access.
- Be readily secured.
- Be centrally located.
- Have storage space for supplies, repair parts, tools, and equipment.
- Have a source of water.
- Have effective drainage.
- Have a rest/break area with adequate ventilation and heat for operators and mechanics.
- Provide sufficient light.

The facilities layout will depend on the size and location of the unit and the facilities available. Major layout considerations include--

- Establishing a control point.
- Selecting equipment holding areas.
- Designing the shop area.

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- Controlling traffic flow.
- Establishing a secure area to control repair parts, tools, and test equipment.
- Providing adequate lighting and safety.
- Ensuring security.

In laying out the area, the same considerations apply as in field operations. For example, the control office, the supply office, and the initial inspection section should be near the entrance to the area. Supply traffic should be kept out of the maintenance areas. Elements with related or complementary functions should be located near each other. Although certain types of repair and parts fabrication are accomplished with equipment mounted on vehicles, these vehicles, space permitting, can be moved inside buildings. Refer to Figures 25 and 26, and to Figures 27 and 28 on pages 92 and 93 for suggested facilities layouts.

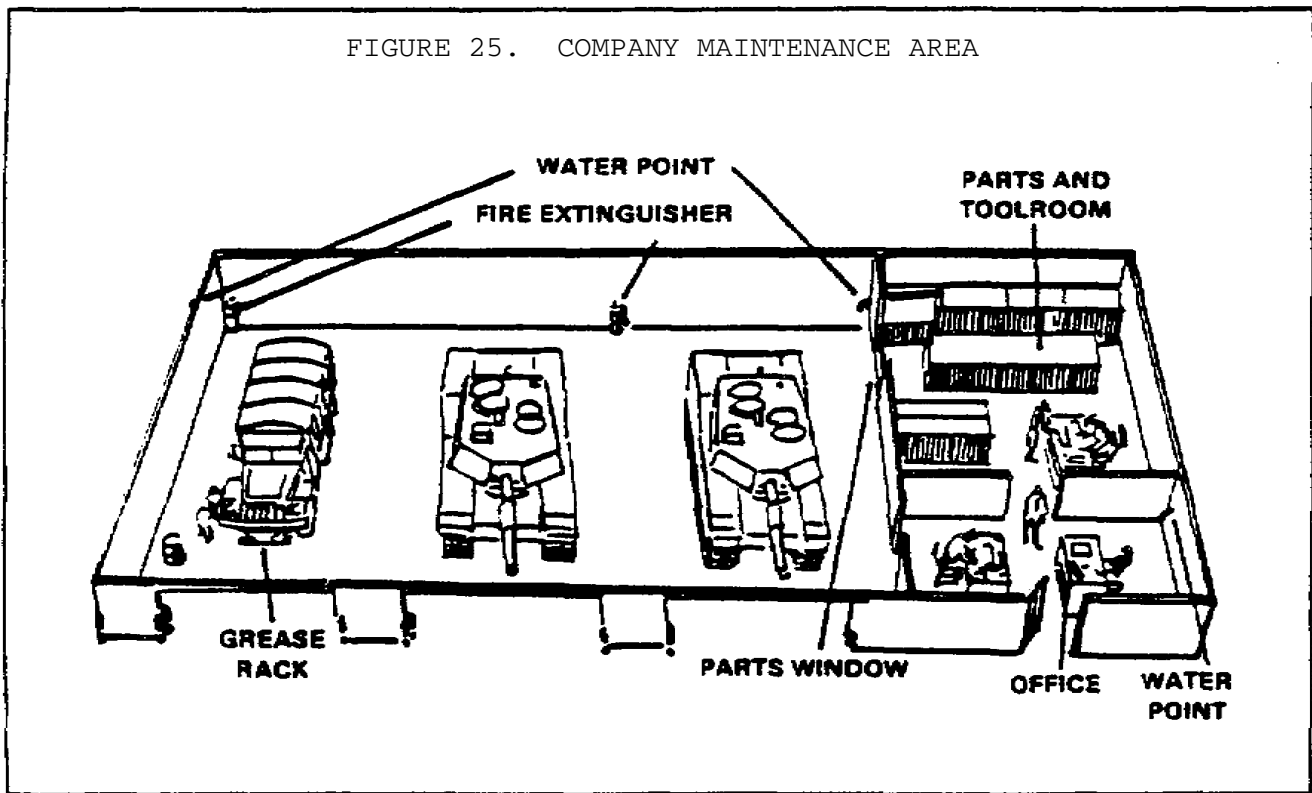


FIGURE 26. COMPANY AREA MAINTENANCE SHOP

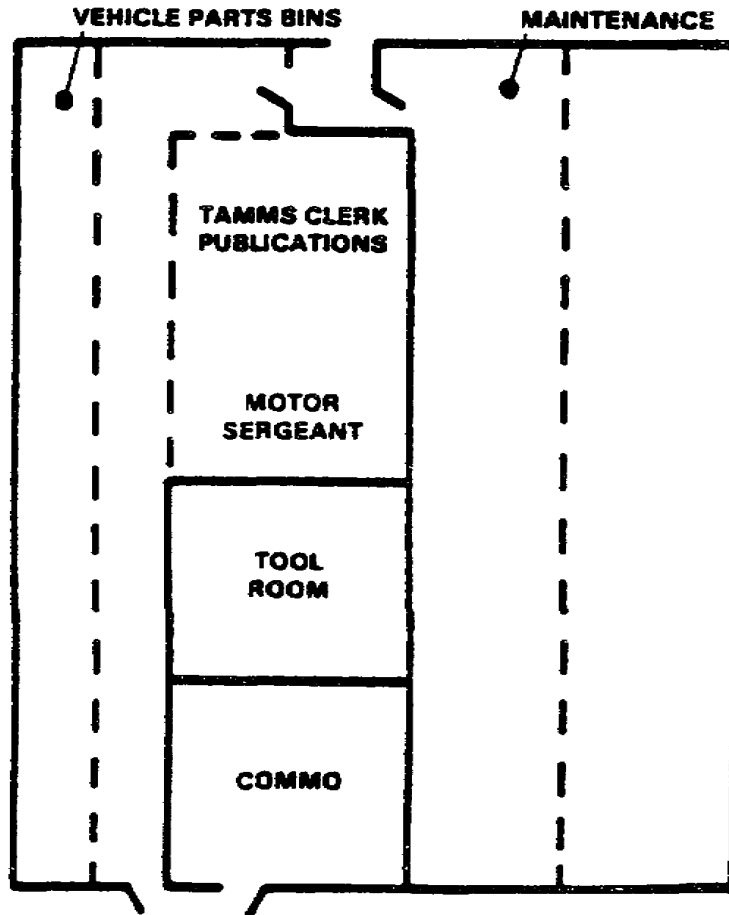


FIGURE 27. BATTALION MAINTENANCE AREA

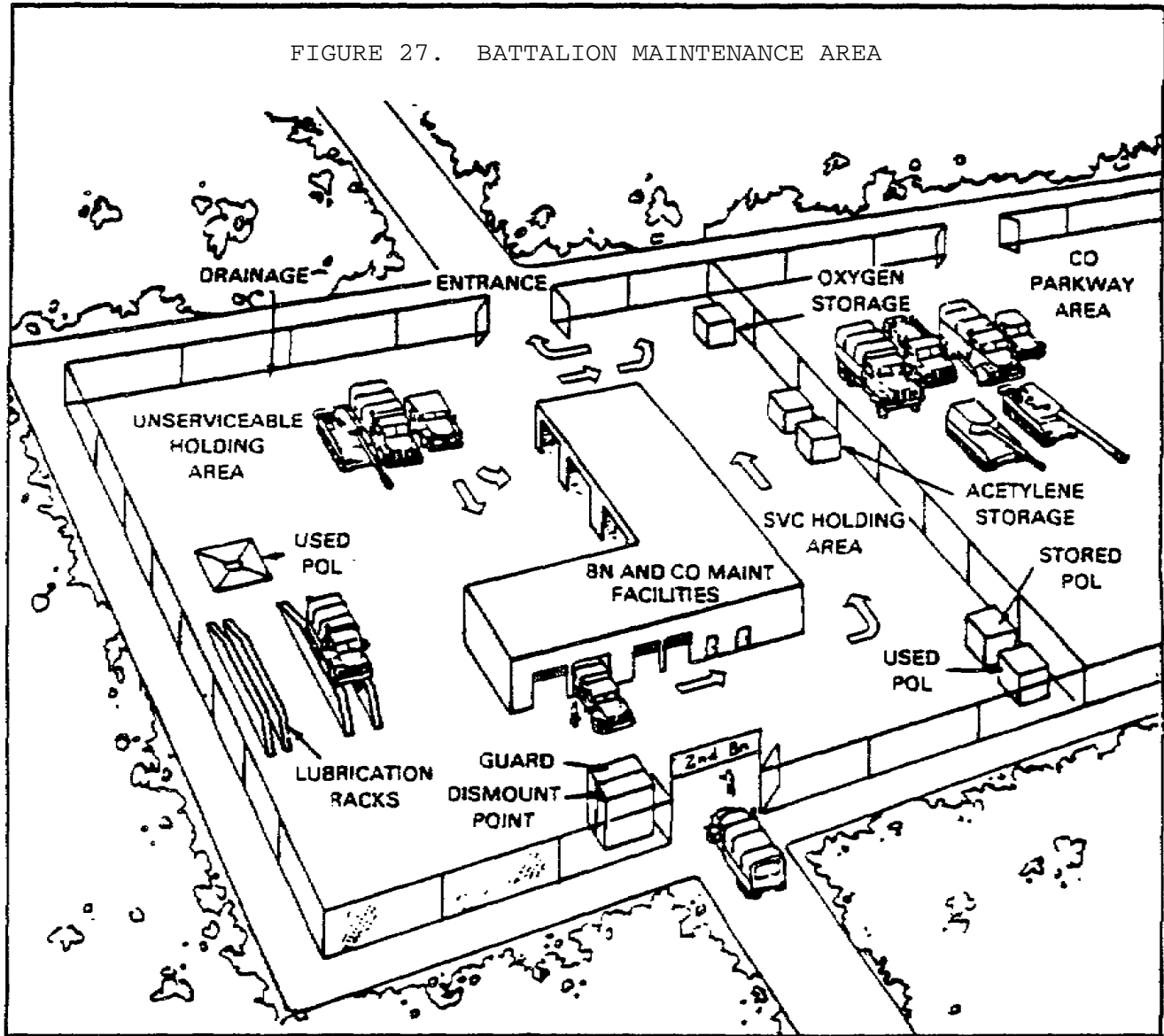
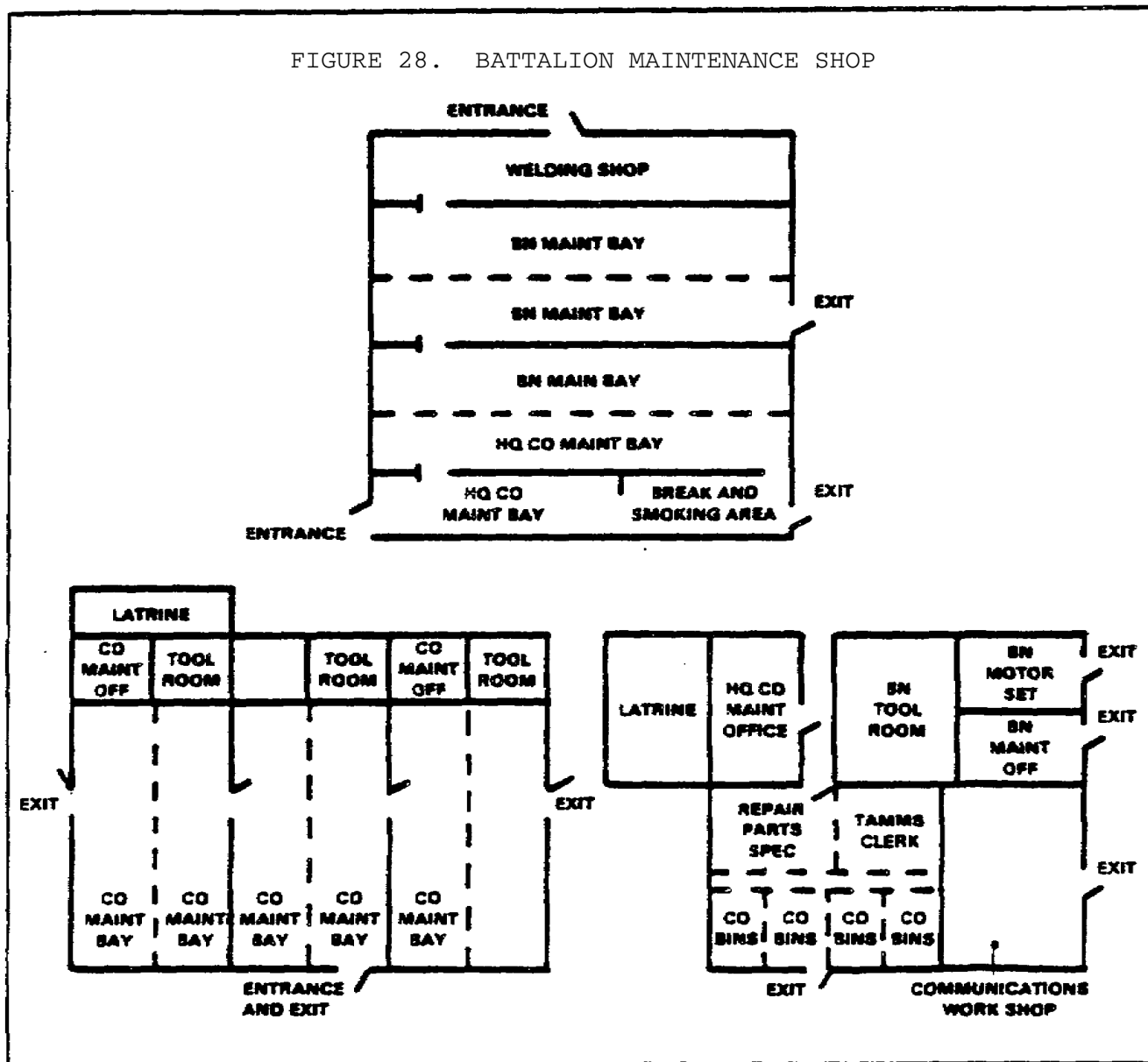


FIGURE 28. BATTALION MAINTENANCE SHOP

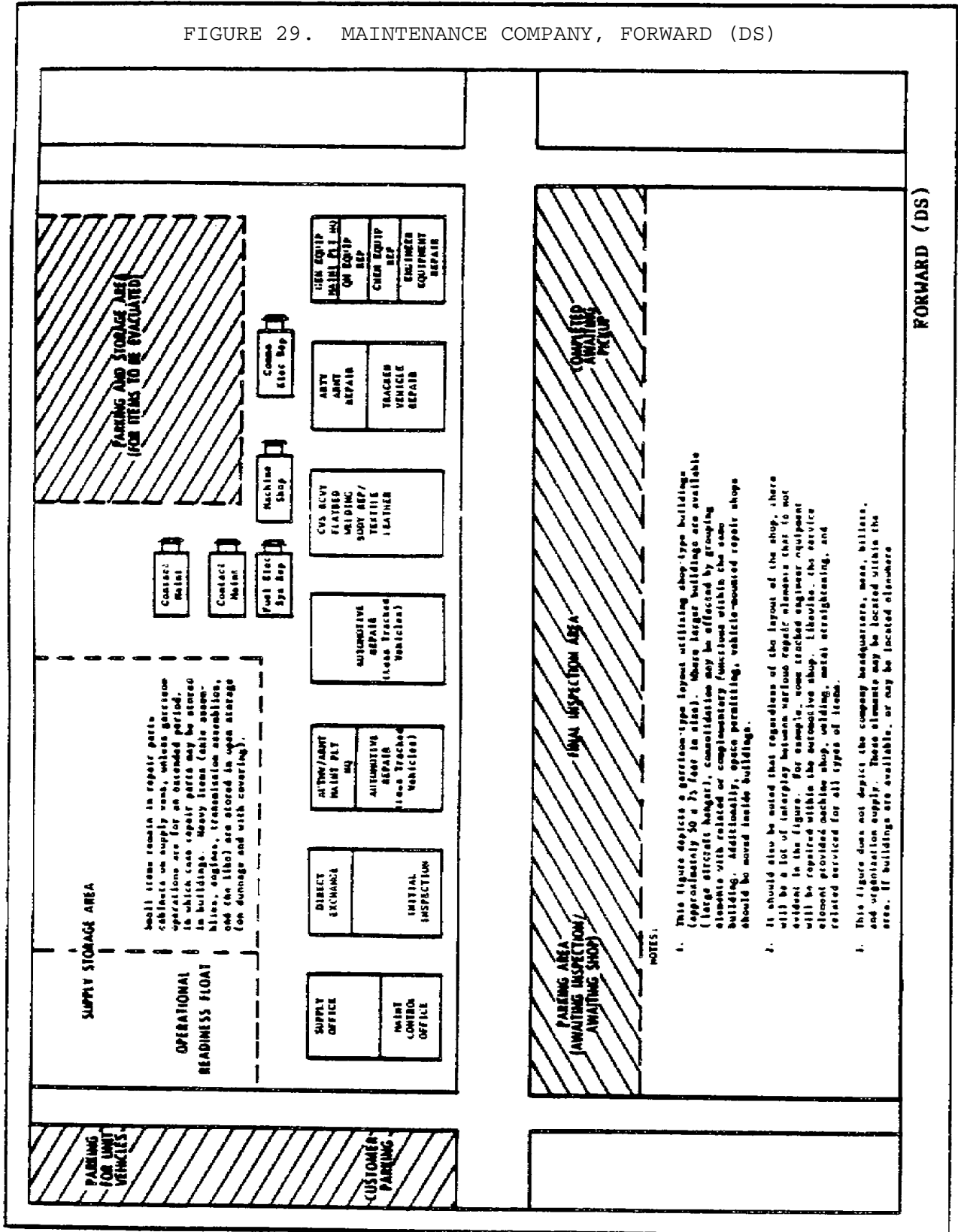


DIRECT SUPPORT SHOP ORGANIZATION AND LAYOUT

The maintenance shop of a DS maintenance unit is normally composed of a control element (maintenance control section), a service and recovery element, and one or more maintenance platoons or sections. The shop is responsible for receipt, inspection, control, repair, and/or evacuation of all equipment received from supported units. Shop layout and workflow are of prime importance in facilitating these operations. A good layout will speed the flow of work through the shop and minimize the movement of repair parts, tools, and equipment. (See Figure 29.) Principles to be observed when laying out the facility include—

1. Work sections should be located for ready access to each other.
2. Supply storage areas should be located to permit easy access for trucks.
3. The service section should be located to provide easy access to all maintenance shops.
4. Electronics and instrument repair should be accomplished in a dust-free area.
5. The service and recovery element should be located in the vicinity of the maintenance platoon or section to facilitate allied trades support and the movement of vehicles.
6. The control section and the inspection element should be located near the main entrance to the facility.
7. The supply platoon should be located near an entrance to keep heavy traffic out of the work areas.

FIGURE 29. MAINTENANCE COMPANY, FORWARD (DS)



NOTES:

1. This figure depicts a garrison-type layout utilizing shop-type buildings (approximately 50 x 75 feet in size). Where larger buildings are available (large aircraft hangar), consolidation may be effected by grouping elements with related or complementary functions within the same building. Additionally, space permitting, vehicle-mounted repair shops should be moved inside buildings.
2. It should also be noted that regardless of the layout of the shop, there will be a lot of interplay between various repair elements that is not evident in the figure. For example, some tracked engineer equipment will be repaired within the automotive shop. Likewise, the service element provided machine shop, welding, metal straightening, and related services for all types of items.
3. This figure does not depict the company headquarters, mess, billeting, and organization supply. These elements may be located within the area. If buildings are available, or may be located elsewhere.

FACILITIES MANAGEMENT

The unit commander and maintenance personnel must keep their facilities repaired and make improvements which permit more efficient operation or improve working conditions. The battalion S4 has staff responsibilities for facilities management.

Most installations have self-help programs for minor repairs and basic improvements. Specific procedures are provided by the facility engineers at each installation.

More complex maintenance and repairs involve support from the facilities engineers. Work requests are grouped in two categories, as follows:

- Service orders (SO) are used for small maintenance and repair jobs, such as emergency repair of broken plumbing.. The repair service is normally requested telephonically.
- Individual work orders are used for new work, repair, and minor construction; inspections; PM; recurring maintenance and repair work for buildings, grounds, surfaced areas, and utility systems; and miscellaneous maintenance. The DA Form 4283 (Facilities Engineering Work Request - XFA, XFB, XFC) is used to request this type of support.

LESSON 3

REVIEW EXERCISE

Check your understanding of Lesson 3 by completing this review exercise. Try to complete it without looking back at the lesson. When you have completed the exercise, turn to the solution at the end of the lesson and check your responses. If you do not understand a solution, go back and restudy the section of the lesson where the information is given.

1. Before occupying an unfamiliar bivouac area, a map reconnaissance will be made by the _____.
 - A. Operations NCO
 - B. Security NCO
 - C. XO
 - D. Unit commander
2. A bivouac area should be large enough to accommodate the unit but small enough to _____.
 - A. Ring with wire
 - B. Defend
 - C. Resupply
 - D. Place mines
3. Road guides and route markers will be placed from the old bivouac site to the new location by the _____.
 - A. Reconnaissance party
 - B. Advance party
 - C. Main body
 - D. Security force

Lesson 3/Review Exercise

4. Latrines should be located _____ downhill from the water supply.
 - A. 50 feet
 - B. 100 feet
 - C. 50 yards
 - D. 100 yards

5. Serving lines at the mess tent will be planned so that an interval of _____ between personnel can be maintained.
 - A. 5 feet
 - B. 10 feet
 - C. 5 yards
 - D. 10 yards

6. Active defense of a company bivouac site does not include _____.
 - A. Wire obstacles
 - B. Protective minefields
 - C. Fighting outside perimeter

7. To ensure effective communications, a primary wire net, radios, and a _____ should be employed.
 - A. Secondary wire net
 - B. Runner
 - C. Motorized messenger

8. Enemy combat elements bypassing your unit bivouac should not be _____.
 - A. Reported to higher headquarters
 - B. Fired on
 - C. Ignored

9. The alert system for a maintenance unit provides for two stages. During the "attack _____" stage, all normal duties are halted and defensive positions are manned.
- A. Likely
 - B. Imminent
 - C. Suspected
 - D. Threatened
10. The unit commander will want to withdraw before the defending force is _____.
- A. Heavily engaged
 - B. Relieved
 - C. Resupplied
 - D. Positioned

REVIEW EXERCISE SOLUTIONS

1. D (page 77)
2. B (page 77)
3. B (page 78)
4. D (page 80)
5. C (page 80)
6. C (page 84)
7. A (page 84)
8. B (page 85)
9. B (page 84)
10. A (page 85)

LESSON 4

FUNDAMENTALS OF SUPPLY OPERATIONS

TASK

Describe correct procedures for conducting supply operations in a unit-level maintenance facility.

CONDITIONS

You will be given information describing supply operations which must be conducted by a unit level maintenance facility, an ACCP Examination Response Sheet, and a No. 2 pencil.

STANDARDS

You are expected to demonstrate competency of the task skills and knowledge by responding correctly to 75 percent of the examination questions pertaining to this lesson.

REFERENCES:

AR 15-6
AR 710-2
AR 725-50
AR 735-5
AR 735-11
DA Pam 710-2-1
DA Pam 738-750
FM 29-23
NGBM 700-1

Lesson 4/Learning Event 1

Learning Event 1

SUPPLY PROCEDURES AND TERMINOLOGY

This learning event presents an overview of supply room procedures, including storage, maintenance, safety, security, protection against weather damage, and supply terminology. The success or failure of the entire Army supply system rests to a great extent on the proper implementation of supply procedures at the unit level. When equipment is received, managers and supply personnel incur an obligation to account for it until it is returned to the supply support activity. Accounting for equipment also includes preparing and processing adjustment documents in the event equipment is lost, damaged, or destroyed. As a maintenance supervisor, you will play a very important part in supply management and accountability.

During this learning event, supply room procedures and supply terminology will be discussed. This discussion is designed to show you, the maintenance supervisor, the relationship between maintenance and supply. Your ability to accomplish your maintenance mission will depend upon good unit supply procedures.

SUPPLY TERMINOLOGY

1. Inventory. The physical count of items on hand for verification with the recorded balances.
2. Negligence. An act or an omission to act that a reasonable person would not perform or fail to perform under similar circumstances. Full consideration will be given to the degree of care and resourcefulness which might reasonably be expected of the person concerned, considering their age, experience, and special qualifications, as well as to the specific nature of the property (personal or supervisory responsibility) in determining the reasonableness of the act or mission in question. Monetary liability will result when a person's negligence, willful misconduct, or wrongful appropriation of government property is the direct or proximate cause of any loss, damage, or destruction of such property.
3. Organization Clothing and Equipment. Clothing and equipment authorized by the applicable common table of allowances maintained and accounted for on the organization property book (for example, clothing, such as parkas or shelter halves).

4. Recoverable Item. An article selected on the basis of dollar value and requirements, which is essentially worthy of being repaired and used again.

5. Report of Survey. An official report used to record the circumstances concerning the loss, unserviceability, or destruction of property, and which serves as or supports a voucher for droppage of items from the property records on which they are listed.

6. Responsibility. The obligation of an individual with respect to the proper custody, care, and safekeeping of property entrusted to the individual's possession or under their supervision, with or without receipt, regardless of the condition of property (serviceability). There are two distinct types of responsibility: command and direct.

- Command responsibility. Applies to the officer in command of an installation, unit, or major activity, who has command responsibility for the security of all public property of his command, whether in use or in storage. Command responsibility extends to a thorough observation of subordinates and enforcement of all security, safety, and accounting.

- Direct responsibility. Applies to individuals to whom public arms and/or equipment is entrusted for care and safekeeping, whether such property is in their personal possession, in use, or in storage. Direct responsibility is divided into two types: personal and nonpersonal.

- Personal responsibility. The relationship between an individual and arms or equipment, including hand tools issued or otherwise acquired for or converted to the individual's exclusive personal use, with or without receipt. In addition, without exception, an individual has personal responsibility for property that the individual has converted to their own use without permission or authority; for example, a stolen vehicle.

- Nonpersonal responsibility. The relationship between an individual and property under their control or supervision, within the scope of the individual's employment, for which the individual does not have personal responsibility.

Lesson 4/Learning Event I

7. Sensitive Item. Material requiring a high degree of protection and control because of statutory requirements or regulations, such as medical items (narcotics, tax-free alcohol, precious metals); high-value, highly technical, or hazardous items; and small arms, ammunition, explosives and demolition material.

8. Sets, Kits, Outfits (SKO). The assemblage of various items that comprise a set of equipment designated for a specific use, such as a carpenter tool set complete with all saws, hammers, levels, squares, and so on.

9. Statement of Charges. A form used by a responsible supply officer to charge an enlisted soldier, officer, or Department of the Army civilian employee for the loss, damage, or destruction of government property. This form cannot be used when charges against any one individual exceed one month's base pay. Reimbursement by the individual charged is accomplished by payroll deduction.

10. Supply Economy. The careful, thrifty management and use of supplies and equipment. Supply economy is the basic reason for conserving, maintaining, repairing, recovering, preserving, safeguarding, and salvaging supplies. Each soldier has a responsibility for supply economy.

11. Surveying Officer. The officer authorized to make an inquiry and fix responsibility for damage, loss, or destruction of military property when such losses are determined to be not due to normal fair wear and tear.

12. Unserviceability. A more inclusive term than damage or destruction. It indicates, in military usage, that the article(s) to which the term is applied is/are no longer useful for the intended purpose. Damage or destruction may or may not be involved. The term indicates property that has deteriorated through use, but it may include property no longer usable for its original purpose, regardless of the reasons for its condition.

UNIT SUPPLY ROOM PROCEDURES (STORAGE AND MAINTENANCE)

One of the first things that must be considered in discussions of supply room procedures is the supply room itself. Other things that must be considered in determining whether or not the supply procedures and security measures are adequate include safety provisions, security against theft, and protection against weather damage. Also considered will be certain items that require special storage procedures.

The layout of storage facilities is an important factor in determining the efficiency and security of the storage operation. Therefore, each unit will require certain storage facilities to protect, secure, and handle supplies essential to its operation. A supply room is always necessary for storing supplies and for controlling the issue of supplies. An arms room is required to store weapons, and a toolroom or auxiliary storage room is needed for storing miscellaneous supplies, such as tools, expendables, and housekeeping supplies. A building away from the maintenance building is necessary for storing paint if it is kept on hand in the unit.

A toolroom or auxiliary storage room may be used for storing tools and other items that should be placed under lock and key.

For safety, flammable scrap materials must be stored in open storage areas. Working materials, such as paint, excelsior, and rags, when not properly stored, present an extreme fire hazard. Therefore, these materials should be stored in receptacles which are fireproof, sparkproof, and properly marked to identify their usage. Self-closing metal receptacles must be provided for all discarded oily waste, rags, excelsior, or mechanic's clothing. Provisions of local SOPs should also be considered when establishing safety procedures.

When supplies are stored, theft and pilferage are a problem. Supplies can be stolen in large quantities (theft) and in small quantities (pilferage). Some of the most desirable items are clothing, foodstuffs, and small tools. Items such as small tools and clothing are considered "sensitive" items; they must be kept under continuous surveillance. Constant inspections and lock-and-key security are the best protection against theft.

Protection against weather damage is important when caring for supplies. Determine whether the item should be stored in a temperature- and humidity-controlled warehouse, a storage warehouse, a shed, or an open storage area. Supplies stored in the open must be protected from adverse weather conditions.

Lesson 4/Learning Event 1

Materials become unserviceable for many reasons. The life expectancy of many items is influenced and limited by humidity and temperature. Humidity, the moisture in the air, has a deteriorating effect on most supplies. Supplies must be constantly inspected to ensure that they have not been damaged by temperature extremes. For instance, paints may be severely damaged or even become useless when subjected to temperatures below freezing. Often overlooked as a storage hazard is the proximity of the supplies to sources of artificial heat, such as stoves or suspended heaters.

Dunnage, paulins, and tents are the three primary means of protecting supplies in the open from weather elements. Dunnage is any material that is used in transportation and storage to support and secure supplies, to protect them from damage, or to provide ease in handling. Paulins are sheets of canvas or other moisture-resistant material. They are used to cover supplies in open storage to protect them from the sun, wind, rain, snow, or ice. Paulins must be overlapped in a direction away from prevailing winds, folded, and securely fastened to give maximum protection. After adverse weather, paulins must be checked for damage. Tents often provide excellent protection from the weather, if erected properly. Tents, like paulins, must be checked after adverse weather conditions.

Learning Event 2

PRESCRIBED LOAD LIST, REQUESTING SUPPLIES, SUPPLY STATUS, CANCELLATION,
TURN-IN PROCEDURES

Manual procedures to manage and operate a supply operation for support units below the wholesale level are used by all Army elements. Deviations from procedures outlined below will only be made with prior approval of Headquarters, Department of the Army (HQDA). Requests for deviation from accounting procedures will be prepared and processed using AR 735-5.

The supply sergeant will supervise the supply operation and must therefore know the procedures well enough so that he can teach his subordinates. Supervisors must be familiar with the form used to request supplies as well as what their unit is authorized, how to replenish supplies, how to set priorities, and when and how to cancel or turn in supplies and equipment.

PRESCRIBED LOAD LIST (PLL)

A PLL of repair parts is a quantity of essential supplies authorized to be on hand at the user level. The supplies are maintained at unit level and enable the unit to sustain itself until resupply can be effected. The PLL is made up of a basic load (when kept) and an operational load of repair parts.

1. The basic load supports unit maintenance operations in combat for 15 days. Basic load items can also be used to support peacetime operations.
2. The operational load supports daily unit maintenance operations. Normally, this is also for a prescribed number of days of supply.

To manage and evaluate PLL procedures effectively, managers must be completely familiar with the PLL and what it is, the policies that apply to the PLL, the records that are required to manage the PLL, and the Uniform Materiel Management and Issue Priority System (UMMIPS).

Lesson 4/Learning Event 2

The DA Form 2063-R (Prescribed Load List). The completed DA Form 2063-R (Figure 30), approved by the commander, is the PLL in the manual system. It identifies the quantity of repair parts and maintenance-related items authorized to be on hand or on order at the user level. The PLL consists of the following:

1. Items designated for initial stockage for assigned equipment.
2. Any additional repair parts or maintenance-related expendable supplies that have generated sufficient demands (at least three demands in the most recent 180 days for Active Army (360 days for Army National Guard (ARNG)/United States Army Reserve(USAR)) to qualify for stockage.

PLL Policy. The following are the policies that determine the procedures for PLL:

1. The total number of PLL lines may not exceed 300. Units may request exceptions from the major Army command (MACOM). Units with a combat PLL or an essential repair parts stockage list (ERPSL) may exceed this limit. The DA Pam 710-2-1 provides details.
2. The commander keeping the PLL is also its approving authority.
3. All PLL stocks must be on hand or on request.
4. Units that regularly support other units without maintenance capabilities will include the supported unit's equipment in their PLL computations.
5. Technical manuals identify repair parts by NSN, name, and recoverability code. They also prescribe the level of maintenance authorized to request and use the repair parts. The Army Master Data File (AMDF) can be used to check request data for items assigned an NSN.

6. An inventory of the PLL must be made when DA Forms 3318 (Record of Demands -Title Insert), shown in Figure 31, are reviewed. The review period is 90 days for the Active Army and 180 days for the ARNG/USAR.

FIGURE 31. DA FORM 3318 (RECORD OF DEMANDS - TITLE INSERT)

DA FORM 3318 JAN 85				EDITION OF MAR 85 IS OBSOLETE.									
RECORD OF DEMANDS - TITLE INSERT													
For use of this form, see DA FORM 710-2-1. The program agency is ODCSLOG. STOCK NUMBER 6230-00-264-8261													
DEMANDS						REQUESTS							
DATE a	USED b	QUANTITY c d		DATE a	USED b	QUANTITY c d		DOCUMENT NUMBER e	QUANTITY f g		DOCUMENT NUMBER h	QUANTITY i j	
1202	COMMO	2	0					1181-0206	12	0			
1216	INTR PL	1	0					1202-0203	2	20			
1216	NRC	1	0					1216-0208	2	1			
								1222-0201	2	2			
SAMPLE													
Detached from DA 3318						TITLE INSERT							
BALANCE NO INVT	REMARKS			SOURCE: SEA				IN EA	REQ U	STORAGE CODE	DATE	QUANTITY	
9	LTR, FORSCOM, 22 JAN 86 CTA 50-970, JUN 85							X	Z	1181	1181	12	
STOCK NUMBER				ITEM DESCRIPTION				CABINET		LOCATION			
6230-00-264-8261				FLASHLIGHT				KABWPT		#1			

7. Units authorized to perform maintenance above the unit level may include items prescribed by technical manuals for the maintenance level they perform if they qualify for stockage. These items are not subject to the 300-line limit placed on PLLs.

8. Property book accountability is not established for prescribed loads. However, the unit commander is responsible for exercising adequate care and surveillance over such supplies.

9. Prescribed load list stocks and records are maintained in units which are authorized personnel, tools, and equipment to perform maintenance.

10. Demand-supported repair parts for any equipment on which the unit can perform maintenance are included in the PLL.

11. The PLL stocks and records will be kept in an area convenient for maintenance personnel.

Types of Stockage. Three types of stockage are on hand at the unit level: initial, consumable item, and direct exchange (DX) stockage.

1. Initial stockage of repair parts is established for new units and units having a change in equipment. Initial stockage is based on essential needs supported by data from technical manuals or by historical usage data of units with the same equipment. When technical or usage data are not available, PLLs and/or card decks may be requested through the supply support activity (SSA) from Commander, USAMC Materiel Readiness Support Activity, ATTN: AMXMD-S, Lexington, KY 40511-5101 (except for medical, missile, United States Army Intelligence and Security Command, and communications security equipment).

2. Consumable item stockage refers to items consumed in performing maintenance, such as nuts, bolts, screws, tubing, other common hardware, and other quick supply store (QSS) items. These items may be requested and stocked based on usage. They may be on hand in quantities up to an estimated seven days of supply and are not included in the operational load. The DA Form 3318 is not required unless they are basic load items. When a repair is requested and it does not appear on the PLL or DX list, the repair parts clerk must check the QSS list. This list is published periodically by the SSA. After the part required has been identified as a QSS item, it is requested from the SSA on a QSS want slip. No posting to other supply records is required for QSS items.

3. Direct exchange stockage items are repair parts considered to be recoverable/repairable. These are supplied from the SSA to using units through a system known as DX. Under this procedure, unserviceable items are exchanged for serviceable items on a one-for-one basis. A list of items authorized to be exchanged is provided to the using unit by the SSA. When the using unit's parts clerk determines that the unserviceable item is DX, he prepares DA Form 2402 (Exchange Tag). If the DX item is PLL, the parts clerk will exchange the item, if available. The DA Form 3318 is then posted. The DX items that are not stocked or are at zero balance will be assigned the appropriate Urgency of Need Designator (UND). Commanders or their designated representative must authenticate each high-priority DX item by placing their signature in Block 8 of DA Form 2402. When the DX item is turned in to the SSA, copy 1 of the DX tag is retained by the parts clerk as a due-out, if a serviceable item is not on hand. Supervisors must ensure that all unserviceable DX items are turned in promptly to the SSA for exchange and that due-outs for DX items are on file in the unit's repair parts section. Parts clerks should be required to make frequent contact with their SSA to check on these due-outs.

Nonstocked Item Demand File. A separate file of DA Forms 3318 (Figure 31) must be kept to record demands for nonstocked items. These items may be added to the PLL after meeting the stockage criteria of three demands in the most recent 180 days (360 days for ARNG/USAR). The items may be added to the PLL at the time of the third demand.

1. When a nonstocked item is demanded for the first time, take the following actions:

a. Prepare a DA Form 3318 for the item. The Title Insert section need not be completed at the time the form is prepared. (Keep only one card for each stock number.)

b. enter the demand on the form. It is not necessary to keep track of due-outs or the request sent to the SSA. Use the document register for this purpose.

c. File the form in the nonstocked file in national item identification number (NIIN) sequence.

2. When a nonstocked item is demanded for the second and following times, take the following actions:
 - a. Enter the demand on the DA Form 3318.
 - b. Line out demands that are more than 180 days old (more than 360 days old for ARNG/USAR).
 - c. Review the form to see if the stockage criteria have been met.
3. When review of the nonstocked file is necessary (at least once every 90 days (180 days for ARNG/USAR)), take the following actions:
 - a. Remove cards from the file that no longer apply to the equipment on hand or have had no demands in the most recent 180 days (360 days for ARNG/USAR).
 - b. Submit cancellation requests for any due-ins that do not apply to equipment on hand.
4. When an item meets the PLL stockage criteria, inform the unit commander. The commander will decide whether to add the items to the PLL. When the items will be added to the PLL, take the following actions:
 - a. Add the quantities of the three demands. Enter this quantity in the Quantity Demanded column of DA Form 3318. (Use the next available line.) Underline this entry. Do not count any of the demands above this line during future reviews.
 - b. Determine the initial stockage quantity for the item. Follow the procedures in DA Pam 710-2-1.
 - c. Prepare a request for the initial stockage quantity, using UND C. Enter the request on the first available line in the Request section of DA Form 3318.
 - d. Complete the Title Insert section of DA Form 3318.
 - e. File the DA Form 3318 in the PLL visible file.
 - f. Prepare a change to the PLL. Use DA Form 2063-R. Obtain the unit commander's approval.
 - g. Send the PLL change and the request for initial stockage to the SSA.

Lesson 4/Learning Event 2

5. When a nonstocked item has met the PLL stockage criteria, but is not added to the PLL, take the following actions:

a. Write "Commander does not desire to stock this item" on DA Form 3318. Make this entry on the next line of the Demands section.

b. Continue keeping the card in the nonstocked file. Start keeping track of demands again.

Uniform Materiel Movement and Issue Priority System (UUMIPS). The UUMIPS is designed to ensure that items are delivered according to the military importance of the requesting unit and the urgency of need for other items. The system is based on a combination of factors relating the mission of the requisitioner, force/activity designator (FAD), and the UND of the request.

1. The FAD is expressed by Roman numerals I, II, III, III, IV, or V; The permanent orders activating the unit usually include the assigned FAD. A unit has only one PAD. The highest priority units are assigned FAD I; the lowest are assigned FAD V.

2. The UND is determined by the using unit. It is used to express how urgently the unit needs the requested supplies. The UND is identified by the letters A, B, or C.

a. The UND A is used to request material identified in the modification table of organization and equipment (MTOE) with equipment readiness code (EC) A, and/or required for immediate installation on, or repair of, mission-essential material without which the unit or activity is unable to perform its assigned mission.

b. The UND B is used to request material identified in the MTOE with ERC B and/or required for immediate installation on, or repair of, mission-essential material without which the ability of the unit or activity to perform its assigned operational mission is impaired. It is also used when material is required for immediate use for installation on, or repair of, auxiliary equipment.

c. The UND C is used to request material identified in the MTOE with ERC C and/or required for scheduled repair, maintenance, manufacture, or replacement of all equipment and/or material required for purposes not covered by any other UND.

3. The priority designator (PD) for a supply request is determined by relating the FAD to the UND of the needed item. Use Table 4 to select the PD on the line that relates the unit FAD and UND. The PDs for all supply requests will be determined according to the UMMIPS (AR 725-50). Commanders will either personally review or delegate, in writing, to specific persons the authority to review all requests based on UNDs A and B. This review will be done prior to sending the request to the SSA (AR 710-2).

TABLE 4. PRIORITY DESIGNATOR TABLE

FAD	UND		
	A	B	C
I	01	04	11
II	02	04	12
III	03	06	13
IV	07	09	15
V	08	10	15

PLL Replenishment. Priorities are assigned to replenishment requests, as follows:

1. The UND C is normally used to determine the PD for replenishment when items on the PLL are used and the line is NOT at zero balance.
2. The UND B may be used to determine the PD for replenishment of a line item when the line IS at zero balance.
3. The UND A is not authorized to be used in determining the PD for PLL replenishment.

PLL Records. The PLL records consist of the following:

1. The DA Form 2063-R (Prescribed Load List).
2. The DA Form 3318 (Record of Demands - Title Insert). This form is used to record all item information, such as

NSN, technical manual data, nomenclature, and so on. It is also used to record demands, requests, receipts, inventories, and reviews. These forms are maintained in a visible file in the NIIN sequence, which is the last nine characters of the NSN. The primary purpose of DA Form 3318 in the manual system is to allow units to adjust their stockage based on demand experience.

REQUESTING SUPPLIES

Units must submit all requests for supplies to the specific SSA that supplies the item. The SSA stock record officer then determines the source of supply for the requested item.

Requests are prepared when--

- Authorized PLL stockage levels increase.
- Items are added to the unit equipment authorization.
- Maintenance personnel need repair parts not carried on PLL, although authorized.
- The QSS and self-service supply center (SSSC) lines at the direct supply unit are at zero balance and your request is high priority.
- Stocks need to be replenished.

Priority designators for all requests for issue are determined according to the UMMIPS described in AR 725-50. Commanders will personally review or delegate, in writing, to specific persons the authority to review all high-priority requests for issue based on UND A and 3 (PDs 01 through 08). This review is done before the requests for issue are sent to your Materiel Management Center/Stock Control Section (MMC/SCS).

Use of Forms to Request Supplies. The DA Form 2765 (Request for Issue or Turn-In) Prepunched/Preprinted (Figure 32) is primarily used to request initial issue, expendable, durable, or nonexpendable supplies listed in the AMDF. The DA Form 2765 Manually Prepared (Figure 33) on page 118 is used when a prepunched/preprinted DA Form 2765 is not available.

FIGURE 32. DA FORM 2765 (REQUEST FOR ISSUE OR TURN-IN)
PREPUNCHED/PREPRINTED

System entries by card column.

Card	Column	Explanation
	1-3	OIC A0A, A0B, or A0D
	4-6	Blank.
	7	Prepunch indicator P.
	8-22	NSN, MCN, MPN.
	23-24	U/I code
	25-29	Blank.
	30-35	Unit DODAAC.
	36-43	Blank.
	44	Demand code R.
	45-53	Blank.
	54	Subunit PLL code or blank.
	55-66	Blank.
	67	Supporting DSU code.
	68-80	Blank.

Use of Forms to Request Repair Parts. The following forms will be used to request repair parts: (The DX and QSS requests will be addressed later in this learning event, under Types of Stockage.)

1. The DA Form 2765 (Request for Issue or Turn-In) Prepunched/Preprinted (Figure 32) is normally available for each item in the PLL. In the manual system, these should be filed behind each corresponding DA Form 3318. Supervisors should always check to make sure that prepunched/preprinted DA Forms 2765 are being used if they are available. The use of these cards lessens the possibility of errors considerably and makes requests easier and faster to prepare

FIGURE 33. DA FORM 2765 MANUALLY PREPARED

Customer completion instructions by block.

Block	Explanation
1	DIC A0A, A0B, or A0D
2	Blank.
3	P, or blank.
4-6	NSN, MCN, MPN.
7	U/I code
8	Quantity requested.
9-10	Unit DQQAAC.
11	Julian date.
12	Document serial number
13	R, or N.
14-16	Blank.
17	FC or blank.
18.	Subunit PLL code cc 54 if none leave blank
col 54	
18, col 55-56	Enter W/ESDC in cc 55-56 if none, leave blank. All NMCS/ ANMCS transactions must have the W/ESDC in this block.
19	Project code or blank
20	PD.
21	If NMCS/ ANMCS, enter NMCS/ ANMCS indicator code.
22	Advice code, or blank.
23.	Supporting DSU code.
col 67	
23, col 75-78	APC or blank.

and submit. Prepunched/preprinted DA Forms 2765, when available, are provided by the SSA with the letter "P" entered in block 3 of DA Form 2765-1. Prepunched/preprinted OA Forms 2765 are provided only for items on the PLL.

2. The DA Form 2765-1 (Request for Issue or Turn-In) (Figure 34) on page 120 is a four-part carbon interleaved form. The first (hard) copy is retained by the SSA as a voucher copy. The second (tissue) copy is returned to the requesting organization for quantities established as a due-out. The third (tissue) copy is used by the requesting activity as a suspense copy. The fourth (hard) copy will be returned by the support activity to the requesting organization with the supplies requested.

FIGURE 34. DA FORM 2765-1 (REQUEST FOR ISSUE OR TURN-IN)

System entries by card column.

Card Column	Explanation
1-3	DIC 5A5, A5B, or A5D.
4-6	Blank.
7	Partial/full release/receipt indicator. P = partial release; F = full release.
8-22	NSN, MCN, MPN.
23-24	U/I code
25-29	Quantity released.
30-43	Unit document number.
44	Demand code or blank.
45	Blank.
46-50	Location in DSU.
51	Blank.
52-53	FC.
54	Subunit PLL code or blank.
55-56	W/ESDC or blank.
57-59	Project code or blank.

3. The DD Form 1348-6 (DOD Single Line Item Requisition System Document) (Figure 35) is used to request non-NSN items, classified items, MWO and modification kits, and items requiring exception data. The DD Form 1348-6 is prepared in three copies. Copies 1 and 2 are forwarded to the SSA and copy 3 is filed in the due-in status.

Lesson 4/Learning Event 2

4. The DA Form 2064 (Document Register for Supply Actions), shown in Figure 36, is used to record requests, receipts, turn-ins, cancellations, follow-ups, supply status, and document numbers assigned to supply documents. It serves as a suspense file for open supply transactions. It is one of the most important documents in a repair section. Together with the DA Form 3318 (Figure 31), the DA Form 2064 comprises the basic audit trail for all supply transactions in the repair parts section.

There are two types of document registers for supply actions: nonexpendable and expendable/durable.

1. The nonexpendable document register is kept at property book level.
2. Expendable/durable document registers are kept by each element within a unit that is authorized to submit supply requests to an SSA.

Property Book Officer. The property book officer (PBO) designates elements within a unit that are authorized to request expendable and durable supplies. The PBO does this by using a DA Form 2496 (Disposition form (DF)). The OF will also specify the class of supply, the DOD activity address code (DODAAC) to be used, and any restrictions. For example, only one element within a unit is authorized to request durable items. This will normally be the unit supply. Other elements would be restricted from requesting durables.

The PBO makes sure document numbers are not duplicated. The PBO does this by-

1. Obtaining a separate DODAAC for each unit requesting supplies.
2. Providing, by DF, separate blocks of document serial numbers to elements within a unit. Separate blocks are required when supply requests are sent by more than one element of a unit assigned a DODAAC.

SUPPLY STATUS

Supply status tells the requester of a decision made by a supplier on a specific supply request. Supply status is received from the SSA on status cards and/or listings. Supply status is in the form of status codes. The codes are explained in DA Pam 710-2-1. There are two types of supply status: shipment and exception status.

FIGURE 36. DA FORM 2064 (DOCUMENT REGISTER FOR SUPPLY ACTIONS)

DOCUMENT NUMBER		STOCK NUMBER		IN FLIGHT REPORTING THE REGISTER		DOC ACTIVITY ADDRESS CODE		LIGHT IDENTIFICATION CODE		PAGE NUMBER		
DATE	REMARKS	DOCUM. SENT TO	NO.	PROJECT FOR	NO.	ACTIVITY	ACQ. BY	REC'D. (UNLTD)	QUANTITY	DATE FOLLOW UP MADE	DATE COMPLETED	REMARKS
a	b	c	d	e	f	g	h	i	j	k	l	m
2173		WIK 211	1305-A071	LTS 556 AM HE	1	AJS	211	500		2173		
2173		WIK 211	1305-A068	CIG 556 AM TELE	1	TAR	211	500	40	2173		
2173		WIK 211	1315-C445	CIG 105 AM HE	1	IIR	211	500				PARTIAL RECEIPT
2173		WIK 211	1315-C445	CIG 105 AM HE	1	LTS	211	10		2173		
2173		WIK 211	1315-C445	CIG 105 AM HE	1	IDT	211	90		2173		MAG 18 TO MAG 85
2173		WIK 211	1320-0544	FDJ 135 HE	1	D5	211	25		2173		
2174		WIK 211	1305-A071	CIG 556 AM BALK	1	CCH	211	1600		2174		CC A TOCC-N
2175		WIK 211	1315-C445	CIG 105 AM HE	1	JNY	211	90		2175		
2175		WIK 211	REMOV	556 GRASS	1	TAR	211	300		2175		RESIDUE
SAMPLE												

SECTION OF REF # IS OBSOLETE.

DA FORM 2064
JAN 62

Lesson 4/Learning Event 2

1. Shipment status is the status of estimated or actual shipment dates.
2. Exception status results from any of the following supply decisions made by the supplier:
 - Substitution of an authorized stock number.
 - Change of unit of issue and/or quantity.
 - Establishing a back order when material cannot be sent by the standard delivery date or the required delivery date.
 - Partial supply action on a requested quantity.
 - Request rejection (returned without action) for a specific reason.
 - Cancellation confirmed.
 - Procurement of material for direct shipment from vendor to customer.
 - Indication that material may not be sent to the requester within the set time frame for the assigned priority or the required delivery date.

Due-In Status File. A due-in status file is maintained under the manual PLL system. The file contains--

- Status cards with information in the form of status codes about due-in material.
- Duplicate/carbon copies of requests.

When status is received, DA Form 2064 document Register for Supply Actions) is posted with the status and date of status. The status cards are filed by document number sequence.

Status cards are destroyed.

- On receipt of the total quantity of due-in material.
- On cancellation, verification, or rejection.

Follow-up Procedures. Follow-up actions are sometimes needed to determine the status of an unfilled request.

1. Follow-up actions for PD 01 through PD 08 requests must be initiated, if no status has been received according to the policy established for the PD concerned. If status has been received, follow-up actions must be initiated when the expected delivery date on the latest status card has been exceeded.

2. Follow-up actions for PD 09 through PD 15 are taken at the time of the monthly reconciliation of due-ins, if no status has been received. Follow-up actions are recorded on the document register and the card is forwarded to the SSA. When status is received, the document register is posted. The status cards are filed in the due-in status file in front of all the other cards for the same supply requests.

CANCELLATION ACTIONS

When all or part of a quantity ordered is no longer needed, the unit may request cancellation. Detailed cancellation procedures are in DA Pan 710-2-1. A request for cancellation is not complete until the SSA verifies that the request is cancelled. Upon receipt of cancellation status, the document register is annotated with the cancellation.

TURN-IN PROCEDURES

Items are turned in when they are--

- Excess to authorized allowances.
- Not needed and the authorization is not mandatory.
- Unserviceable or not economically repairable.
- Found on post.

NOTE: For detailed turn-in procedures, refer to DA Pam 710-2-1.

Where Property Is Turned In. Items are always turned in to the SSA that normally issues the items. The SSA evaluates the property's condition, accounting requirements code (ARC), recoverability code (RC), and may approve direct turn-in to the Defense Reutilization and Marketing Office (DRMO). Items are not turned in directly to the DRMO without SSA approval.

Lesson 4/Learning Event 2

Forms Used for Turn-In. Listed here are the forms used for turn-ins, with descriptions of the type of property turned in with each form. No form is used to turn in items "Found on Installation" or excess, serviceable SSSC items.

1. The DD Form 1348-1 (DOD Single Line Item Release/Receipt Document), shown in Figure 37, is used when items reviewed by the supporting SSA have been approved for direct turn-in to the DRMO. The items on this form have no value except for their basic content (scrap). This form is also used when items are disposable at the organization level and the items do not require turn-in credit.

FIGURE 37. DD FORM 1348-1 (DOD SINGLE LINE ITEM RELEASE/RECEIPT DOCUMENT)

The form is a complex grid with various fields. Key handwritten entries include:

- Top header: ASA 59E V 1615 008526712 EA 00001 W 34TVH0150 0002 Y A1235 KGM J2 B17 AA 003-200
- Organization: DEFENSE ELECTRONIC SUP CENTER 1507 WILMINGTON PIKE, DAYTON, OH 45444
- Location: TRANS OFF FT CARSON, CO 80913
- Item Description: RO-00593A
- Quantity: 79
- Unit: 01
- Weight: 00.130
- Code: 17
- Value: 13390
- Material: LTL
- Condition: 055
- PA F8B: ACUM
- STD: 4347
- LINE: 99
- Item Code: 32400
- Item Description: SWIFT ORCOOP COMPENSAT
- Selected by and date: KLE 6174
- Inspected by and date: KLE 6174
- Transportation Command: TCN:ZOLN152400002XXIX

A large diagonal watermark reading "SAMPLE" is overlaid on the bottom right portion of the form.

2. The DA Form 2765-1 (Request for Issue or Turn-In) shown in Figure 34 is used for all other property not listed above.

3. The DA Form 581 (Request of Issue and Turn-In of Ammunition), shown in Figure 38, is prepared in sufficient copies to meet local needs. The DD Form 1348-1 (Figure 39) and the DA Form 2765-1 (Figure 40) on page L28 are designed as carbon sets and no additional copies should be required.

FIGURE 38. DA FORM 581 (REQUEST FOR ISSUE AND TURN-IN OF AMMUNITION)

1 REQUEST FOR ISSUE AND TURN-IN OF AMMUNITION <small>For use of this form see AR 710.2 The procuring agency is AAC</small>		1 DOCUMENT NUMBER		2 CONTROL NUMBER		
3 FROM 1/19 ARTY 19th INF DIV WKEEAA/WK38DA APO 09033		4 INITIATED BY <i>Robert Lynch</i> LYNCH, ROBERT LTC		5 ACCOUNTING & FUNDING DATA		
6 TO ACCOUNTABLE OFFICER ASP # 3 WB3NAA/AK4102 APO 09026		7 APPROVED BY DAY, EVERY MAJ DAG		8 AUTHENTICATING OFFICE NO 5028-H902		
9 <input type="checkbox"/> TRANSPORTATION ORDER <small>Regulation</small>		<input type="checkbox"/> ALLOCATION		<input checked="" type="checkbox"/> TURBINE <input type="checkbox"/> OTHER		
RESIDUE						
10 ITEM NO.	a NATIONAL STOCK NUMBER b	c LOT NUMBER	d QUANTITY REQUESTED	e QUANTITY ISSUED	f UNIT PRICE	g TOTAL COST
1	CTG, CASE BRASS FOR 5.56MM		442.26			
2	8140-00-960-1699 ZAAA CAN MTL M2A1 for 5.56MM		39			
3	8140-00-078-8969 ZAAB BX WRND W/ENDS F/M2A1 MTL BX		20			
4	8140-00-828-3066 ZADH CNTR FBR M576 F/60MM MTR JP		320			
5	8140-00-828-3068 ZADG BX PACK WD F/CNTR M576 JP		80			
6	8140-00-051-1607 ZZEF CNTR FBR M252A5					
7	8140-00-426-0946 ZAHQ BX PACK WD F/CNTR M525A5		18			
8	8140-00-857-2985 ZALR CNTR FBR M105A2		300			
9	8140-00-859-8016 ZALS BX WD F/CNTR M105A2/M105A3		150			
10	1395-00-077-2128 ZALQ CASE CTG STEEL WRAP		150			
11	8140-00-960-1699 ZAAA BX MTL M2A1		40			
		LAST	ITEM			
11 REMARKS <small>Authority: The subject of Ammunition Inspection, etc.</small> ABOVE ITEMS HAVE BEEN INSPECTED AND ARE CERTIFIED NO LIVE ROUNDS OR EXTRANEIOUS MATERIALS ARE CONTAINED THERE-IN. ITEMS DRAWN ON DOCUMENT TAMIS: ATI						
12 ISSUE OR TURN-IN OF QUANTITIES IN QUANTITY REQUESTED COLUMN IS REQUESTED			13 RECEIVED QUANTITIES IN QUANTITY ISSUED COLUMN			
BY <i>Roy J. Fincher</i> ROY J. FINCHER, 1LT		DATE 5028	BY		DATE	
DA <small>FORM 581</small> 581 <small>REPLACES DA FORM 581 1 OCT 45 EXISTING SUPPLY FS OF WHICH WILL BE ISSUED AND USED UNTIL 1 MAY 68 UNLESS SOONER PRACTICABLE.</small>						

FIGURE 39. DD FORM 1348-1 USED AS SHIPPING DOCUMENT

A5A 59E V 1615 008526712 EA 00001 W 347YH6150 0002 Y A1235 KGW 02 B17 AA 003-200											
DEFENSE ELECTRONIC SUP CENTER 1507 WILMINGTON PIKE, DAYTON, OH 45444						TRANS OFF FT CARSON, CO 80913					
RO-08593A		578 01		00.130 17		13390		LTL 055		PA F88 ACUM	
SHAFI DROOP COMPENSAT											
SELECTED BY AND DATE KLE 6174			TOTAL WEIGHT 3			RECEIVED BY AND DATE KRO			INSPECTED BY AND DATE		
PACKED BY AND DATE KLE 6174			TOTAL CUBE 3			REHOUSED BY AND DATE			REHOUSE DATE		
TRANSPORTATION CONTRACT NO. 6175				TCN120LN152400002XXX				RECEIVER'S OCCUPATION NUMBER			

SAMPLE

FIGURE 40. DA FORM 2765-1 USED AS INITIAL SUPPLY STATUS CARD

2530009871786 124000011344E661720003 B116 DTH A 061818A											
REQUEST FOR ISSUE OR TURN IN (115 Form 781-1)											

SAMPLE

Turn-In of Property Book Items. Property book items must be either excess or unserviceable not repairable by support maintenance, before they can be turned in. Do not use a return advice code. If the item is excess and has a technical publication, enter the words "Turn-In Excess Suspended." The SSA will perform a technical inspection after the item is turned in. If the item is excess but does not have a technical publication and works, enter the words "Turn-In Excess Serviceable."

If it does not work, enter the words "Turn-In Excess Unserviceable." If the item is not excess, enter the words "Turn-In Replacement Unserviceable." If the item is also unserviceable, enter an explanation, such as "T" for fair wear and tear. Use the same document number that was assigned to the item. Make sure the following documents accompany the turn-in:

1. Two copies of DA Form 2062 (Hand Receipt/Annex Number) signed by the commander or PBO, one copy of which is for suspense. The suspense copy is destroyed when final credit is received.
2. The number 4 (blue) copy of the DA Form 2407 (Maintenance Request) classifying the item as unserviceable, when a replacement is required.
3. Two copies of DA Form 461-5 (Vehicle Classification Inspection) are required if the items are in Federal supply group (FSG) 23, FSG 24, and replacement is required.

Turn-In of Expendable and Durable Supplies. Serviceable expendable and durable supplies must be turned in to the SSA, when they are excess. Unserviceable expendable and durable supplies with RCs A, D, F, H, and L must also be turned in to the SSA.

Turn-In of "Found on Installation Property." All "found on installation property" is required to be turned in to a stock record accountable officer. When known, "found on installation property" is turned in to the SSA that would supply the item. If not known, it can be turned in to any SSA.

Turn-In of Inventory Temporarily In Use (ITIU). The ITIU items are owned by the SSA that issued the items. They remain on the SSA's accountable records. The ITIU items must always be turned in to the SSA that issued them.

Lesson 4/Learning Event 2

Turn-In of Returnable Containers. There are two types of returnable containers: vendor-owned and government-owned containers.

- Vendor-owned containers are assigned local management control numbers by the SSA before issue to the unit. Prior to turning in vendor-owned containers, a new document number must be assigned.

- Government-owned containers are containers with NSNs, such as drums or cylinders, and are not assigned document numbers. Use the same document number on which the container was received from the SSA.

Return of Discrepant Shipments. There are two types of discrepant shipments: items that were not requested and items with hidden defects.

Turn in items not requested by using DA Form 2765-1. Do not assign a new document number. Use the same one on which the item was received from the SSA. Do not enter the turn-in on the document register. Enter return advice code 1T in Block 22.

Turn in items having hidden defects using DA Form 2765-1. Do not assign a new document number. Use the same one on which the item was received from the SSA. Do not enter the turn-in on the document register. Enter return advice code 7U in Block 22.

For property book items, check the property book to see if the document was posted as an increase to the balance. If it was, post the turn-in as a decrease. If it was not, file the document in the supporting document file along with the original document, after posting.

For other than property book items, destroy the turn-in document.

Return of Property Issued to Support DA-Approved Emergency Requirements. Property issued to support DA-approved emergency requirements will be turned in when the emergency is over. This includes property rented or leased.

Do not assign a new document number. Use the same one on which the item was received from the SSA. Do not enter on the turn-in document register. Enter return advice code 7P in Block 22. On completion of the turn-in, file the document in the general administrative logistics file.

For property book items, after receipt by the SSA, post the turn-in as a decrease to the property book balance. Complete the document register, then file it in the supporting document files. Destroy other turn-in documents.

Return of Items to the SSSC. The SSSC items that are no longer required are returned when they are in the same condition or the same unit pack as purchased.

No paperwork is required when returning SSSC items. Simply return the items. Credit will be given to the unit.

If the items do not meet the above criteria, use the procedure for turn-in of expendable and durable supplies to turn them in.

Lesson 4/Learning Event 3

Learning Event 3

INVENTORIES, TOOLROOM CONTROL, HAND RECEIPTS

This learning event describes how supply room supervisors train their subordinates in inventory procedures, toolroom control, and accounting for property through hand receipting. Also covered in this learning event are the regulations governing procedures in these areas, the forms used, and the assignment of responsibilities.

INVENTORIES

Persons receiving inventories must observe the following procedures to ensure accuracy of records:

1. Make sure items are for the unit.
2. Make sure items match description on receipt.
3. Count all items. Make sure quantity agrees with quantity recorded on document.
4. Check end items for completeness.
5. Check serial numbers if items have them. Make sure they match receipt documents.
6. Visually check condition of items for damage.
7. Sign receipt document.

When the property is to be issued on hand or subhand receipts, the receiving person must also take the following actions:

1. Make sure items and their description on hand or subhand receipts match.
2. Make sure quantities match and end items are complete.
3. Verify serial numbers with receipts.
4. Sign hand or subhand receipts.

The clerk must record all discrepancies and report them to the proper authority. The clerk must make sure all errors are corrected before signing the hand or subhand receipts, or, if serviceability is questionable, he must inform the

Lesson 4/Learning Event 3

PBO, who will resolve the matter. The AR 735-11 contains the procedures used to account for lost, damaged, or destroyed tools stored in the toolroom.

In addition to the receipt and issue of property inventories, other inventories are used to account for property.

1. Change of responsible officer inventories are taken when the officer is replaced. This inventory is jointly conducted by the incoming and outgoing officers. All the unit property is inventoried at that time.
2. Annual inventories are conducted by the responsible officer. This is a 100-percent physical inventory of all unit property. The date of the inventory is based either on the date of last change of responsible officer or the annual inventory, whichever is later. A cyclic inventory may be used in lieu of the annual inventory.
3. Cyclic inventories are conducted by the responsible officer, in lieu of annual inventories, when the officer elects to do so or when the property book is kept at other than unit level and the PBO requires it.
4. Change of PBO inventory is taken when the PBO is changed. The inventories are conducted jointly by the outgoing and incoming PBOs.
5. Annual property book inventories are required when property books are kept at other than the using unit level. The PBO conducts these inventories.

TOOLROOM CONTROL

Maintenance operations require many tools and equipment. Some tools, such as the general mechanics' tool kit, are usually issued to the mechanic. Other specialized tools and test equipment are made available on an as-required basis. Initial issue and replacement tools are obtained through the unit supply.

When assuming command of the unit, commanders also assume responsibility for unit property. They may use hand receipts to further assign responsibility to specific individuals. When an item has not been further assigned by a hand receipt, the commander is responsible.

Tools are usually components of a larger set, kit, or outfit (SKO). Responsibility is assigned using a hand receipt or hand-receipt annex which lists existing shortages. All components which make up the SKO are listed on the hand receipt. The responsible person signs for all the items listed on the receipt. When more than one SKO is maintained in the toolroom, the tools among the SKO should not be mixed.

Formal inventory requirements are outlined in DA Pan 710-2-1. Local commanders usually establish an increased inventory requirement. Tools are normally inventoried—

- Every 30 days when the tools have been issued to the using individual.
 - Upon change of hand-receipt holder.
 - Upon change of responsible officer.
 - Under special circumstances as directed by the commander:
 - Prior to and following major field exercises.
 - Upon discovery of forced or unlawful entry.
 - Upon discovery of open or unattended storage area.
 - Upon destructive or illegal action by responsible individuals.

Silhouette layout mats are available to assist in the inventory of general mechanics' tool kits. The tools are placed on the corresponding silhouette on the mat. Shortages are readily apparent. A layout may be ordered for each tool kit.

Tool control in an organizational maintenance element usually centers around control of general mechanics' tool kits, the tools and equipment in the organizational shop equipment sets, and the physical construction and operation of the toolroom itself.

Tool kits are usually hand receipted to the users, kept locked by the mechanics, and stored in the toolroom. At the beginning of the work period, the toolroom attendant issues the locked tool kits to the mechanics, who return the locked tool kits when finished. The users are responsible for the

contents, while the toolroom attendant is responsible for the locked tool kit. Each tool kit is identified by a control number and is receipted for by the users in a manner similar to other tools issued by the toolroom. A storage rack is normally provided for storage of the tool kits. For additional security, at the end of the work period a chain may be run through the tool kit handles and secured to some object.

Equipment, sets, and special tools are made available to mechanics on an as-required basis:

- The small tools contained in shop equipment sets may be stored in cabinets or other containers. A locator system allows the toolroom attendant to find the needed tools. If more than one tool has the same NSN, a separate card should be prepared for each tool.

- Frequently used larger tools may be displayed on a locally produced shadow board. This shadow board makes it easier to identify, issue, and control frequently used tools.

- When space is limited, prime storage space should be given to frequently used items. Less frequently used items can be stored in less convenient locations.

- The commander should prescribe policy for storage and issue of bolt cutters.

The toolroom should provide both security for the tools and convenience for the mechanics by limiting access to unauthorized personnel. Field expedients and limited access should be used to provide storage and security in the field. The unit MTOE may permit use of a shop van or a cargo vehicle to support field operations.

The unit motor sergeant is usually in charge of toolroom operations:

- A primary and alternate toolroom attendant should be appointed.

- The toolroom attendant checks the condition of tools before issue and after return. Tools should be cleaned by the user before return. The attendant is responsible for cleaning dirty tools found in the toolroom. Tools should be returned to their storage location immediately upon return and acceptance. The attendant checks for tools not returned by closing time and notifies the motor sergeant.

A tool sign-out register provides the easiest control. The attendant prints the name and grade of the individual, the type of tool, and the date and time in and out. The individual drawing the tool then signs the register. A tool check system for tools on the shadow board may speed service and still provide control. With this system, each mechanic is issued a number of metal tags stamped with a number corresponding to the tool kit. When the mechanic needs a tool from the shadow board, the tag is given to the attendant. The attendant removes the desired tool, issues it, and hangs the metal tag in its place. The same care must be used with this system to safeguard the tool checks as with the actual tools.

HAND RECEIPTS

Hand receipts are required whenever property book or durable items are issued. The hand receipt lists the property that has been issued. The signature of a person on a hand receipt establishes direct responsibility. Prepare separate hand receipts for installation and organization property.

Forms. The following forms are used for hand or subhand receipts:

1. Use DA Form 2062 (Figure 41) to record the issue of property book and durable items. Prepare the form in two copies. The DA Form 2062 may be overprinted. The person who prepares the form must keep all copies of hand/subhand receipts current.

- a. Hand receipts are prepared by the PBO. The original is kept by the PBO. Copy 2 is provided to the hand-receipt holder.

- b. Subhand receipts are prepared and issued by the hand-receipt holder. The original is kept by the hand-receipt holder. Copy 2 is given to the subhand-receipt holder. There is no restriction on the number of times property can be subhand receipted, but under normal circumstances this should not exceed from commander to supervisor to user. Figure 41 shows DA Form 2062 prepared as a hand or subhand receipt.

2. Use DA Form 3161 (Figure 42) on page 138 for issue and turn-in transactions between the PBO and the hand-receipt holder. The form is also used for issue and turn-in transactions between the hand-receipt and subhand-receipt holders. Prepare the form in two copies. The original is kept by the person who issues or turns in the item. The

FIGURE 41. DA FORM 2062 (HAND RECEIPT/ANNEX NUMBER)
PREPARED AS HAND OR SUBHAND RECEIPT

NAME RECEIPT/ANNEX NUMBER For use of this form, see DA FORM 710-2-1. The procurement agency is ODCSLOG.		FROM FBO 1-451 Arty Bn	TO Cdr. C Brey	NAME RECEIPT NUMBER 3							
ITEM STOCK NUMBER	ITEM DESCRIPTION	PUBLICATION NUMBER	PUBLICATION DATE	QUANTITY							
STOCK NUMBER	ITEM DESCRIPTION	U	EA	OP	Q	A	B	C	D	E	F
1005-00-726-3455	DM 4-1080-30-12, MFC 1-2, 16 SEP 67 Part. 53 MIS11A1 U/CR Ser No. 9677182		EA	1	1	1	1	1			
1220-00-588-7282	PLER BOOKS U/R 117 Radio Set AM/PDR-27		EA	2	2	1	2	2			
6665-00-017-8901	DM 11-4440-300-10, MFC 4 24, 3 SEP 68 Radio Set AM/PDR-170		EA	1	1	1	1	1			
6665-00-981-0846	DM 11-4440-300-12, MFC 1, 3 SEP 67 Radio Set AM/PDR-170		EA	1	1	1	1	1			
6665-00-752-7759	DM 11-4440-300-10, MFC 1, 4, 31 AUG 67 Radio Set AM/PDR-170		EA	4	4	3	4	4			
6665-00-979-5163	Radio Set AM/PDR-170 DM 11-4440-300-12, MFC 1-7, 31 AUG 67		EA	1	1	1	1	1			
6665-00-854-8017	Radio Set AM/PDR-170 DM 11-4440-300-12, MFC 4, 2, 31 AUG 67		EA	1	1	1	1	1			
5820-00-223-7411	Radio Set AM/CRC-160 DM 11-5720-400-10, MFC 1-2, 31 MAY 67		EA	2	2	2	2	2			
5820-00-223-7473	Radio Set AM/CRC-160 DM 11-5720-400-10, MFC 1-2, 31 MAY 67		EA	1	1	1	1	1			
5820-00-223-7433	Radio Set AM/VRC-44 DM 11-5720-400-10, MFC 1-3, 7 SEP 72	4	EA	3	3	3	3	3			
1220-00-177-9258	TRK UCLL 1/6 Ton MIS1A2 USA #64118		EA	7	6	5	7	7			
	66660, 67471, 70319, 48040, 67319 67319, 68180, 70420										

NAME RECEIPT AND NAME RECEIPT ANNEX NUMBER
 NAME RECEIPT FOR CHARTERED PURCHASE, AND CARTON CASES
 NAME RECEIPT ANNEX - COMPONENTS RECEIPT AND ASSOCIATED RECEIPTS CASE AND

LETTER OF JAN 68 IS OBSOLETE.

SAMPLE

Effect of Bradley, Capt. 4 units
 Effect of Bradley, Capt. 2004 10
 Effect of Bradley, Capt. 13 July 76
 Howard G. Doherty, Capt. 2 Aug 76

person receiving the property keeps the second copy and files copies of change documents with the proper hand or subhand receipt. The DD Form 1150 may be used in lieu of DA Form 3161 as a change document (Figure 43).

3. The DA Form 2402 (Exchange Tag) and the DA Form 2407 (Maintenance Request) may be used to document items turned in for repair between the PBO and the hand-receipt holder. When DA Form 2402 is used, the PBO or authorized representative must sign and date the reverse side of each tag used. The DA Pam 738-750 gives instructions for preparing these forms. See Figure 44 on page 140 and Figure 45 on page 141 for examples of these forms used to turn in items for repair.

FIGURE 43. DD FORM 1150 (REQUEST FOR ISSUE OR TURN-IN) PREPARED AS CHANGE DOCUMENT

REQUEST FOR ISSUE OR TURN-IN		<input checked="" type="checkbox"/> ISSUE	SHEET NO	NO OF SHEETS	8. REQUEST NUMBER	
		<input type="checkbox"/> TURN-IN	1	1		
1. FROM: I-651 Arty Bn WA2HAA		6. DATE MATERIAL REQUIRED		7. PRIORITY		
2. TO: C Btry, WA2CHO, H/R File 13		8. VOUCHER NUMBER		9. POSTED		
3. ACCOUNTING AND FUNDING DATA				DATE		
				BY		
				DATE		
				BY		
4. 100 ITEM IDENTIFICATION		5. NAME AND MANUFACTURER	6. MODEL	7. SERIAL NUMBER		8. PUBLICATION
10	STOCK NUMBER, DESCRIPTION, AND CODES OF MATERIAL AND/OR SERVICES	9. CODE	UNIT	QUANTITY	SUPPLY ACTION	UNIT PRICE
11		10. UNIT	11. UNIT			TOTAL COST
12		12. UNIT	13. UNIT			
13		14. UNIT	15. UNIT			
14		16. UNIT	17. UNIT			
15		18. UNIT	19. UNIT			
16		20. UNIT	21. UNIT			
17		22. UNIT	23. UNIT			
18		24. UNIT	25. UNIT			
19		26. UNIT	27. UNIT			
20		28. UNIT	29. UNIT			
21		30. UNIT	31. UNIT			
22		32. UNIT	33. UNIT			
23		34. UNIT	35. UNIT			
24		36. UNIT	37. UNIT			
25		38. UNIT	39. UNIT			
26		40. UNIT	41. UNIT			
27		42. UNIT	43. UNIT			
28		44. UNIT	45. UNIT			
29		46. UNIT	47. UNIT			
30		48. UNIT	49. UNIT			
31		50. UNIT	51. UNIT			
32		52. UNIT	53. UNIT			
33		54. UNIT	55. UNIT			
34		56. UNIT	57. UNIT			
35		58. UNIT	59. UNIT			
36		60. UNIT	61. UNIT			
37		62. UNIT	63. UNIT			
38		64. UNIT	65. UNIT			
39		66. UNIT	67. UNIT			
40		68. UNIT	69. UNIT			
41		70. UNIT	71. UNIT			
42		72. UNIT	73. UNIT			
43		74. UNIT	75. UNIT			
44		76. UNIT	77. UNIT			
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205		398. UNIT	399. UNIT			
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209		406. UNIT	407. UNIT			
210		408. UNIT	409. UNIT			
211						

FIGURE 44. DA FORM 2402 (EXCHANGE TAG) USED FOR REPAIR REQUEST


Edition of Sep 73 is obsolete.  THIS COPY INTO OFF 100-200	EXCHANGE TAG (TM 38-760)		1. SUPPORT AGENCY (DOBAG)		2. DATE		COPY 1 DA FORM 2402 MAY 1962	
	WDAKAC		3355		3. ORGANIZATION (DOBAG)			<input type="checkbox"/> FOR EXHIBIT <input checked="" type="checkbox"/> FOR EXCHANGE
	WCADAA		4. NSN		5. NOUN NOMENCLATURE			
	2910-00-678-1857		Carburetor		7. PD			SAMPLE
	02		8. PD AUTHENTICATION		9. END ITEM NOUN NOMENCLATURE			
	CPT. A. M. Walls		TRK UTIL 1/4 T		10. MODEL			
	END ITEM IDENTIFICATION		M151A2		11. SERIAL NO.			
			227754		12. DEFICIENCY OR SYMPTOM			
	Can not adjust idle speed		13. DATE ACCEPTED		14. SIGNATURE			15. NRCB
	3355		Max Capelena					yes
16. JON		17. INITIALS						
18. DATE REPAIRED		19. INITIALS						

FIGURE 45. DA FORM 2407 (MAINTENANCE REQUEST)
USED FOR REPAIR REQUEST

MAINTENANCE REQUEST				PAGE NO.	NO. OF PAGES	REQUIREMENT CONTROL SYMBOL		
For use of this form, see DA FORMS 730-700 and 730-701; the dependent agency is OCSLOG.				1	2	CSOGLD-1047(R1)		
SECTION I - EQUIPMENT DATA								
CONTROL NUMBER 379728		WORK ORDER NUMBER G X 189	WESOC 87	ORG PD 02	PO AUTHENTICATION <i>Ellen, Sample Cpt</i>			
<input checked="" type="checkbox"/> WORK REQUEST <input type="checkbox"/> WARRANTY CLAIM	1. ORGANIZATION B CO 327 SIG BN		3. LOCATION FT BRAGG NC.		4. UNIT IDENT CODE WE2280			
2. SERIAL NO. 0125-31515	3. HOUR NOMENCLATURE TRUCK CAR60	4. LINE NO. X40146	5. MODEL M35A2		6. NATIONAL STOCK NUMBER 2320-00-077			
7. MAINTENANCE ACTIVITY 503° MAINT CO	8. LEVEL F	9. UTILIZATION CODE ON	10. MCR ITEM Y	11. SRC A	12. PACING ITEM	13. HOURS 1596	14. MILES 3437	
15. FAILURE DETECTED DURING (Select one - use 7 or 21) <input checked="" type="checkbox"/> Scheduled Maintenance <input type="checkbox"/> Test <input type="checkbox"/> Storage <input type="checkbox"/> Flight <input type="checkbox"/> Inspection <input type="checkbox"/> Overhaul <input type="checkbox"/> Out of Adjustment <input type="checkbox"/> Handling <input type="checkbox"/> Normal Op <input type="checkbox"/> Inspection <input type="checkbox"/> Other				16. FIRST INDICATION OF TROUBLE (Select one - use 7 or 21) <input type="checkbox"/> Interference <input type="checkbox"/> Overheating <input type="checkbox"/> Other				
17. OBSERVE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TMs AND (provide request) #2 CROSS MEMBER RIVETS LOOSE								
TRANSMISSION OIL PAN GASKET, TRANSFER OUTPUT SEAL LEAKING								
CLUTCH WORN								
18. REMARKS FROM TO DAYS FROM TO DAYS NMCS 2215 2220 5 NMCM 2221 2263 43								
SECTION II - WORK ACCOMPLISHED								
19. REPAIR ORGANIZATION/ACTIVITY 503° MAINT CO			4. UNIT IDENT CODE WE2EAA		19. TYPE ORGANIZATION/ACTIVITY AC-COMPLISHING WORK (Select one - use 7 or 21) <input checked="" type="checkbox"/> TOE <input type="checkbox"/> TO <input type="checkbox"/> CONTRACTOR		18. AMS ACCOUNT CODE	
2. LOCATION FT BRAGG NC.								
20. ACT CODE	FAILURE CODE	1. COMPONENT/PART HOUR, SVC, OR MISC NO. & CS CODE	2. REF DESIGNATOR	3. MFR CODE	NATIONAL STOCK NUMBER	PART QUANTITY	21. PARTS COST	
F								
A	381	TRANSMISSION		9.0	2520-00-114-4153	DX	1	
A	381	GASKET OIL PAN		3.5	5330-00-885-3422	DS	1	
A	381	SEAL PLAIN		3.5	5330-00-143-8666	SS	1	
A	020	CLUTCH DRIVE		2.5	2520-00-116-8109	SS	1	
A	020	CLUTCH FRICTION		2.0	2520-00-126-3611	SS	1	
A	020	BEARING BALL		1.5	3110-00-198-1502	SS	1	
C	020	#2 X MEMBER RIVETS		14.0		SS		
G				1.0				
ORF CANDIDATE								
FDAT NOT AVAILABLE								
<i>Michael Howard</i> 1 LB SHOP OFFICES DATE: 2225 DOWN TIME: 48 DAYS								
22. TOTAL MANHOURS 38.0				23. TOTAL MANHOURS COST		24. TOTAL PARTS COST 129.85		
25. DISPATCHED BY <i>R. Coe</i> JULIAN DATE 2215		26. RECEIVED BY <i>C. Hall</i> JULIAN DATE 2215		27. WORK STARTED BY <i>T. Bird</i> JULIAN DATE 2245		28. INSPECTED BY <i>A. Tucker</i> JULIAN DATE 2263		
29. DISPATCHED BY <i>R. Coe</i> JULIAN DATE 2264		30. DISPOSITION (Select one) <input checked="" type="checkbox"/> To User <input type="checkbox"/> Salvaged <input type="checkbox"/> To Stock <input type="checkbox"/> Excluded <input type="checkbox"/> Com-Conversion						
DA FORM 2407 MAY 61				EDITION OF JUL 70 IS OBSOLETE.				CONTROL COPY 3

Lesson 4/Learning Event 3

Temporary Hand-Receipt Procedures. When property is issued or loaned for periods of up to 30 calendar days, the following procedures may be used:

1. Prepare DA Form 3161 in two copies (Figure 46) as a temporary hand receipt. The person issuing the items keeps the original copy. The person receiving the items keeps the second copy. The DD Form 1150 may be used in lieu of DA Form 3161 as a temporary hand receipt.
2. Prepare a folder for filing temporary hand receipts. File the original copies in date sequence.
3. Destroy both copies of temporary hand receipts when the property is returned.
4. Review the temporary hand receipt file daily to find if any are due to expire shortly. Five days prior to expiration of the temporary hand receipt, take the following actions:
 - a. Notify the hand receipt holder and arrange for return of the property not later than the expiration date. Destroy all copies of the hand receipt when the property is returned.
 - b. If the user still needs the property, issue it using hand-receipt procedures.
5. Prepare a log book, a locally designated form, or a card file to be issued for one day or less. Minimum entries for locally designed forms or log books are NSN, noun nomenclature of tool, and signature of individual.

FIGURE 46. DA FORM 3161 PREPARED AS TEMPORARY HAND RECEIPT

REQUEST FOR ISSUE OR TURN-IN (DA FORM 3161-1)		ISSUE A. DATE B. END ITEM IDENT	SHEET NO. 1	3. REQUEST NO. TEMPORARY HAND RECEIPT	4. VOUCHER NO.						
1. SEND TO: SGT of the Guard C BRY, WAHCO		2. REQUEST FROM: C BRY, WAHCO	NO. SHEETS	5. DODAAC	6. ACCOUNTING/FUNDING DATA						
*CODES ISSUE A. Initial B. Replacement C. Repair D. Exchange E. Other		TURN-IN A. For War And Tear B. Report of Surplus C. Other	DATE MATERIAL REQUIRED	7. PRIORITY	8. SERIAL NO.						
12 ITEM NO.	STOCK NO.	ITEM DESCRIPTION	UNIT OF ISSUE	QUANTITY	CODE*	SUPPLY ACTION	UNIT PRICE	TOTAL COST	POSTED DATE	BY	
1.	5705-10-313-0012	TELEPHONE SET	EA	7	I	7					
		NOTHING FOLLOWS									
SAMPLE											
GRAND TOTAL											
SHEET TOTAL											
13 ISSUE/TURN IN "QUANTITY" COLUMN IS REQUESTED		14 ISSUE QTY IN "SUPPLY ACTION" COLUMN		15 SECURITY DATE		16 SECURITY RETURN COLUMN					
11 JAN 86		50		11 JAN 86		BY <i>Edward J. [Signature]</i>					
DA FORM 3161 MAY 83		REPLACES EDITION OF JUN 73 WHICH WILL BE USED UNTIL EXHAUSTED								* U.S. GOVERNMENT PRINTING OFFICE: 1983-10-761	

Lesson 4/Learning Event 4

Learning Event 4

ACCOUNTABILITY AND RESPONSIBILITY, HANDLING OF DAMAGED PROPERTY, REPORT OF SURVEY

This learning event covers policies and procedures for accounting for US Army property. It defines accountability and responsibility, handling of damaged property, and reports of survey.

ACCOUNTABILITY

Accountability is the obligation of a person to keep an accurate record of property, documents, or funds. It is imposed by law, lawful order, or regulation. It is concerned primarily with maintaining formal records that contain item identification data, quantities, values, balances, and property transactions.

RESPONSIBILITY

Responsibility results from the possession of property or the command or supervision of others who have possession of property. It involves a basic obligation for the proper custody, care, use, and safekeeping of government property. Any person may incur responsibility for the care and custody of property, even if the person has not signed a receipt for it. Responsibility is based on possession of the property or the scope of the individual's employment or duty. The assignment to duty may be by written or oral orders of a superior. Examples of responsibility incurred in this way are command responsibility, supervisory responsibility, direct responsibility, and personal responsibility.

Command Responsibility. This is the obligation of a commander to ensure the proper care, custody, and safekeeping of all government property within his or her command. It is the special relationship between a commander and the property within his or her command. It is inherent in command and cannot be delegated. It is evidenced by assignment to a command position at any level and includes—

- Ensuring the security of all property of the command, whether in use or in storage.
- Observing subordinates to ensure that their activities contribute to the proper custody, care, use, and safekeeping of all property within the command.

- Enforcing all security, safety, and accounting requirements.
- Taking administrative or disciplinary measures when necessary.

Supervisory Responsibility. This is the obligation of a person for the care and safekeeping of government property issued to or used by the person's subordinates. It is inherent in all supervisory positions and is not contingent upon signed receipts or responsibility statements. It is the relationship between a person and the property in the possession of the personnel under that person's direct supervision. It arises because of assignment to a specific position and includes-

- Providing proper guidance and direction
- Enforcing all security, safety, and accounting requirements.
- Maintaining the proper physical and psychological environment for the proper care and use of government property.

Direct Responsibility. This is the relationship between a responsible officer and the property for which the officer has been formally tasked to provide care and custody. It is inherent in each property account. However, it may be delegated by the accountable officer through formal written designation or issue of property on a hand receipt. Direct responsibility results from assignment as an accountable officer, receipt of formal written delegation, or acceptance of the property on a hand receipt from an accountable officer. It includes taking all reasonable and prudent actions to ensure the specified property is properly used, cared for, and safeguarded.

Direct responsibility is a formal assignment of property responsibility to a person within the supply chain who has the property within their custody, but not necessarily in their possession or for their use. Accountable officers always have direct responsibility unless it has been specifically assigned to another person. Accountable officers may delegate such responsibility by written designation or by issue of the property on a hand receipt.

Personal Responsibility. This is the relationship between a person and the property in their physical possession. It applies to all government property issued for, acquired for,

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misappropriated, or converted to the person's exclusive use, with or without receipt. It includes taking all reasonable and prudent actions to properly use, care for, and safeguard property. Personal responsibility always accompanies the physical possession of property.

Command responsibility and supervisory responsibility depend on the location of the property within the chain of command. This responsibility is a part of a job or position and is incurred by assuming that command or supervisory position. It can be delegated.

Responsible Officer. A responsible officer is a person who has been tasked by formal assignment or designation with the direct responsibility for specifically identified government property. The responsible officer will be designated in writing, and will be directly responsible for the care, use, and safekeeping of the property specifically entrusted to their custody. Designation as an accountable officer carries with it designation as a responsible officer unless some other person has been specifically designated as the responsible officer by regulation or other competent authority. Direct responsibility imposed through designation as an accountable officer may be delegated. Such delegation can only be made by the accountable officer and must be in writing. No further delegation is authorized.

Property issued by an accountable officer on a hand receipt (called the primary hand receipt) carries with it the delegation of the direct responsibility and designates the recipient as the responsible officer for the listed property. Further hand receipting (subhand receipting) does not transfer direct responsibility nor relieve the primary hand-receipt signatory of their duties as the responsible officer.

Any employee of the US Army, civilian or military, may be designated as a responsible officer.

Responsibilities by Rank in Battalion. Each person within the battalion, from the commander to the individual mechanic, has specific responsibilities within the organization for control and use of tools. For the organization to work smoothly, each person must meet their responsibilities.

The commander sets unit tool control policy, establishes a toolroom with adequate security for unit tools, and assigns responsibility by use of hand receipts. Individual use

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items, such as general mechanics' tool kits, are hand receipted to user. The commander is also responsible for all tools not further hand receipted, for enforcement of supply discipline according to AR 735-5, AR 735-11, AR 710-2, and DA Pam 710-2-1, and for conducting command inspections.

The unit supply sergeant's responsibilities include ensuring that all authorized tools are on hand or on requisition, turning in excess tools and conducting inventories, and informing the commander of the results. The supply sergeant also takes action to account for tools lost, damaged, or destroyed through other than wear and tear before issuing or requesting a replacement.

The BMO provides overall management for the battalion tool control program. The BMO's responsibilities also include enforcing the commander's policies and implementing directives.

Battalion motor sergeants manage the battalion headquarters tool control program, act as hand-receipt holders for tools issued to tool room, and appoint primary and alternate toolroom attendants. Their responsibilities include supervising layout and operation of the toolroom, conducting daily inspections, determining status of tools not returned by closing time, and supervising inventories. They also initiate appropriate adjustment document action for lost, damaged, or destroyed tools.

Toolroom attendants follow procedures outlined by the battalion motor sergeant. These procedures include accounting for all tools issued to the toolrooms, checking the condition of tools before issue and after return, and putting tools in proper place after return. They also clean and maintain tools in the toolroom and report to motor sergeant all tools not returned by closing time.

The individual mechanic signs hand receipts for the general mechanics' tool kit and other individual use items as directed by the commander, keeps the tool kit secured with lock when not in use, stores the locked tool kit in the toolroom, and conducts inventories as required.

Relationship Between Accountability and Responsibility. Accountability pertains to maintaining formally prescribed property records for a property or sales account. It is an obligation officially assigned to a specific person and may not be delegated. Responsibility pertains to the care, custody, and safekeeping of government property. The

specific type of responsibility depends on the relationship of the person to the property. Accountability and the four types of responsibility described above are separate obligations and they are incurred for separate reasons.

Accountability and each of the types of responsibility carry specific duties. Monetary liability can be assessed against any person who fails, through negligence or misconduct, to perform those duties and where such failure is the direct or proximate cause of a loss to the United States government.

HANDLING OF DAMAGED PROPERTY

Qualified technical inspectors, property classification officers, or other designated officers or persons may classify property physically on hand as unserviceable. From its general condition and appearance, the property may be classified as unserviceable through fair wear and tear (FWT).

Damaged property (regardless of Federal supply classification) may be determined unserviceable by technical inspection or may be classified as unserviceable through other than FWT. If so, the commander responsible for the property will investigate the circumstances. Upon completion of the commander's investigation, one of the following actions will be taken:

1. If negligence or misconduct is not involved, the commander will attach a statement to the maintenance request or turn-in document stating, "I have reviewed the circumstances surrounding the damage to the above item(s) and find no evidence of negligence or misconduct." The commander will sign the statement.

- a. The appointing authority will review this statement and concur or nonconcur. If the appointing authority concurs, he or she will enter "Concur" on the statement and sign it. If the appointing authority nonconcur, he or she will enter "Nonconcur--initiate a report of survey" on the statement and sign it.

- b. The commander must request from the maintenance activity the actual cost of damage only when a report of survey is initiated. The commander of the maintenance support activity will consolidate cost data through the appointing authority to the approving authority as requested by the approving authority.

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c. For the ARNG, state Adjutant Generals (AG) may authorize the reporting of repair costs using the property accountability management information system (PAMIS) reporting procedures per National Guard Bureau Memorandum (NGBM) 700-1, Chapter 18.

2. If liability is admitted and the extent of damage does not exceed the responsible person's monthly basic pay, prepare DD Form 362 (Statement of Charges for Government Property Lost, Damaged or Destroyed) or DD Form 1131 (Cash Collection Voucher). See Figures 47 and 48 on pages 150 and 151.

3. If liability is admitted and the extent of damage exceeds the person's monthly basic pay, initiate a report of survey.

4. If negligence or misconduct is involved and liability is not admitted, initiate a report of survey (discussed in the next paragraph).

a. In no case will separate reports of survey be prepared for the same incident unless the damaged property is recorded on separate property accounts.

b. When the report of survey is approved or when the property is released by the survey officer, attach a copy of the report of survey or the survey officer's release statement to the maintenance request. If the item is not economically repairable, attach a copy of the approved report of survey, or the survey officer's release statement, and a copy of the maintenance request classifying the item to the turn-in document. Damaged property for which negligence or misconduct is suspected will not be repaired or disposed of, or continued in use, until the survey officer prepares a release statement.

REPORT OF SURVEY

The rest of this learning event outlines the procedures for processing DA Form 4697 (Department of the Army Report of Survey) and/or conducting an AR 15-6 investigation. Liability for damage to property, whether by negligence or misconduct, is resolved by the report of survey. This section gives general guidance to those persons who are initiating reports or investigations, when negligence or misconduct is suspected and liability is not admitted.

FIGURE 47. DD FORM 362 (STATEMENT OF CHARGES FOR GOVERNMENT PROPERTY LOST, DAMAGED OR DESTROYED)

STATEMENT OF CHARGES FOR GOVERNMENT PROPERTY LOST, DAMAGED OR DESTROYED				MILITARY PAY ORDER NUMBER		DATE					
CLASS OF PROPERTY ORGANIZATIONAL				ORGANIZATION		DATE					
ACCOUNTABLE OFFICER				COMPANY A		FOR MONTH OF					
HQ 1st Bn, 584th Inf (WT4KZ4)				1st Bn, 584th Inf (WARWAO)		February 1986					
STOCK RECORD ACCOUNT OR OTHER PROPERTY RECORD OF ACCOUNTABLE OFFICER				STATION							
Frank B. Campbell, CPT, Inf, Commanding				Fort School, VA 23800							
STOCK NO.	ARTICLE	QUANTITIES							TOTAL ARTICLE	UNIT PRICE	TOTAL
		1	2	3	4	5	6	7			
6230-00-264-8261	Flashlight, MK-911/U (\$1.30)	1		1					2	.97*	1.94
8405-00-240-2461 (L70720)	Liner, parka, mens, mohair frieze, OG, shade 107 (\$10.65)		1						1	9.58*	9.58
8405-00-223-7623 (N69904)	Parka, mens, ctn-nylon oxford, OG, shade 107, wo liner (\$12.65) RICC 2 No Residue	1							1	11.38*	11.38
* Depreciation allowed per paragraph 4-17 AR 735-11											
GRAND TOTAL										\$22.90	
<p>CERTIFICATE OF RESPONSIBLE INDIVIDUALS</p> <p>I certify that my signature herein constitutes:</p> <ul style="list-style-type: none"> An acknowledgment to receive the amount of indebtedness by personal deduction. An affirmation that the articles are not new to my possession. An agreement to return to the appropriate supply office all articles later returned, it being understood that the United States Government retains title to the articles listed herein. 											
COL NO.	NAME GRADE AND SOCIAL SECURITY NUMBER	CAUSE FOR CHARGE	TOTAL CHARGE	SIGNATURE OF INDIVIDUAL & AMOUNT ACCEPTED							
				SIGNATURE	AMOUNT ACCEPTED						
1	NAME George, Roy S. GRADE GS-12 ETS: N/A SSN 234-56-7890 PCS: N/A	Lost Govt Property	\$12.35	<i>Roy S. George</i>	\$12.35						
2	NAME James, Loyal C. GRADE MSG, ETS: 2 Apr 88 SSN 215-44-7914 PCS: 17 Nov 85	Lost Govt Property	\$ 9.58	<i>Loyal C. James</i>	\$9.58						
3	NAME Ju, Herman Y. GRADE SGM, ETS: 1 Jan 85 SSN 116-38-0140 PCS: N/A	Lost Govt Property	\$.97	<i>Herman Y. Ju</i>	\$.97						
4	NAME GRADE SSN										
5	NAME GRADE SSN										
6	NAME GRADE SSN										
7	NAME GRADE SSN										
GRAND TOTAL			\$22.90								
<p>ORGANIZATION COMMANDER</p> <p>The appropriate forms are completed and correct, all damaged property has been disposed of in accordance with current directives and the amounts have been reported in accordance with the provisions of AR 75-11 (AR 75-1 for USAF)</p>				<p>DISBURSING OFFICER OR PAYROLL CERTIFYING OFFICER</p> <p>The stamp will indicate the name of each person listed herein has been entered on the appropriate pay record or payroll, or DD Form 129 has been prepared and forwarded for collection.</p>							
DATE	SIGNATURE	DATE	SIGNATURE								
31 Jan 86	<i>Frank B. Campbell</i> FRANK B. CAMPBELL CPT, INF	1 Feb 86	<i>Thomas R. Welch</i> PROPERTY VOUCHER NUMBER WT4JB6-5031-0014								
DD FORM 362		REPLACES DD FORM 362, 1 SEP 68, WHICH MAY BE USED UNTIL EXHAUSTED.				G.U.S. G.P.O. 1983-461-033/7-294					

FIGURE 48. DD FORM 1131 (CASH COLLECTION VOUCHER)

CASH COLLECTION VOUCHER		DISBURSING OFFICE COLLECTION VOUCHER NO.		
		RECEIVING OFFICE COLLECTION VOUCHER NO.		
		WT5KA7-5036-0015		
RECEIVING OFFICE	ACTIVITY (Name and location) (Include ZIP Code)			
	Bath supply & Service Bn., Fort School, Virginia 23800			
DISBURSING OFFICE	RECEIVED AND FORWARDED BY (Printed name, title and signature)		DATE	
	I. M. Wright 1LT, FC		5 February 1986	
DISBURSING OFFICE	ACTIVITY (Name and location) (Include ZIP Code)			
	Finance Office, Fort School, Virginia 23800			
DISBURSING OFFICE	DISBURSING OFFICER (Printed name, title and signature)		DISBURSING STATION SYMBOL NO.	DATE RECEIVED SUBJECT TO COLLECTION
	John C. McIvery Finance Officer			7 February 1986
PERIOD: FROM TO				
DATE REC'D	NAME OF REMITTER DESCRIPTION OF REMITTANCE	DETAILED DESCRIPTION OF PURPOSE FOR WHICH COLLECTIONS WERE RECEIVED	AMOUNT	ACCOUNTING CLASSIFICATION
	<i>Loyal C. James</i> Loyal C. James MSG 123-45-6789	Accy kit, MK1506/VRC 5815-00-402-5308 1 ea, \$482.00, RICC 2 A02012, No residue	\$434.00*	
	<i>Fred B. Owen, III</i> Fred B. Owen, III, SGM	Sleeping bag, arctic 8465-00-264-5084 1 ea, \$41.00, RICC 2 T71706, No residue	36.90*	
	<i>Julian D. Edmondson</i> Julian D. Edmondson GS-7 202-03-0300	Mask, prot, ABCM17 S 4202-00-542-4450 1 ea, \$40.18, RICC 1 M11895, No residue	36.17*	
Used instead of an investigation, para 2-3, AR 735-11.				
The signatures hereon are agreements to turn in to the proper supply officer all articles later recovered. It is understood that the US Government will retain title to the articles listed on this form.				
*Depreciation allowed per paragraph 4-2, AR 735-11.				
TOTAL			\$507.07	

DD FORM 1131

REPLACES EDITION OF 1 APR 58 WHICH IS OBSOLETE.

Form approved by Comptroller General, U.S. 28 January 1982

Lesson 4/Learning Event 4

Survey Requirements. A report of survey or an AR 15-6 investigation will be prepared when-

- Sensitive items are lost or destroyed.
- Directed by higher authority or DA directives.
- Property loss is discovered as a result of change of accountable officer's inventory, unless voluntary reimbursement is made.
- The value of the damages/shortages exceeds the responsible person's monthly pay.
- A person refuses to admit liability and does not offer payment for the value of the property.
- A person admits liability and the loss, damage, or destruction exceeds the person's monthly basic pay.
- The total handling loss of a specific bulk petroleum product is above the allowable loss for that product and the dollar value is greater than \$250.00.

Processing Times. Reports of survey will be initiated and presented to the appointing authority not later than the fifteenth calendar day after the date the discrepancy is discovered. The appointing authority will process and present it to the approving authority not later than 55 calendar days after discovery. The appointing officer/authority should complete his responsibility within 40 calendar days. When an investigator is appointed, he is given 30 days to conduct the investigation. When the approving authority receives the investigation report, he has 20 calendar days, including any legal review, to process it. The total processing time will be no longer than 75 calendar days.

Statement of Charges. Immediately upon determining that responsibility should be placed on specific individuals, the surveying officer will inform the appropriate commander so that a statement may be made on the appropriate clearance form that a report of survey is being processed against individuals.

The surveying officer must be free from bias or prejudice and must not begin an investigation with predetermined ideas. The surveying officer should determine the actual facts, not as they were reported but as they exist, and should make an intelligent, concise statement of his

findings of loss or damage occurred and whether fault or neglect is involved. In instances where fault cannot be established, the surveying officer will recommend that all individuals be relieved of liability for property.

After his findings are recorded, the surveying officer makes recommendations based on policies set forth in regulations and places responsibility on some individuals, while absolving others. The surveying officer ensures that the total cost is properly computed and covers loss, damage, or destruction of the property being investigated. The surveying officer's findings will include a decision on monetary liability. Items classified as not economically repairable will be turned in. The surveying officer will recommend disposition of property in his report.

Based on the facts developed by the investigation, the surveying officer will make recommendations on, but not limited to, the following:

- Monetary liability.
- Relief from responsibility and accountability.
- Disposition of any unserviceable property.

Once the investigation is completed, the surveying officer will return all copies of the report, along with all exhibits, to the appointing authority.

The appointing authority reviews the report for correctness and forwards it to the approving authority. The approving authority will review all reports of survey arising at the activity except those listing property for which he is responsible or accountable. The approving authority will review the reports personally; this authority will not be delegated.

If there is no evidence of negligence or willful misconduct, the approving authority must decide whether the evidence submitted supports the decision. After reviewing the report and supporting evidence, the approving authority may select one of the following courses of action:

- Reject the report and direct that an investigation be made. In this case, the report will be returned to appointing authority for appointment of an investigating officer.

Lesson 4/Learning Event 4

- Reject the report and request more data. The approving authority will specify the data required.
- Approve the report and complete the appropriate forms.

If there is evidence of negligence or willful misconduct, the approving authority will decide whether--

1. Correct procedures were followed.
2. An adequate and unbiased investigation has been made by surveying officers.
3. The recommendations of the surveying officer and the appointing authority indicate a decision based on the findings.

Where monetary liability is recommended, a judge advocate or civilian attorney will review the findings and give opinions as to adequacy of evidence and propriety of findings, before the approving authority's action on the case.

When the monetary charges are assessed, the approving authority will forward the report to the finance and accounting officer (FAO), not later than the second duty day after the date the approving authority signs the document.

The final action on reports of survey establishes indebtedness of persons by administrative procedure. The person charged may appeal the decision.

LESSON 4

REVIEW EXERCISE

Check your understanding of Lesson 4 by completing this review exercise. Try to complete it without looking back at the lesson. When you have completed the exercise, turn to the solutions at the end of the lesson and check your responses. If you do not understand a solution, go back and restudy the section of the lesson where the information is given.

1. Whenever property book or durable items are issued, _____ is/are required.
 - A. Two signatures
 - B. Hand receipts
 - C. The duty officer's signature
 - D. The supply sergeant's signature
2. Property issued or loaned for periods up to 30 calendar days _____.
 - A. Does not need to be hand receipted
 - B. Uses the same procedure as other issues
 - C. Can be temporarily hand receipted on DA Form 3161
 - D. Can be temporarily hand receipted on DA Form 2402
3. A log book, a locally designed form, or a card file may be used _____.
 - A. To sign for items not issued to individuals
 - B. To sign for tool sets, kits, or outfits
 - C. When the toolroom keeper decides
 - D. When tools are issued for one day or less

Lesson 4/Review Exercise

4. When more than one set, kit, or outfit (SKO) is maintained in the toolroom, tools among the SKOs _____.
 - A. Should not be mixed
 - B. Can be mixed freely
 - C. Are interchangeable
 - D. Are issued separately

5. To account for lost, damaged, or destroyed tools stored in or issued to the toolroom, use _____.
 - A. AR 735-11
 - B. DA Form 2062
 - C. DD Form 1150
 - D. NGBM 700-1

6. Locally designed forms or log books must have minimum entries when issuing tools. Three of those entries are _____.
 - A. Initials of toolroom custodian, NSN, and tools serial number
 - B. NSN, noun nomenclature of the tool, and signature of individual
 - C. Date of issue, quantity of issue, and color of tool
 - D. NSN, serial number of tool, and date of issue

7. From its general condition and appearance, property physically on hand may be classified as unserviceable by _____.
 - A. Toolroom keeper, user of tool, or designated persons
 - B. Supply sergeant, toolroom custodian, or qualified technical inspectors
 - C. Qualified technical inspectors or property classification officers only
 - D. Qualified technical inspectors, property classification officers, or other designated persons

8. If property is determined to be unserviceable (regardless of Federal supply classification), by technical inspection, or by other than fair wear and tear (FWT), an investigation will be conducted by the _____.
 - A. Survey officer for the command
 - B. Supply sergeant and toolroom custodian
 - C. Commander responsible for the property
 - D. Accountability office for the command

9. Liability for damage to property, whether by negligence or misconduct, is resolved by a _____.
 - A. Supply officer survey
 - B. Technical inspection
 - C. Command inspection
 - D. Report of survey

10. Subhand receipts are prepared and issued by the _____.
 - A. Hand-receipt holder
 - B. Toolroom custodian
 - C. Accountability officer
 - D. Supply sergeant

Lesson 4/Review Exercise

11. The DD Forms 1150 may be used as a temporary hand receipt or as a change document in lieu of DA Form _____.
- A. 2062
 - B. 2402
 - C. 2407
 - D. 3161
12. Temporary hand receipts should be filed in _____.
- A. Alphabetical order
 - B. Serial number order
 - C. NSN order
 - D. Date order.
13. If more than one tool has the same NSN, when preparing cards for tools in the SKO, prepare _____.
- A. One card for all tools with same NSN
 - B. A separate card for each tool
 - C. No cards for tools with NSN
 - D. Two cards for more than one tool with NSN
14. Accountability is the obligation of a person to _____.
- A. Be able to count items accurately during inventory
 - B. Keep track of the count during property inventory
 - C. Keep an accurate record of property, documents, or funds
 - D. Be accountable to the commander for lost items

15. The possession of property or the command or supervision of others who have possession of property _____.
- A. Makes you responsible for the property
 - B. Requires that you take care of the property
 - C. Makes you the accountability officer
 - D. Requires you to do a monthly inventory
16. The obligation of a commander to ensure the proper care, custody, and safekeeping of all government property within their command is a _____ responsibility.
- A. Supervisory
 - B. Personal
 - C. Direct
 - D. Command
17. Direct responsibility for property may be delegated by the accountable officer through _____.
- A. Direct order of the company commander
 - B. Ensuring the security of the property in the command
 - C. Taking administrative or disciplinary measures when necessary
 - D. Formal written designation or issue of property on a hand receipt
18. The relationship between a person and the property in their physical possession is _____.
- A. Command responsibility
 - B. Personal responsibility
 - C. Supervisory responsibility
 - D. Not a responsibility unless delegated

Lesson 4/Review Exercise

19. The designation of responsible officer can be given to any _____.
- A. Commissioned officer or high-ranking NCO
 - B. Civilian employee above the grade of GS-5
 - C. Employee of the US Army, civilian or military
 - D. Officer of the US Army or unit supply sergeant
20. Items are always turned into the supply support activity (SSA) _____.
- A. Nearest to the location
 - B. That normally issues the item
 - C. That will accept the item
 - D. That will replace the item
21. There are two types of discrepant shipments. These are items _____.
- A. Not requested and items having hidden defects
 - B. Found on installation and lost on installation
 - C. In the property book and not in the property book
 - D. For support of emergency requirements and rented items
22. Self-service supply center (SSSC) items are turned in when they are _____.
- A. Needed by another unit in the command
 - B. Not expendable and durable supplies
 - C. Not found in the General Administrative Logistics File
 - D. No longer required, and if they are in the same condition or unit pack as when purchased

23. The highest priority designator is UND _____, which indicates inability to perform the unit's mission.
- A. A
 - B. B
 - C. C
 - D. D
24. The two distinct types of responsibility are _____.
- A. Personal responsibility and direct responsibility
 - B. Command responsibility and direct responsibility
 - C. Personal responsibility and command responsibility
 - D. Command responsibility and nonpersonal responsibility
25. A statement of charges cannot be used to charge for loss, damage, or destruction of government property, when charges against any one individual exceed _____ base pay.
- A. One month's
 - B. One week's
 - C. One year's
 - D. Six months'
26. The quantity of spare parts authorized be on hand at the user level is referred to as the _____.
- A. Self-service supply center (SSSC)
 - B. Specific supply support activity (SSSA)
 - C. Priority designator (PD)
 - D. Prescribed load list (PLL)

Lesson 4/Review Exercise

27. The total number of PLL lines may not exceed _____.
- A. 300
 - B. 200
 - C. 100
 - D. 50
28. The priority designator (PD) for all supply requests will be determined according to _____.
- A. AR 710-2
 - B. AR 725-50
 - C. DA Pam 710-2-1
 - D. TM 38-L32-11

REVIEW EXERCISE SOLUTIONS

1. B (page 136)
2. C (page 142)
3. D (page 142)
4. A (page 134)
5. A (page 133)
6. B (page 142)
7. D (page 148)
8. C (page 148)
9. D (page 149)
10. A (page 136)
11. D (page 139)
12. D (page 142)
13. B (page 135)
14. C (page 144)
15. A (page 144)
16. D (page 144)
17. D (page 145)
18. B (page 145)
19. C (page 146)
20. B (page 125)
21. A (page 130)
22. D (page 131)
23. A (page 114)
24. B (page 103)
25. A (page 149)
26. D (page 107)
27. A (page 108)
28. B (page 115)

APPENDIX B - EXTRACT OF FM 29-2

SAMPLE BATTALION MAINTENANCE SOP

Co A, 2d Bn, 99th Inf
Fort Benning, Georgia
1 January

ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP

1. REFERENCES. Omitted.

NOTE: References should include those important to the unit mission and maintenance responsibility. Applicable directives and SOPs of higher headquarters should be referenced. Publications listed here should also be included in reference materials on hand.

2. **MISSION.** The mission of the battalion maintenance element is to insure that all equipment is ready for combat and that maintenance support to combat operations returns the maximum number of weapon systems to the battle.

3. RESPONSIBILITIES.

a. **Command.** Commanders are responsible for materiel readiness and maintenance operations of their units.

b. **Staff**

(1) **Executive officer.**

(a) Is the battalion logistics readiness officer.

(b) Supervises and coordinates staff actions in the maintenance program.

(2) **S1.** Keeps a current account of projected maintenance personnel gains and losses and of personnel availability by MOS and grade.

(3) **S2.** Keeps the commander informed of weather and terrain factors that may affect maintenance operations.

(4) **S3.**

(a) Integrates maintenance activities and maintenance training into the battalion training schedule.

(b) Uses maintenance periods as training for combat. (See Annex _____ (Training) to the battalion SOP.)

(5) **S4.** Coordinates logistics activities in the battalion.

(6) **Battalion maintenance officer.** (See duties in appendix I.)

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- (a) Commands the maintenance platoon.
- (b) Plans, organizes, and coordinates battalion maintenance activities.
- (c) Briefs the maintenance SOP to all newly assigned officers.
- (d) Establishes vehicle dispatch procedures.
- (7) Communications officer. (See annex _____ (Communications) to the battalion SOP.)
 - (a) Provides technical supervision for CE equipment maintenance.
 - (b) Installs, operates, and maintains communications for support of maintenance operations.

4. MAINTENANCE OPERATIONS.

- a. The battalion will be organized functionally for maintenance operations. (See appendix 1.)
- b. Commanders.
 - (1) Supervise maintenance operations of their units.
 - (2) Assign a licensed operator and alternate operator to each item of automotive, engineer, and auxiliary equipment that requires an operator.
 - (3) Insure that equipment is dispatched in a safe, operable condition.
 - (4) Conduct motor stables daily. (See appendix 9.)
 - (5) Conduct maintenance in at least 2-hour periods.
 - (6) Conduct 1 hour of maintenance for each 2 hours of track vehicle operations.
 - (7) Require every member of the chain of command to attend unit scheduled maintenance periods.
 - (8) Verify historical record entries weekly.
 - (9) Publish a unit SOP in accordance with this SOP.
- c. Operators.
 - (1) Maintain their equipment in accordance with the technical manual, the unit SOP, and this SOP.
 - (2) Maintain equipment operationally ready, including correct lube and fuel levels -
 - (a) At the close of motor stables.
 - (b) After the scheduled maintenance periods.
 - (c) Upon completion of the daily after-operation checks and services.
 - (3) The only exception to this policy is when the equipment is reported and accepted as inoperable at a maintenance category higher than operator/crew.
- d. Staff members supervise maintenance of equipment which they or the staff section use.
- e. Maintenance services.
 - (1) Scheduled PM services. (See appendix 2.)
 - (a) On the 20th of each month, the BMO will publish a schedule of periodic maintenance services for the next month.

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FM 29-2

- (b) The battalion maintenance technician will notify each company motor sergeant 24 hours in advance of the exact time and place the item will be delivered for scheduled service.
 - (c) The assigned operator and all crew members will deliver the item with all historical records, technical manuals, and other publications to the battalion maintenance shop as directed. The crew will remain with equipment until the service is completed or until released by the battalion motor sergeant.
 - (d) Battalion maintenance personnel will inspect the equipment to see if it has any unreported deficiencies. If any are detected, the battalion maintenance technician will be notified and the deficiencies will be corrected immediately.
 - (e) Once the equipment is accepted, the scheduled service will be completed.
 - (f) The battalion maintenance technician will verify the service and the entries in the historical records and on DD Form 314 (Preventive Maintenance Schedule and Record).
- (2) **Unscheduled services.** Companies submit request for repairs and other unscheduled services beyond their capabilities to the battalion maintenance technician who decides where the service will be performed.
- f. **Close of maintenance operations.** At the end of the duty day or of the maintenance operations, the battalion commander or a representative will tour the motor pool. A member of the chain of command will be present at each company shop. The inspection is to insure that -
- (1) Shop floors and paved work areas are free of mud, grease, and oil.
 - (2) Tools are secured.
 - (3) Parts are secured in PLL storage, in unit bins for installation, or in bins for recoverable or unrecoverable parts.
 - (4) Vehicle components and auxiliary equipment, other than track, installed wheels, and removed power packs, are stowed on the vehicle or in other designated stowage areas.
 - (5) Each motor sergeant has a work assignment sheet for the next day.

5. MATERIEL READINESS. Commanders -

- a. Insure that equipment readiness evaluations PMCS tables are performed on reportable equipment listed in TM 38-750, appendix C.
- b. Require supervisors to be present during scheduled maintenance periods.
- c. Personally verify and sign DA Form 2406 (Materiel Readiness Report).
- d. Report the results within the time indicated in appendix 5.

6. TOOLS AND TEST EQUIPMENT.

- a. Each mechanic receipts for tool set.
- b. All tools from organizational sets will be checked out on an individual basis and returned the same day.
- c. Commanders inventory tool sets monthly.
- d. Commanders verify scheduled calibration.

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7. SUPPLY.

- a. The S4 is responsible for supply activities in the battalion.
- b. The BMO is responsible for repair parts. (See appendix 3.)
 - (1) Parts control. The battalion maintenance technician controls all repair parts requests for issue.
 - (2) Prescribed load list. The company repair parts specialists maintain separate but collocated company PLL records.
- c. The commander or a designated representative will initial the document register for each UND "A" or "B" request.
- d. The support platoon leader provides the following items during maintenance periods.

NOTE: Items listed in this sample SOP will differ from unit to unit.

- (1) Petroleum. One tanker with 600 gallons of MOGAS and 600 gallons of diesel.
- (2) Lubricants (on 1½-ton trailer).
 - (a) GAA grease - two 25-lb cans.
 - (b) Oil - one 55-gal drum each of OE/HDO 10, 30, and 50.
 - (c) Oil, hydraulic (OHT) - five 1-gal cans.
- (3) Miscellaneous.
 - (a) Brake fluid - four 1-gal cans.
 - (b) Antifreeze - one 55-gal drum w/pump (50-50 solution).
 - (c) Cleaning solvent - one 55-gal drum w/pump.
 - (d) Bore cleaner - one case.
 - (e) One 5cmf air compressor w/hose.
 - (f) One dispensing pump for oil drums.

8. TRAINING.

- a. Commanders will appoint newly assigned mechanics to work with an experienced senior track vehicle mechanic or turret mechanic for OJT and skill verification.
- b. Maintenance training will be integrated into the unit training program. (See Annex _____ (Training) to the battalion SOP.)

DOE
LTC

OFFICIAL:

/s/ Green

GREEN, S4

APPENDIX: 1 - ORGANIZATION AND DUTIES OF PERSONNEL
2 - WORK FLOW AND COORDINATION
3 - REPAIR PARTS

EXTRACT OF FM 29-2

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- 4 - SAFETY
- 5 - REPORTS
- 6 - PUBLICATIONS
- 7 - FACILITIES
- 8 - DEFINITIONS
- 9 - WORK ASSIGNMENT SHEET
- 10 - TOOL CONTROL

APPENDIX 1 (ORGANIZATION AND DUTIES OF PERSONNEL) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

1. BATTALION MAINTENANCE ORGANIZATION.

2. DUTIES OF MAINTENANCE PERSONNEL

a. Battalion maintenance officer.

- (1) Keeps the commander and staff informed on the operational status of battalion equipment.
- (2) Plans the annual battalion maintenance program.
- (3) Coordinates battalion maintenance operations with DS and all other units.
- (4) Supervises supply, recovery, and evaluation of equipment, components, and parts.
- (5) Supervises the use of maintenance publications.
- (6) Supervises scheduled PM operations.
- (7) Supervises licensing of equipment operators.
- (8) Monitors and coordinates organizational maintenance operations.
- (9) Maintains maintenance annex to the battalion SOP.
- (10) Plans the battalion maintenance training program.
- (11) Commands the battalion maintenance platoon.
- (12) Supervises and assists in maintenance training.

b. Automotive maintenance technician.

- (1) Is the principal assistant to the BMO.
- (2) Organizes and supervises the records section, quality control, and organizational maintenance of tank-automotive, engineer, and auxiliary equipment.
- (3) Controls the flow of requisitions, parts, scheduled maintenance, and repairs from the companies to DS.
- (4) Schedules PM services.
- (5) Directs quality control inspections of maintenance operations, records, and predispatch.
- (6) Analyzes equipment deficiencies and failures.
- (7) Recommends new maintenance procedures to the BMO.

EXTRACT OF FM 29-2

FM 29-2

- (8) Prepares the daily materiel condition status report.
- (9) Monitors and trains personnel in recovery and evacuation operations.
- c. Battalion motor sergeant.
 - (1) Supervises shop operations.
 - (2) Prepares a daily work assignment sheet for the following day. The sheet allocates work to the turret section, automotive section, toolroom, welder, and recovery section to maintain the flow of scheduled maintenance and repairs.
 - (3) Supervises scheduled maintenance services, tests, troubleshooting repair, use of tools, replacement of parts, safety, and OJT.
 - (4) Drafts the shop operations SOP.
 - (5) Is platoon sergeant of the battalion maintenance platoon.
 - (6) Supervises operator/crew and maintenance of platoon equipment.
 - (7) Maintains key control.
- d. Records section.
 - (1) Chief, records section. Supervises all maintenance records and prepares reports as directed.
 - (2) Repair parts clerk.
 - (a) Requests, receives, identifies, stores, and issues repair parts.
 - (b) Maintains all PLL records.
 - (3) Equipment records clerk.
 - (a) Prepares daily equipment status report on the reverse side of DA Form 2406.
 - (b) Edits all information placed on maintenance forms and records in accordance with TM 38-750.
- e. Quality control track vehicle mechanic. Inspects all vehicles, including trailers and auxiliary equipment:
 - (1) Prior to dispatch as directed by the battalion maintenance technician.
 - (2) After scheduled services as directed by the battalion maintenance technician.
 - (3) At random as directed by the battalion maintenance technician.
 - (4) Prior to recovery to support.
 - (5) Upon return from DS.
- f. Automotive team leader. Directs the track mechanics as they perform scheduled services, tests, troubleshooting, and repairs.
- g. Turret team leader. Directs the turret mechanics as they inspect, service, repair, and adjust vehicular weapons, armament systems, fire control systems, and traverse and elevating systems.
- h. Chief, recovery section.
 - (1) Supervises recovery operations.
 - (2) Conducts recovery training.

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- i. Toolroom attendant.
 - (1) Maintains and controls all common and special tools and TMDE.
 - (2) Insures that all tools are signed out and returned at the end of each workday.
 - (3) Turns equipment in for calibration.
 - (4) Receives and mails oil samples for the AOAP.
- j. Wheel vehicle and power generation equipment mechanic. Installs, operates, and performs organizational maintenance on tactical and central power generator sets, arc welders, frequency converters equipped with electric motors, diesel or gasoline engines, and auxiliary and associated equipment.
- k. Welder.
 - (1) Welds by arc and acetylene as directed by the battalion motor sergeant.
 - (2) Straightens and aligns fenders, bumpers, and brackets and fabricates as directed by the battalion motor sergeant.

APPENDIX 2 (WORK FLOW AND COORDINATION) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

- 1. WORK FLOW AND COORDINATION - SCHEDULED SERVICES.
- 2. WORK FLOW AND COORDINATION - RECOVERY TO SUPPORT.

APPENDIX 3 (REPAIR PARTS) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

- 1. REPAIR PARTS CONTROL
 - a. All repair parts for the battalion will be collocated under the control of the BMO.
 - b. The repair parts specialist will identify all parts requests by unit.
 - c. The repair parts specialist will provide the motor sergeant with the document number when a part is placed on request.
 - d. When a part is received, the repair parts specialist will place it in the appropriate unit bin and notify the company motor sergeant of its arrival.
 - e. Repair parts specialists will deliver parts to company parts bins at least twice a day.
 - f. Repair parts specialists will pick up recoverable parts from bins at least twice a day.
 - 2. PRESCRIBED LOAD LIST.
 - a. A PLL will be established in accordance with DA Pam 710-2-1.
 - b. Commanders will inventory PLLs every 90 days.
- NOTE: Reserve component units inventory PLL every 180 days.
- c. Request for issue.
 - (1) Company repair parts specialists will-

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- (a) Verify the description, NSN, quantity, and parts manual number on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).
- (b) Complete a DA Form 2765 (Request for Issue or Turn-In) in accordance with DA Pam 710-2-1. (If a PLL item, use preprinted DA Form 2765.)
- (c) Maintain PLL records at the battalion PLL office.
- (2) Battalion repair parts specialist will hand-carry requisitions to the DS unit at least twice daily.
- (3) Commanders or designated representatives initial the document register for each UND "A" or "B" request.
- d. Direct exchange.
 - (1) Company motor sergeants will insure parts are unserviceable before they are turned in.
 - (2) The battalion repair parts specialist will accept only clean and complete parts and assemblies.
 - (3) The battalion repair parts specialist will insure all parts have a completed DA Form 2402 (Exchange Tag) attached.
- e. Quick Supply Store.
 - (1) Units will submit requests to the battalion repair parts specialist NLT 1630 each Monday.
 - (2) The battalion repair parts specialist will go to the QSS at least twice a week.
 - (3) The battalion repair parts specialist will list all parts not available at the store on a want slip for subsequent action.

3 PARTS BINS.

- a. Companies will maintain platoon/section parts bins for parts waiting to be installed.
- b. Companies will maintain a bin in the shop area for recoverable parts removed during a workday.

APPENDIX 4 (SAFETY) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

1. REFERENCE: Annex _____ (Safety) to the battalion SOP.
2. INSTRUCTIONS: Commanders will enforce the following special instructions:
 - a. Post "No Smoking" signs.
 - b. Allow smoking in designated areas only.
 - c. Allow no smoking within 50 feet of a vehicle or stored flammables.
 - d. Store paint and cleaning solvents in designated areas. (See appendix 7.)
 - e. Do not use gasoline as a cleaning solvent.
 - f. Clean up spilled liquids at once.
 - g. Place fire extinguishers in an accessible area in the shop and insure that they are inspected and weighed as required.

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- h. Stand clear of hoist when it is under stress.
- i. Place chock blocks against each vehicle (two in front of the tracks or wheels and two in the rear).
- j. Do not traverse turrets in power while in the shop.
- k. Remove ammunition and combustibles from vehicles before they enter the shop.
- l. Welding precautions.
 - (1) Wear protective clothing while welding.
 - (2) Store cylinders in a cool place.
 - (3) Provide sufficient ventilation when welding.
 - (4) Have fire extinguishers in welding area.
 - (5) Do not store oxygen with or near acetylene cylinders or POL products. Make sure they are secured.
 - (6) Do not weld near battery charging activities.
- m. Refueling.
 - (1) Do not refuel vehicles in maintenance shop.
 - (2) Observe the following procedures while refueling:
 - (a) Turn off engine.
 - (b) Connect ground wire to vehicle and to ground.
 - (c) Have a portable fire extinguisher available when refueling.
- n. Tools.
 - (1) Use required protective devices.
 - (2) Wrap chisels and other sharp-edged tools to prevent injury.
 - (3) Do not use cheater bars with handtools.
- o. Use ground guides when moving vehicles in the motor pool area; use two ground guides when backing.
- p. Obey posted traffic signs in motor pool.

APPENDIX 5 (REPORTS) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

1. COMMANDERS.

- a. Submit a daily vehicle status report (block 10, DA Form 2406) to the battalion motor officer NLT 1600.
- b. Prepare a monthly DA Form 2406 in accordance with TM 38-750.
- c. Submit the unit DA Form 2406 within 3 days after the end of the report period.

2. BATTALION MAINTENANCE OFFICER.

- a. Submit a daily consolidated vehicle status report (block 10, DA Form 2406) to the battalion commander NLT 1700.

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- b. Prepare the battalion consolidated DA Form 2406 and submit to the battalion XO as required.
- c. Calculate and submit the equipment status profile to the S3 for incorporation into DA Form 2715 (Unit Status Report Worksheet). (See AR 220-1.)

APPENDIX 6 (PUBLICATIONS) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

The following reference publications will be on hand or on requisition and will be current in accordance with DA Pam 310-1.

1. ARMY REGULATIONS (AR)

- AR 11-14 Logistics Readiness
- AR 220-1 Unit Status Reporting
- AR 310-2 Identification and Distribution of DA Publications and Issue of Agency and Command Administrative Publications
- AR 385-10 Army Safety Program
- AR 385-40 Accident Reporting and Records
- AR 385-55 Prevention of Motor Vehicle Accidents
- AR 600-55 Motor Vehicle Driver - Selection, Testing and Licensing
- AR 700-4 Logistic Assistance Program
- AR 708-1 Cataloging and Supply Management Data
- AR 710-2 Supply Policy Below the Wholesale Level
- AR 725-50 Requisitioning, Receipt, and Issue System
- AR 735-11 Accounting for Lost, Damaged, and Destroyed Property
- AR 746-1 Packaging of Army Materiel for Shipment and Storage
- AR 750-1 Army Materiel Maintenance Concepts and Policies
- AR 750-22 Army Oil Analysis Program
- AR 750-37 Sample Data Collection - The Army Maintenance Management System (TAMMS)
- AR 750-40 Missile Materiel Readiness Report
- AR 750-43 Test, Measurement, and Diagnostic Equipment
- AR 750-51 Maintenance Assistance and Instruction Team (MAIT) Program
- AR 750-58 Painting, Camouflage Painting, and Marking of Army Materiel

2. DEPARTMENT OF THE ARMY PAMPHLETS (DA Pam)

- DA Pam 310-1 Consolidated Index of Army Publications and Blank Forms
- DA Pam 350-24 Maintenance Supervisor's Course
- DA Pam 750-Series

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3. FIELD MANUALS (FM)

- FM 5-36 Route Reconnaissance and Classification
- FM 20-22 Vehicle Recovery Operations
- FM 21-305 Manual for Wheeled Vehicle Driver
- FM 21-306 Manual for the Tracked Combat Vehicle Driver
- FM 29-2 Organizational Maintenance Operations
- FM 43-1 Organizational Maintenance Manager's Guide
- FM 43-1-1 Organizational Maintenance Manager's Guide Indicator Lists
- FM 55-30 Army Motor Transport Units and Operations

4. TECHNICAL MANUALS (TM)

- TM 9-237 Operator's Manual for Welding Theory and Application
- TM 9-243 Use and Care of Handtools and Measuring Tools
- TM 9-1000-202-14 Operator's Organizational Direct Support, and General Support Maintenance Manual for Evaluation of Cannon Tubes
- TM 9-6140-200-14 Operator's, Organizational, Direct Support and General Support Maintenance
- TM 9-8000 Principles of Automotive Vehicles
- TM 21-300 Driver Selection and Training (Wheel Vehicles)
- TM 21-301 Driver Selection, Training, and Supervision (Track Vehicles)
- TM 38-750 The Army Maintenance Management System (TAMMS)
- TM 750-116 Organizational, Direct Support, and General Support Maintenance Procedures for Purging and Charging Fire Control Instruments

5. SUPPLY CATALOGS (SC)

Component list supply catalog for each type tool kit authorized

6. MISCELLANEOUS

- SB 700-20 Army Adopted/Other Items Selected for Authorization/List of Reportable Items
- SB 700-50 Expendable Items: (Except Medical, Class V, Repair Parts, and Heraldic Items)
- SB 700-20-1 List of Reportable Items: Army Equipment Status Reporting System
- TB 746-93-1 Color and Marking of Military Vehicles, Construction Equipment, and Materials Handling Equipment
- TB 750-236 Calibration Requirements for the Maintenance of Army Materiel
- TB 43-0210 Nonaeronautical Equipment Army Oil Analysis Program (AOAP)
- CDA Pam 18-1 Code Reference Guide

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APPENDIX 7 (FACILITIES) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

1. MOTOR POOL LAYOUT AND TRAFFIC PATTERN.
2. BATTALION MAINTENANCE SHOPS.

APPENDIX 8 (DEFINITIONS) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

1. **MAINTENANCE CHAIN OF COMMAND.** The maintenance chain of command follows the normal chain of command down to and including the equipment operator. It also includes heads of staff sections and other supervisors who have equipment and/or operators within their responsibility.
2. **OPERATIONALLY READY/FULLY MISSION CAPABLE.** As defined in AR 750-40, chapter 1 and in TM 38-750, paragraph 1-4.
3. **MAINTENANCE PROGRAM.** Written procedures developed to meet unit organizational maintenance requirements.
4. **MAINTENANCE PLAN.** An annual plan developed with the annual training program and designed to support all unit activities involving readiness, training, or equipment operation.
5. **MAINTENANCE TRAINING PLAN.** An annual plan developed with the annual training program and maintenance plan. The training plan provides or requests school, OJT, and unit training at all levels to insure presence of qualified maintenance personnel.
6. **MAINTENANCE PERIODS.** Any period of time allotted to maintenance on the battalion, company, platoon, or section training schedule.
 - a. Maintenance periods consist of four types:
 - (1) Unit equipment maintenance.
 - (2) Before-, during-, and after-operation maintenance as an integral part of any equipment operation for training, administration, or support.
 - (3) Individual maintenance skills training (including OJT).
 - (4) Motor stables.
 - b. Maintenance periods will be scheduled as:
 - (1) Motor stables - 2 hours for track vehicles.
 - (2) Unit/individual maintenance - 2-, 3-, or 4-hour blocks.
 - (3) As part of tactical training or support operations.

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- (4) If maintenance periods or training/support maintenance are scheduled (2 or more hours), motor stables are automatically included.
7. **MOTOR STABLES.** A period of operational readiness checks scheduled daily, or included in other maintenance periods. These checks insure that all vehicular and related equipment is operationally ready for combat without notice. When maintenance or training with equipment is scheduled, motor stables need not be scheduled separately.
8. **MOTOR SERGEANT'S WORK ASSIGNMENT SHEET.** An informal document prepared by the motor sergeant prior to 1630 each workday. It lists the maintenance tasks to be performed in the next 24 hours. The list includes the task; any special requirements for tools, parts, or lubrication; and the names of the mechanics assigned to perform each task. Prior to holidays and weekends, the sheet prepared on the last workday will cover tasks through 1700 of the next workday.
9. **COLLOCATED PLL.** The grouping of all subordinate unit repair parts and records under the direct supervision of the battalion maintenance technician. The PLL will be maintained by each company so it can be loaded on a maintenance vehicle if the company is attached to another battalion.
10. **SYMBOLS DEFINITION.**
- a. Symbol "X." An "X" indicates a deficiency which places the equipment in an inoperable status. The equipment must not be operated until the deficiency is corrected. Conditions which put equipment in an "X" status include:
 - (1) Defects or conditions which make the equipment unsafe for operation, such as faulty brakes.
 - (2) Defects or conditions which make the equipment inoperable, such as the engine not starting.
 - (3) Defects or conditions which may lead to further damage if the equipment continues to be used, such as an oil leak.
 - b. Circled X symbol. The circled X also indicates a deficiency. However, the equipment may be operated under certain conditions as prescribed by the local or higher commander until corrective action can be done. An example of the circled X use is inoperable headlights on a tactical vehicle. If the headlights do not work, an unsafe condition exists and is a deficiency. However, if the vehicle is operated only in daylight, the safety hazard would not be serious.
 - c. Horizontal dash (—) symbol. This symbol indicates that a required inspection component replacement, maintenance operational check, or test flight is due but has not been done or an MWO is overdue.
 - d. Diagonal (/) symbol. This indicates a materiel defect, other than a deficiency, which must be corrected to increase efficiency or to make the item completely serviceable. Examples are a torn seat cushion, a bent fender, or tow hooks missing.

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APPENDIX 9 (WORK ASSIGNMENT SHEET) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

1. **PURPOSE.** The work assignment sheet is a management tool of the motor sergeant. As the shop foreman, the motor sergeant must plan the work for a given day and distribute the work according to priority and skills available. Such planning must be a part of the daily routine.
2. **USE.** Used throughout the organization to plan work activities.
3. **PREPARATION.** (See format at inclosure 1.) Normally the work assignment sheet will be prepared for a 24-hour period.
 - a. **Date:** The date work is to be done.
 - b. **Name:** Individual assigned to do the work.
 - c. **Unit number:** Bumper number (of vehicle requiring maintenance).
 - d. **Work assigned:** A description of the work to be done.
 - e. **Estimated time:** Estimate of time to the ½ hour to do the work.
 - f. **Publications:** Publications such as TMs and LOs needed to do the work.
 - g. **Tools:** Special tools required to do the work.
 - h. **Actual time:** Enter actual time after work is completed.
 - i. **Remarks:** Use to explain any information entered on the work assignment sheet.

Inclosure 1. (Work Assignment Sheet Format) to Appendix 9.

(Work Assignment Sheet) to Annex G (Maintenance) to 1/11th Armor Battalion SOP.

WORK ASSIGNMENT SHEET

APPENDIX 10 (TOOL CONTROL) TO ANNEX G (MAINTENANCE) TO 1/11TH ARMOR BATTALION SOP.

1. **PURPOSE.** Establish procedures for control and use of tools within the battalion headquarters maintenance element.
2. **RESPONSIBILITIES.**
 - a. **Commander.**
 - (1) Sets unit tool control policy.
 - (2) Establishes a toolroom with adequate security for unit tools.
 - (3) Assigns responsibility by use of hand receipts. Individual use items, such as general mechanic's tool kits, are hand receipted to user.

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- (4) Responsible for all tools not further hand receipted.
- (5) Enforces supply discipline according to AR 735-5, AR 735-11, AR 710-2, and DA Pam 710-2-1.
- (6) Conducts command inspections.
- b. Unit supply sergeant.
 - (1) Insures all authorized tools are on hand or on requisition.
 - (2) Turns in excess tools.
 - (3) Conducts inventories and informs commander of results.
 - (4) Takes action to account for tools lost, damaged, or destroyed through other than fair wear and tear before issuing or requesting a replacement.
- c. Battalion maintenance officer.
 - (1) Provides overall management for the battalion tool control program.
 - (2) Enforces commander's policies and implements directives.
- d. Battalion motor sergeant.
 - (1) Manages the battalion headquarters tool control program.
 - (2) Acts as hand receipt holder for tools issued to toolroom.
 - (3) Appoints primary and alternate toolroom attendant.
 - (4) Supervises layout and operation of the toolroom.
 - (5) Conducts daily inspection.
 - (6) Determines status of tools not returned by closing time.
 - (7) Supervises inventories.
 - (8) Initiates appropriate adjustment document action for lost, damaged, or destroyed tools.
- e. Toolroom attendant.
 - (1) Follows procedures outlined in paragraph 4.
 - (2) Accounts for all tools issued to toolroom.
 - (3) Checks condition of tools before issue and after return.
 - (4) Requires tools to be cleaned before return.
 - (5) Replaces tools in proper place after return.
 - (6) Cleans and maintains tools in the toolroom.
 - (7) Reports tools not returned by closing time to motor sergeant.
- f. Individual mechanic.
 - (1) Hand receipts for general mechanic's tool kit and other individual use items as directed by the commander.
 - (2) Keeps tool kit secured with lock when not in use.
 - (3) Stores locked tool kit in toolroom.
 - (4) Conducts inventories as required.

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- (5) Accounts for all assigned tools that are missing.
- (6) Cleans and maintains assigned tools.
- (7) Signs for or leaves a tool check for all tools drawn from the toolroom.
- (8) Cleans tools before returning them to the toolroom.

3. INVENTORIES.

- a. Commander checks inventory accuracy during annual command inspection.
- b. General mechanic's tool kits and individual use items are inventoried monthly.
- c. Shop equipment sets and other special tools and equipment are inventoried quarterly.
- d. Inventory results are reported to supply sergeant within 3 working days.
- e. The overprinted mat, NSN 7690-01-110-7671, is used for general mechanic's tool kit inventory.
- f. Inventory is mandatory upon change of hand receipt holder.
- g. Tool inventories are done before and after major field exercises.

4. TOOLROOM PROCEDURES.

- a. Storage.
 - (1) Shadow boards are used for frequently issued tools.
 - (2) Small tools are stored and secured in locked cabinets or containers.
 - (3) General mechanic's tool kits are stored on a rack and secured with chain and padlock.
 - (4) General mechanic's tool kits are modified with a steel hasp secured to the center of the covers and a cover flange on the ends of the lids.
 - (5) Paints, fuel, thinners, and other flammables will not be stored in the toolroom.
- b. Accounting procedures.
 - (1) Tool checks are used to account for tools issued from the shadow board.
 - (2) Each mechanic is issued a key ring of 10 metal tags (tool checks), NSN 9905-00-473-6336, stamped with the mechanic's tool kit number. To obtain tools from the shadow board, the mechanic gives the tool check to the toolroom attendant who places it on the shadow board. The tool check is returned to the mechanic when the tool is returned and accepted.
 - (3) A tool check hanging on the shadow board shows that the mechanic has the tool.
 - (4) The toolroom attendant maintains a current listing of tool check numbers issued to mechanics.
 - (5) Tool check numbering procedures: Tool checks will be stamped with a two-digit number for mechanic tool checks and a three-digit number for supervisor tool checks. All tool checks will identify the owning unit. (Example - "HHC 23.")
 - (6) Lost tool checks will be turned in to the owning unit's motor sergeant when found.
- c. Sign-out book.

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- (1) Tools not accounted for by tool checks will be signed for in the sign-out book.
 - (2) The toolroom attendant will print the following information: Name, rank, and unit of individual, name of tool, date and time out, date and time in. The person drawing the tool will sign using the payroll signature.
- d. Access.
- (1) Access to the toolroom will be limited to the toolroom attendants, motor sergeant and other authorized personnel.
 - (2) A sign will be posted at the toolroom entrance with the words "NO ADMITTANCE-TOOLROOM PERSONNEL ONLY."
- e. Loans to other units.
- (1) Loans of tools and equipment to other units are discouraged.
 - (2) Loans will be approved by the unit commander and coordinated and executed by the unit motor sergeants involved. DA Form 3161 (Request for Issue or Turn-In) will be used for loans up to 30 days. The document will be signed by the gaining motor sergeant. The DA Form 2062 (Hand Receipt/Annex No) will be used for loans over 30 days. The document will be signed by the gaining unit commander.