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HEADQUARTERS
DEPARTMENT OF THE ARMY

PETROLEUM SUPPLY UNITS

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Field Manual
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PETROLEUM SUPPLY UNITS

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PREFACE

This field manual provides general data and operational information for commanders and key personnel of the following units:

- Headquarters and Headquarters Detachment, Petroleum Supply Battalion, TOE 10426L.
- Petroleum Supply Company, TOE 10427L

This field manual covers petroleum supply units. It discusses their organization, employment, field operations, training and coordination with other units.

The proponent of this publication is the HQ, TRADOC. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to

COMMANDER
USACASCOM TRAINING DIRECTORATE
ATTN ATCL AQ
801 LEE AVENUE
FORT LEE, VA 23801-1713

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

Chapter 1

THEATER ORGANIZATION

Section I. ORGANIZATION AND STRUCTURE

ORGANIZATION

A theater is a large geographical area outside the continental United States that has one overall commander. The theater concept requires an organization that can be tailored for any size operation. The organization must be flexible enough for a diversified mission. The Unified Command Plan (UCP) establishes criteria for a unified theater based on national security strategy, national military strategy, geography, and history. Unity of effort requires that one responsible commander focus resources toward obtaining defined goals.

Chain of Command

The chain of command is prescribed by the Goldwater-Nichols Reorganization Act of 1986. The National Command Authorities (NCA) exercises authority and control of the armed forces through a chain of command with two branches. The first branch flows from the President to the Secretary of Defense to the combatant commanders for missions and forces assigned to their commands. The second flows from the NCA to the secretaries of military departments to the chiefs of the service forces for execution of service functions. NCA commanders are responsible to the NCA for the preparedness of their commands and the execution of assigned missions. Army service component commanders (ASCCs), assigned to the combatant commands (COCOMs), are responsible for preparing, maintaining, training, equipping, administering, and supporting Army forces assigned to the unified and specified commands. The Chairman and the Joint Chiefs of Staff are in the chain of command in order to communicate the NCA's direction. Figure 1-1, page 1-2, displays the chain of command.

Command Authorities

Commanders in the chain of command exercise authority as prescribed by law or by a superior commander. Commanders of US military forces use various levels of authority, which are described as command relationships and various other authorities. The four command relationships are COCOM, operational control (OPCON), tactical control (TACON), and support. The other levels of authority are coordinating authority, administrative control (ADCON), and direct liaison authorized (DIRLAUTH).

STRUCTURE

A theater is a geographical area outside the continental United States (OCONUS) for which a commander of a unified command has been assigned military responsibility. From the strategic context, the theater encompasses the level of international military cooperation required or the degree of necessary dedicated US military resources. These perspectives may influence how the Army conducts operations in each theater. Though theaters may involve unilateral US operations, US forces may also act in conjunction with other nations in multinational operations, as in Operations Desert Shield, Desert Storm, and Joint Endeavor.

Types

Theaters are often described as maritime, continental, or littoral, based on their dominant geographic and strategic characteristics. This description influences the predominant type of military forces used, the strategic missions assigned, and the strategic and operational objectives pursued in the theater. Continental theaters primarily involve control of land and associated airspace. Maritime theaters focus on ensuring control of the sea and associated

airspace. A littoral theater is established on a shore or coastal region where major actions between land, air, and sea operations are combined and must be synchronized.

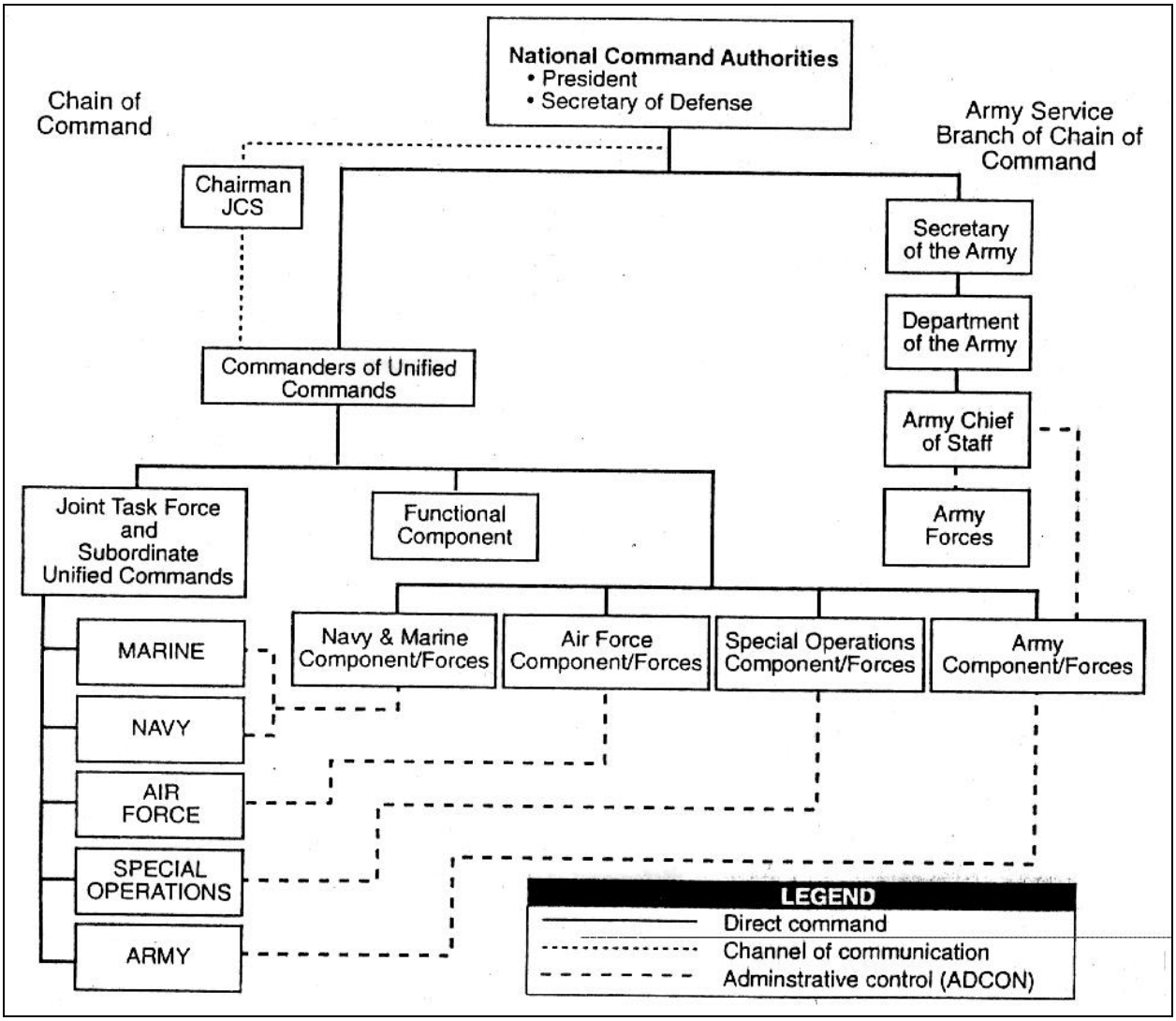

Figure 1-1. The chain of command

Internal Organization

Theater combatant commanders develop strategy and organize the theater. The Army, besides operating as part of a joint force, must be prepared to conduct multinational operations with land, air, and naval forces of other nations as well as to conduct interagency operations. While unity of command may not be possible in multinational operations, unity of effort is essential. Each CINC may assign associated areas within his theater to subordinate commanders. CINCs may designate joint areas or zones during war and during stability and support operations (SASO), while theaters of war and operations are designated only in time of war. Combat zones (CZs) and communications zones (COMMZs) may be established as needed (see Figure 1-2). The CINC organizes his theater to synchronize unified operations or to integrate single-service, joint, special, and supporting operations with allied and intra-agency activities, nongovernmental organizations, and private volunteer organizations.

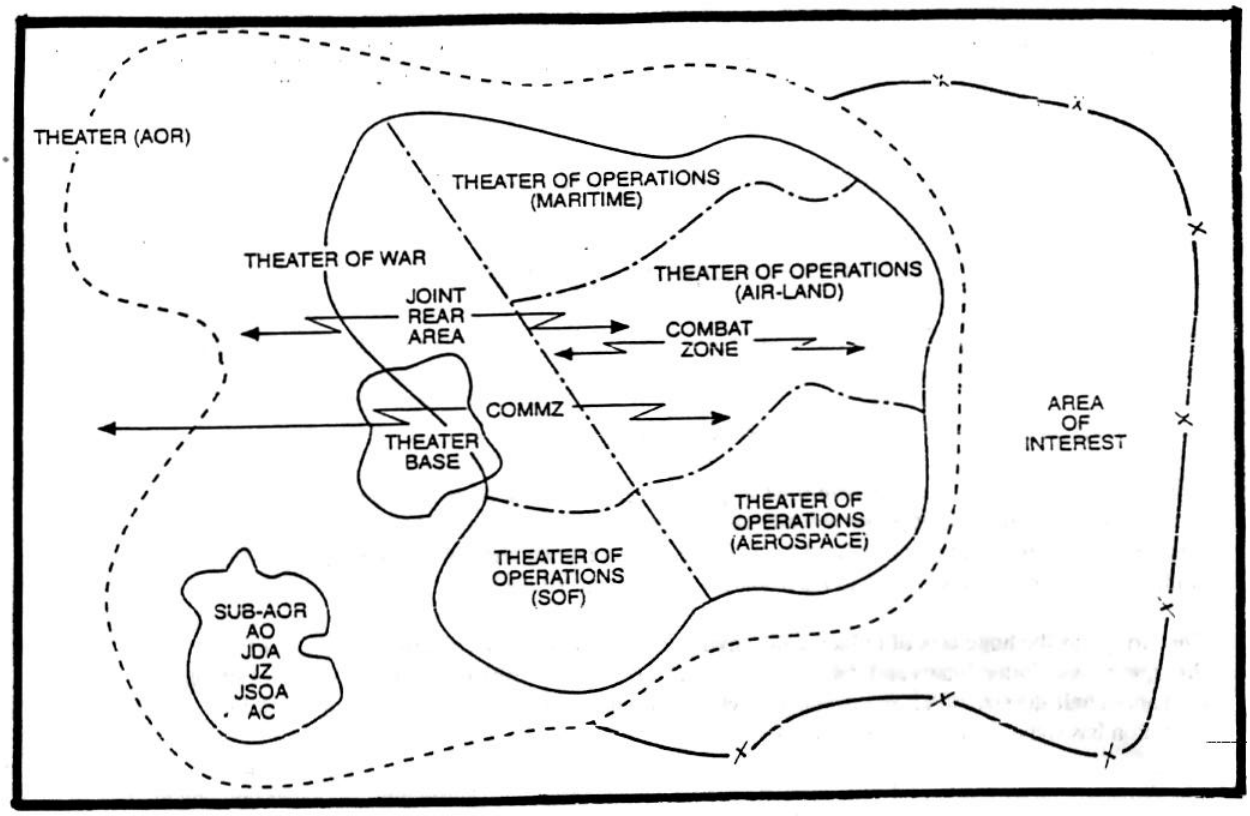

Figure 1-2. Theater Area Organization

- Combat Service Support in the COMMZ. The COMMZ extends from the rear of the combat zone in the theater of operations to the CONUS base. Its size may vary depending on the size of the theater of operations. The communications zone contains lines of communications and those theater organizations and other agencies required to support forces in the field. Within the COMMZ the CINC will normally establish a theater base, which encompasses a theater logistics base. The theater logistics base will normally be at the junction of the various intratheater and intertheater lines of communication. The logistics bases provide supply, maintenance, field services, transportation, health services, personnel support, and evacuation. They also contain logistics facilities to support the theater such as air and sea ports of debarkation, marshaling areas, logistics stockage areas, movement control points, logistics headquarters and units, and the rear area of the intratheater combat zone.

- Combat Service Support in the CZ. The combat zone is an area required by forces to conduct combat operations. The CZ begins at the forward line of own troops (FLOT), including the deep battle area, and extends to the corps rear area. Combat service support in the combat zone is provided by the corps support command located in the corps rear area and by the division support command located in the division rear.

  - Corps Support Command. The corps support command is a flexible organization structured to support corps forces. The corps support command provides combat service support mainly through corpswide service organizations and support groups.

  - Division Support Command. This command provides direct combat service support (except communications-security equipment and construction) to all assigned or attached elements of the division. It consists of a headquarters and assigned or attached combat service support units.

Section II. PETROLEUM IN THE THEATER

OPERATIONAL-LEVEL FUNCTION

The ASCC must provide centralized distribution of bulk petroleum products for all US forces in theater. The ASCC establishes an operational-level army petroleum organization to receive petroleum products in theater and to distribute them throughout the COMMZ and rear of the CZ. If the theater uses pipeline systems for bulk distribution, other transportation assets distribute the products from the pipeline terminal to the user. The operational-level petroleum organization interfaces with MMC for product distribution and coordinates with host nations for additional product and distribution support. FM 10-67 details operational-level petroleum function. The petroleum supply battalion is part of the combat service support function of the theater of operations. The unit is assigned or attached within the theater as the operational situation permits.

BULK SUPPLY MISSION

The supply of Class III (bulk) is critical to battlefield success. The senior supporting MMC centrally manages, controls, and allocates Class III in accordance with the ASCC's priorities. The operational-level commander, in accordance with the senior CSS commander, is responsible for providing bulk petroleum to US land forces. Support to multinational forces is based on established agreements.

Operations

The availability of fuel depends on the location of the theater of operations. If operations are in an industrialized area, initial supplies may be obtained from host nation or contractor support. Tanker ships will bring in subsequent supplies through marine petroleum terminals. In an undeveloped area, Air Force aircraft may effect the initial resupply. In these emergency-type situations, the Aerial Bulk Fuel Delivery System (ABFDS) may be discharged into the operating unit's support vehicles. As soon as practical, the Navy's Offshore Petroleum Discharge System (OPDS) will provide bulk fuels in over-the-beach operations. The Navy is responsible for providing fuel to the high-water mark on the beach. The Army then assumes responsibility for the fuel through its tactical petroleum terminals.

Organization

The senior petroleum unit commander—the primary petroleum distribution operator—is responsible for all aspects of theater-level petroleum operations. Distribution planning is the basis for the design, construction, and operation of the theater petroleum distribution system. The petroleum unit is also responsible for quality surveillance and liaison with the senior supporting MMC as well as with supported multinational forces. It will distribute fuels based on ASCC established priorities and senior supporting MMC directives. Stockage policy is covered in AR 710-2. Additional information on petroleum operations and organizations is in FMs 10-1 and 10-67.

Distribution

Operational-level petroleum units (petroleum pipeline and terminal operating) will establish the petroleum support base for receiving, temporarily storing, and moving fuels to the GS petroleum supply units. These units, located at the operational and tactical levels, deliver fuels to the divisional and nondivisional SSAs. Movement may involve various modes of transportation. Pipelines—the most efficient mode—will be used to deliver the product as far forward as practical, usually to the division rear area. Air bases and tactical airfields are serviced by pipelines when feasible. Pipeline distribution is supplemented primarily by tank vehicles, with rail cars and barges being used when available. Figure 1-3 depicts Class III (bulk) requirements and supply flow in the theater of operations.

Joint Petroleum Office (JPO)

A unified commander may establish a joint petroleum office to provide staff management of petroleum at the theater level. Subarea petroleum offices (SAPOs) may be established at the subunified command level to provide in-country staff responsibilities for all services. For more information on the JPO, refer to DOD 4140.25-M.

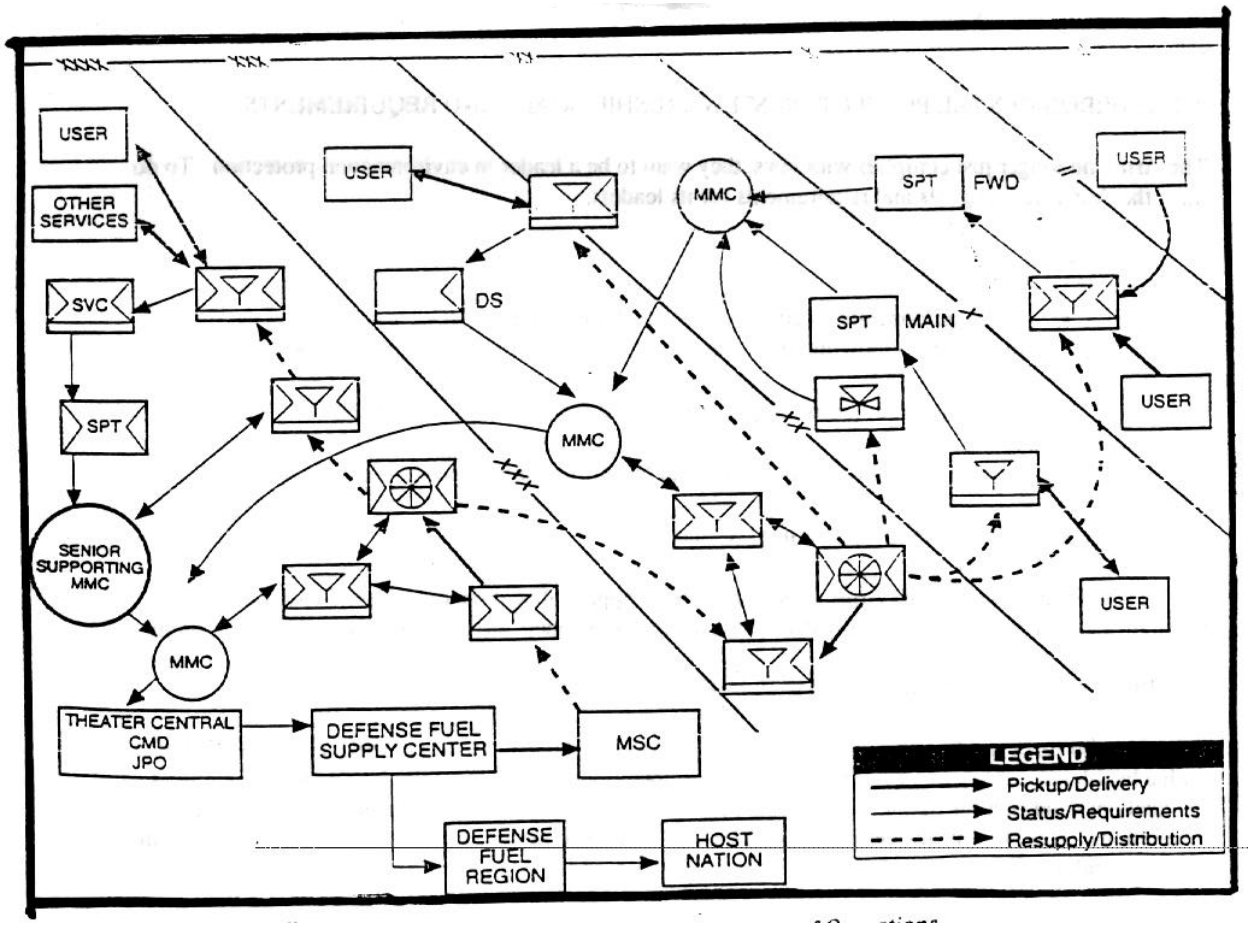

Figure 1-3. Bulk petroleum distribution in a theater of operations

Chapter 2

ENVIRONMENTAL RESPONSIBILITIES

SCOPE

The Army environmental vision is to be a national leader in environmental and natural resource stewardship for present and future generations as an integral part of our mission. We must take care of the environment (that is, practice environmental stewardship). The definition of stewardship is taking care of property while also caring about the rights of others. We must plan our operations without harming the environment. Good environmental stewardship lets leaders take care of soldiers and their families. It also saves resources vital to combat readiness.

The Army has the huge task of reducing environmental impact on its installations and units throughout the United States and the world. The Army owns 20 million acres of land (an area about half the size of Virginia) in CONUS. This fact illustrates the vastness of our task. Each area of our daily operation has some effect on the environment.

The Army is renewing its emphasis on care of the environment. Petroleum and water units by their nature have a huge impact on the environment. It is critical that leaders and soldiers in these units follow safe, legal environmental practices. By doing so, they protect their health and the health of those around them. They also prevent long-term environmental damage that can lead to fines and other legal actions.

STEWARDSHIP GOALS AND REQUIREMENTS

The Army no longer merely complies with laws; it exercises leadership in environmental protection by setting goals and requirements for its leaders.

Goals

- Compliance —ensure that all Army sites (CONUS, OCONUS) and operations attain and sustain 100 percent compliance with environmental laws and regulations in a climate of changing requirements. Do not be subject to a notice of violation or a fine for not following host nation, local, state, or federal environmental directives.

- Prevention —adopt and implement integrated management approaches in all Army mission areas to reduce and minimize both the volume and toxicity of all categories (air, water, land) of environmental pollution.

- Conservation —conserve, protect, and enhance natural environmental and cultural resources entrusted to the Army's stewardship for the enrichment of future generations, using all practical and available means consistent with the Army mission.

Requirements

- Appraisal—all Army actions require an appraisal of their potential environmental impacts.

- Training—all key Army decision makers and planners must attend NEPA training.

- Restoration —ensure strict compliance with all spill and release reporting, timely resource requests and allocations, and clean-up requirements of all Army contaminated sites, as quickly as resources are made available, to protect human health and the environment.

- Environmental consideration —ensure that all practically available environmental and cultural resource data are incorporated early in the mission decision-making and planning process.

ENVIRONMENTAL STEWARDSHIP IN LEADERSHIP

Leaders who care for the environment also care for their people. They reduce or eliminate undue health risks. They save resources (soldiers and money) vital to their mission. They keep training areas in excellent condition for training far into the future. They preserve cultural artifacts for study by future generations, and they teach soldiers their basic moral duty to protect and preserve the United States and its allies.

RESPONSIBILITIES OF PERSONNEL

Personnel at all levels soldiers, NCOs, officers, and commanders must protect our environment.

Soldiers

Soldiers' duties include—

- Follow installation environmental policies, unit SOPs, Army regulations, and environmental laws and regulations.
- Make sound decisions in everyday activities.
- Advise the chain of command on techniques to ensure environmental regulations are followed.
- Identify the environmental risks in individual and team tasks.
- Support the Army recycling program.
- Report HM and HW spills immediately.

Noncommissioned Officers

NCOs' duties include—

- Always consider the environment in day-to-day decisions.
- Make sure soldiers know the Army's environmental ethic.
- Train soldiers to be good environmental stewards.
- Be committed to environmental protection.
- Identify environmental risks associated with tasks.
- Plan and conduct environmentally sustainable actions and training.
- Protect the environment during training and other activities.
- Analyze the influence of the environment on the mission.
- Integrate environmental considerations into unit activities.
- Train peers and soldiers to identify the environmental effects of plans, actions, and missions.

- Counsel soldiers on the importance of protecting the environment and the results of not complying with environmental laws.
- Incorporate environmental considerations in AARs.
- Support the Army recycling program.
- Report HM and HW spills immediately.

Officers

Officers' duties include

- Build an environmental ethic in soldiers.
- Train and counsel subordinate leaders on stewardship.
- Lead by example.
- Enforce compliance with laws and regulations.
- Always consider the environment in making day-to-day decisions.
- Make sure subordinates know the Army's environmental ethic.
- Train subordinates to be good environmental stewards.
- Commit subordinate leaders to protecting the environment.
- Analyze the influence of the environment on the mission.
- Integrate environmental considerations into unit activities, including identifying the environmental risks associated with unit tasks.

Unit Commander

Commanders must build an environmental ethic in their soldiers. Commanders set the tone for environmental compliance. They are totally responsible for complying with all applicable environmental laws in units. Commanders train their subordinates on stewardship and counsel them on doing what is right. They must lead by example, enforcing compliance with laws. Commanders should

- Consider the environment in making daily decisions.
- Know about the NEPA, HM, HW, HAZCOM efforts, and spill contingencies.
- Commit subordinates to environmental protection.
- Make sure officers and NCOs know the environmental ethic and train them to be good environmental stewards.

- Counsel officers and NCOs on the importance of protecting the environment and the results of violating laws.
- Ensure officers and NCOs comply with requirements when reporting hazardous substance spills.
- Ensure environmental concerns are addressed throughout the training.
- Identify and assess the environmental consequences of proposed programs and activities.
- Plan and conduct training that complies with environmental laws, including marking areas "off limits" during training exercises.
- Discuss environmental concerns during briefings, meeting, and AARs.
- Establish and sustain unit environmental awareness training.
- Appoint an environmental compliance officer and an HW coordinator (the same person can serve in both positions). These appointments ensure environmental compliance occurs at the unit level.
- Ensure the unit SOP covers environmental considerations, conservation, natural resources, and spill procedures.
- Support the Army pollution prevention and recycling program.
- Report HM and waste spills immediately.
- Conduct environmental self-assessment or internal environmental compliance assessments.
- Meet with key installation environmental POCs.

Appointed Personnel

Personnel appointed by the commander should receive formal training. Their responsibilities include

- Act as an advisor on environmental regulatory compliance during training, operations, and logistics functions.
- Serve as the commander's eyes and ears for environmental matters.
- Act as liaison between the unit and the higher headquarters which is responsible for managing environmental compliance programs and is able to provide information on the training requirements certifications that unit personnel need.

UNIT-LEVEL ENVIRONMENTAL TRAINING PROGRAM

An effective training program allows personnel to carry out their responsibilities. TC 5-400 is the basic manual for environmental stewardship. Commanders ensure all personnel are trained on environmental issues. They appoint an environmental compliance officer/HW coordinator, who works with other environmental personnel. They also make sure environmental laws are followed. Commanders meet with battalion S3 and S4 officers and other environmental personnel. They identify requirements concerning environmental training and unit personnel qualifications, ECAS inspections that may affect the unit, and common environmental problem areas and how to avoid them. Commanders also make sure the SOP details environmental issues and the procedures the unit must follow. The training program should cover—

- HM management.
- HW management.
- HAZCOM.
- Pollution prevention and HAZMIN.
- Recycling program.
- Spill prevention/response plan.

Chapter 3

PETROLEUM SUPPLY BATTALION HEADQUARTERS AND HEADQUARTERS DETACHMENT

Section I. THE UNIT

MISSION

The Headquarters and Headquarters Detachment, Petroleum Supply Battalion (TOE 10426L0), provides command, control, and supervision over petroleum supply companies. It also provides command, control, and supervision over assigned or attached transportation medium truck companies (petroleum) that distribute petroleum.

ASSIGNMENT

The detachment is normally assigned to the quartermaster group (petroleum and water) or area support group within the theater. However, for independent corps-level operations, it can be assigned directly to the COSCOM.

CAPABILITIES

The detachment can—

- Command two to five companies. These companies can be a mix of petroleum supply companies or medium truck companies (petroleum).
- Plan for the storage and distribution of bulk petroleum products required by all direct support or general support units in the theater or corps area.
- Manage a program for quality surveillance of petroleum products and operate a mobile petroleum laboratory.
- Make sure that a prescribed portion of the theater/corps petroleum reserve is maintained by attached or assigned petroleum supply units.
- Transport 33 percent of its TOE equipment and supplies in a single lift using its authorized organic vehicles.

ORGANIZATION

Figure 3-1, page3-2, shows the unit's organization. Sections II through VII of this chapter discuss each element of the unit in detail.

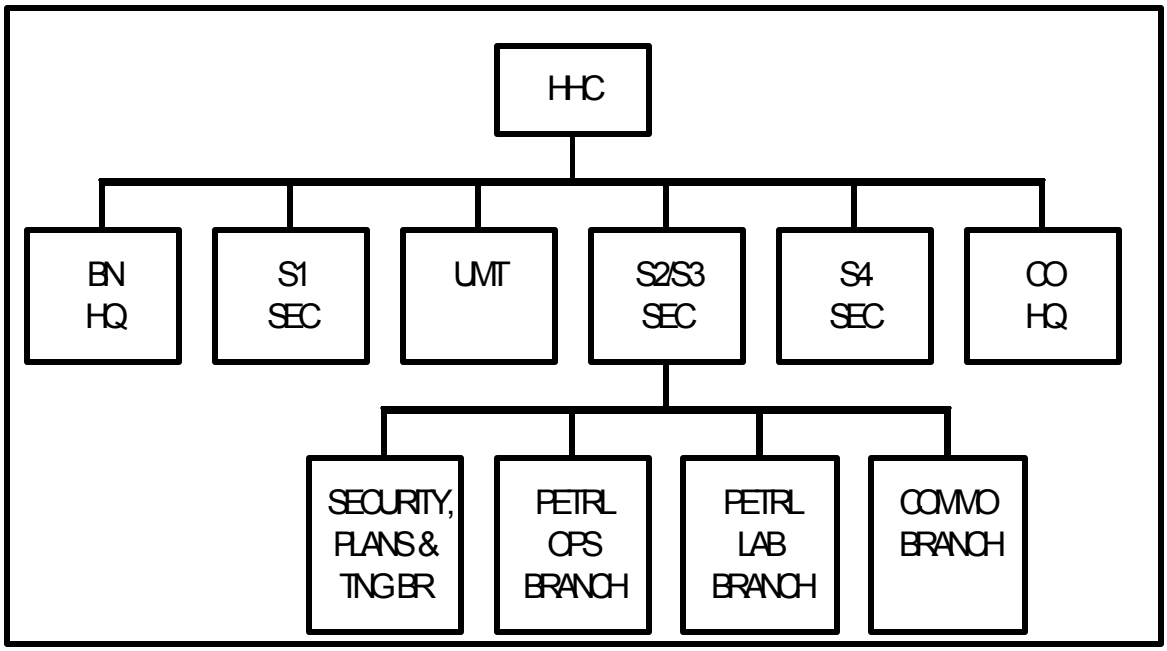

Figure 3-1. Organization of the headquarters and headquarters company, petroleum supply battalion

Section II. BATTALION HEADQUARTERS

MISSION AND RESPONSIBILITIES

The battalion headquarters provides command and control for the battalion and its assigned and attached units.

PERSONNEL

Battalion headquarters key personnel and their duties are described in Table 3-1.

Table 3-1. Duties of Battalion Headquarters Key Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Battalion Commander	92F		LTC	Commands the battalion and the petroleum distribution system. Plans and executes all operations to comply with applicable national, state, local, and host nation laws, including ensuring environmental and safety risk assessments are conducted for all operations. All technical operations and support activities connected with the system also come under his control.
Executive Officer	92F		MAJ	Assists the commander in his duties. Coordinates and directs battalion staff actions. Coordinates the unit's environmental stewardship programs. Serves as troop information officer and materiel readiness officer.
Chaplain	56A		CPT	Conducts the religious activities of the battalion. Section IV gives more responsibilities.

Table 3-1. Duties of Battalion Headquarters Key Personnel (Continued)

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
S1 Officer	92F		CPT	Directs the functions of the S1 section. Directs all technical administrative operations of the battalion and its assigned and attached units. Section III gives more responsibilities.
S2/S3 Officer	92F		MAJ	Directs the functions of the S2/S3 section. Plans, controls, and supervises the supply and distribution of petroleum. Also serves as the OPSEC officer. Section V gives more responsibilities.
S4 Officer	92F		CPT	Manages all activities concerned with supply and maintenance. Section VI gives more responsibilities.
Communica-tions-Electronic Staff Officer	25C		CPT	Plans and determines requirements for signal communications support and for use of signal communication equipment. Coordinates with the area signal officer as required. Responsible for the operations of the communications branch. Supervises the installation, operations, and maintenance of the battalion communications system. Exercises technical supervision over communications personnel in subordinate units.
Command Sergeant Major	00Z	50	E9	Serves as the senior enlisted advisor. Advises and initiates recommendations to the commander and the staff in matters concerning enlisted personnel. Executes established policies and standards of performance, training, appearance, and conduct of enlisted personnel. Maintains communications with the subordinate unit noncommisioned officers and enlisted personnel through the noncommisioned officer channel. Provides counsel and guidance to noncommisioned officers and other enlisted personnel. Performs other duties prescribed by the commander, which may include reception and orientation of newly assigned personnel, assisting in the inspection of command activities and facilities, leading the advance/quartering party during a major movement, and serving as president or member of command selection boards for noncommisioned officers.
Petroleum Light Vehicle Operator	77F	10	E3	Drives for the commander. Maintains the commander's vehicles. Operates radio.

OPERATIONS

Some of the responsibilities in key functional areas of the battalion headquarters follow. Sections in this chapter detail these responsibilities:

- Plan and prepare for the deployment/redeployment of the battalion.
- Conduct all operations with minimal environmental damage as dictated by the operational situation and IAW applicable federal and host nation agreements, policies, laws, and regulations.
- Provide guidance and supervision of subordinate units.
- Plan and establish air defense measures.
- Monitor the tactical and technical performance of subordinate units. Provide guidance and training programs to improve performance.
- Provide logistical and administrative support for subordinate units.
- Plan and supervise religious activities.

- Plan and coordinate installation and use of a communications network.
- Advise higher headquarters of operating situations and requirements.
- Plan and implement appropriate environmental stewardship and safety programs in both tactical and garrison operations.

EQUIPMENT

Table 3-2 lists equipment identified for the battalion headquarters by TOE 10426. Other equipment may be authorized by common tables of allowances (CTA). Use CTA 50-900 for clothing and individual equipment and CTA 50-909 for field and garrison furnishings and equipment. Expendable and durable supplies are listed in CTAs 8-100 and 50-970.

Table 3-2. Battalion Headquarters TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Cable telephone: WD-1/TT DR-8 1/2 km	2
Camouflage screen support system: woodland/desert	4
Camouflage screen system: woodland/dwt radar scat without support system	4
Installation kit: MK-2502/VRC F/AN/VRC-46/64 or AN/GRC-160	1
Radio set: AN/VRC-46	1
Reeling machine cable hand: RL-39	1
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Telephone set: TA-312/PT	2

Section III. S1 SECTION

MISSION

This section provides all administrative and personnel management support required throughout the battalion. The S1 section—

- Distributes messages.
- Maintains office records.
- Publishes orders.
- Maintains liaison with supporting financial activity.
- Manages personnel and personnel services.

RESPONSIBILITIES

The S1 supervises the operations of the S1 section. He advises the commander and other staff officers on personnel matters. These include—

- Unit strength.
- Personnel management.

- Manpower management.
- Morale.
- Discipline, law, and order.
- Health.

PERSONNEL

S1 section key personnel and their duties are described in Table 3-3.

Table 3-3. Duties of S1 Section Key Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Personnel Sergeant	75H	40	E7	Assists the S1 officer. Supervises personnel management classification and assignment. Maintains liaison with the personnel service unit providing personnel service to the battalion. Serves as information NCO.
Personnel Administrative Sergeant	75B	20	E5	Assists the personnel staff NCO and supervises the clerk-typist and records clerk.
Legal NCO	71D	20	E5	Maintains all legal paperwork in the battalion. Prepares and processes legal documents in support of courts-martial, nonjudicial punishment, and other military justice proceedings.
Personnel Administrative Specialist	75B	10	E4	Prepares and processes recommendations for awards. Prepares, updates, and coordinates requests for evaluations. Prepares and monitors requests for promotion. Prepares and monitors requests for identification tags and cards, leaves and passes, and line-of-duty determination. Prepares personnel accounting and strength management. Prepares, generates, interprets, and reconciles SIDPERS reports.
Personnel Administrative Clerk	75B	10	E3	Performs administrative functions, including sustaining and operating MARKS and typing military and nonmilitary correspondence in draft and final copy. Drives light vehicle.

OPERATIONS

The following operations are performed by the S1 Section:

Administrative Support

The section authenticates orders and directives and maintains the filing system IAW MARKS. The section prepares, verifies, and submits casualty feeder reports to the casualty section of the appropriate commander. It takes prompt action on administrative instructions received from higher headquarters and requests from subordinate units. The section maintains accurate personnel records. It assigns replacements according to MOS and unit requirements. AR 600-8-2 gives standards on how to prepare, review, and process recommendations for awards and decorations. AR 600-200 provides guidance on planning enlisted personnel management system procedures.

SIDPERS

Refer to DA Pam 600-8-1 for unit-level procedures and DA Pam 600-8-20, SIDPERS handbook for commanders.

Personnel Management

The section's personnel management responsibilities are—

- Personnel requirements. Subordinate units send the section their personnel status reports. Once section personnel know unit requirements, they coordinate soldier assignment priorities with the S2/S3 officer, unit commanders, and the battalion commander. The section assigns personnel based on valid position numbers in the UMR. DA Pam 600-8-1 gives more information. The section designates assignments for each person during the current SIDPERS cycle. Then it inputs the necessary information in the next SIDPERS cycle. FMs 12-6 and 101-10-1/1 give information on planning the personnel management program..

- Casualties. Subordinate units will send the section their casualty reports. Within 1 hour after receipt, the section prepares a SIDPERS deceased transaction and a SIDPERS organization strength report change. DA Pam 600-8-1 outlines procedures. Report strength figures are extracted from current unit totals.

- Equipment, documents, and enemy prisoners of war (EPW). When subordinate units take EPWs, the S1 section provides processing guidance. It gives instructions for EPW evacuation and interrogation. The section coordinates procedures with local military police. It also coordinates with the S4 section for captured materiel evacuation and with the S2/S3 for document evacuation. Procedures for EPW handling are in FM 19-40 and FM 34-52. FM 101-10-1/1 gives general guidance.

- Personnel daily strength summary. Subordinate units report their maintenance and unit strength data each day. When reporting to higher headquarters, units show the section all organic and attached units separately. They identify them by line number. They do not show detached units. By 1800 on the date of the report, the section reports recorded data to higher headquarters by unit, attachment, and group. It reports strength, losses, gains, number of EPWs, number of days in the area of operations, and number of days in combat.

- Replacement personnel. The section in-processes replacements. It verifies assignments based on vacancies with the unit and recommendations of the S2/S3 officer. It sends assignment notice to the receiving unit. It also notes this on the UMR. It ensures units submit SIDPERS transactions to the higher headquarters. DA Pams 600-8 and 600-8-1 give more information. The section orients replacement personnel to the unit the day they arrive. As a minimum, the orientation includes information on unit mission, the chain of command, mail procedures, personnel policies, and personnel services.

Personnel Services

The section manages the personnel services program. It administers leaves, passes, and rotations. Personnel services also include—

- Projected quotas for each unit for rest camps, recreation centers, and leave areas.

- Information on services provided by Army Emergency Relief, the chaplain, the Staff Judge Advocate, the Equal Opportunity Office, and special services.

- Actions taken on finance coordination with the supporting finance office. FM 14-6 gives guidance.

- Scheduling of personnel services for minimum interference with the unit's mission.

- Coordinating of transportation requirements for movement to service areas.

Discipline, Law, and Order

The S1 administers actions under the UCMJ. AR 27-10 gives more information. The S1 officer also recommends measures to the commander to improve discipline, law, and order.

Morale Support

Section personnel monitor subordinate units' morale by making unit visits. To evaluate unit morale and morale enhancement programs, they should follow the guidelines in FMs 22-101 and 101-5.

Labor Services

Subordinate units identify and report labor requirements to the section. The section then processes requests for civilian labor. The S1 ensures the requests meet approved guidelines and then coordinates civilian labor requirements with supporting labor service teams. The section coordinates the use of labor in functional areas with all other staff sections. FMs 100-10, Chapter 13, and 101-10-1/1 give guidance.

Legal Assistance

The section's legal sergeant provides legal administrative support and special court-martial support to soldiers and the commander.

Medical Support

The S1 section coordinates with the local medical commander to determine the location of facilities and the services available. Section personnel coordinate procedures for routine and emergency evacuation. The S1 prepares a medical plan that ensures adequate coverage for all subordinate units. These plans should include dental support, instructions for treatment, and chain of medical evacuation. They should also include hospitalization and preventive medicine support beyond organic capabilities. FM 8-10 discusses the procedures for providing medical support. FM 101-10-1/1 also gives information.

Command and Public Information

The section briefs the commander's staff and unit commanders on command information. The command briefing should include the following information as a minimum:

- Planning information activities.
- Publishing command information in newspapers and other media.
- Operating command information broadcast stations and networks.
- Reviewing information for security clearance before public release.

Library Services

The section operates a central records library for documents kept longer than 30 days. The section services the units or individuals requesting information or copies of documents from the library. AR 25-400-2 gives guidance on setting up an organized library file system.

Files and Records

Publications and files of supported units should be checked to ensure they are current. They should be maintained according to regulations. AR 340-2 gives guidance on files and records maintenance. A list of current publications is in DA Pams 25-30 and 310-35.

EQUIPMENT

Table 3-4 lists equipment identified for the S1 section by TOE 10426.

Table 3-4. S1 Section TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Cable telephone: WD-1/TT DR-8 1/2 km	1
Camouflage screen support system: woodland/desert	3
Camouflage screen system: woodland/dwt radar scat without support system	3
Duplicating machine spirit process: table-mounted, elec/hand 9-15L in	1
Facsimile set: AN/TXC-1	1
Reeling machine cable hand: RL-39	1
Telephone set: TA-312/PT	1

Section IV. UNIT MINISTRY TEAM

MISSION

The UMT provides for religious ministry, pastoral care, and the moral and ethical well-being of the unit. It advises the commander and staff on matters of religion, morals, and morale.

RESPONSIBILITIES

UMT responsibilities include-

- Coordinating, integrating, and supervising all chaplain activities, religious services, ministries, and observances and the use of facilities as approved by the commander.

- Establishing and maintaining liaison with staff chaplains of higher, equal, or subordinate headquarters, other military services, government agencies, the armed forces of allied nations, and officials of civilian churches and other religious organizations.

- Deploying with the battalion to offer religious services, counseling, and morale support on all training or operational deployments.

- Facilitating the "free exercise" rights of all personnel, regardless of the religious affiliation of either the chaplain or the soldier.

- Providing area chaplain services coverage within the geographical area or as specified in the area coverage plan.

- Providing denominational services where practical.

- Providing guidance to the battalion's family support group.

- Providing chaplain coverage to EPWs and all others as outlined in AR 165-1.

PERSONNEL

The battalion chaplain supervises the operations of the UMT. Personnel assigned to the UMT include the chaplain assistant (E4, 71M10), who performs or supervises the performance of specified elements of religious support in the battlefield or in garrison. The chaplain assistant provides personal protection and administrative support to the battalion chaplain and also drives the light vehicle allocated to the UMT.

EQUIPMENT

Table 3-5 lists equipment identified for the UMT by TOE 10426.

Table 3-5. UMT TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Cable telephone: WD-1/TT DR-8 1/2 km	1
Camouflage screen support system: woodland/desert	4
Camouflage screen system: woodland/dwt radar scat without support system	4
Chest hymn book: with handles	1
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment, (HMMWV)	1
Reeling machine cable hand: RL-39	1
Telephone set: TA-312/PT	1

Section V. S2/S3 SECTION

MISSION

This section is responsible for the intelligence, security, operations, and training necessary to support the battalion's critical wartime mission, "provide bulk petroleum storage and distribution to an assigned area." This section plans and supervises the security of the battalion's area. It coordinates with the RAOC and the headquarters and headquarters commander to implement a rear area security plan. The S2/S3 is responsible for the production of intelligence and for counterintelligence and intelligence training and security. It is responsible for communications, communications security, and relaying, on request, local weather observations. This section also directs activities pertaining to organization, operations, training, and deployment readiness for subordinate units, including, but not limited to, taskings, QTB, USR, and school management. The four branches assigned to the section are the security, plans, and training branch, the petroleum operations branch, the mobile laboratory branch, and the communications branch.

RESPONSIBILITIES

The S2/S3 officer supervises the organization, training, and employment of assigned and attached units. He is also responsible for administering pertinent portions of the unit environmental stewardship program. Particular areas of interest for the S2/S3 are environmental stewardship training and environmentally sensitive land management (TC 5-400). The S3 is the principal staff officer for matters concerning safety. Supervisors of the security and plans branch, petroleum operations branch, mobile laboratory branch, and communications branch are under the S3's control.

PERSONNEL

Duties of S2/S3 section key personnel are described in Table 3-6, page 3-10.

Table 3-6. Duties of S2/S3 Section Key Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Operations Sergeant	77F	50	E8	Supervises operations in the S2/S3 officer's absence.
NBC Operations/ Staff NCO	54B	40	E7	Assists in planning and applying NBC defense measures for subordinate units and coordinates decontamination operations, when necessary. Monitors for appropriate handling of NBC-related hazardous materials.
Petroleum Surveillance NCO	77L	30	E6	Plans and supervises a program for quality surveillance of petroleum products.
Admin-istrative Specialist	71L	10	E4	Performs all administrative functions, including establishing and operating the Modern Army Record-keeping System (MARKS) and preparing section correspondence.
Petroleum Supply Specialist	77F	10	E3	Assists the petroleum operations sergeants and petroleum surveillance sergeant.
Signal Support System Specialist	31U	10	E3	Installs, maintains, and troubleshoots signal support equipment and terminal devices in the tactical operations center or tactical command post.

OPERATIONS

The section branches carry out the mission. The section office oversees the functions of the branches to ensure their operations accomplish mission goals. The petroleum surveillance sergeant plans and supervises a quality surveillance program for the battalion. Petroleum laboratory technicians assigned to the subordinate petroleum supply companies use this program as a guide when testing products.

EQUIPMENT

Table 3-7 lists equipment identified for the S2/S3 section by TOE 10426. Equipment for the branches within the S2/S3 section is listed separately.

Table 3-7. S2/S3 Section TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Alarm chemical agent automatic: portable/manpack	1
Cable telephone: WD-1/TT DR-8 1/2 km	2
Camouflage screen support system: woodland/desert	4
Camouflage screen system: woodland/dwt radar scat without support system	4
Facsimile set: AN/TXC-1	1
Installation kit: MK-2503/VRC F/AN/VRC-47/VRC-12	1
Radiac meter: IM-93/UD	1
Radiac meter: IM-174/PD	1
Radio set: AN/VRC-47	1
Reeling machine cable hand: RL-39	1
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Telephone set: TA-312/PT	1

ORGANIZATION

The S2/S3 section has four branches. A branch chief supervises each branch.

Security and Plans Branch

Mission . The security and plans branch plans, controls, and supervises the security, deployment, employment, training, and operation of the battalion. Planning complies with applicable national, state, local, and host nation environmental protection laws. The branch also provides mission control and supervision for battalion units and the petroleum supply and distribution system. All operations minimize environmental damage within the scope of the operational situation. The branch performs this mission ~~n by~~

- Developing and implementing training programs and educational development programs.
- Developing plans and supervising training.
- Planning, directing, coordinating, and supervising intelligence, counterintelligence, and civil affairs programs.
- Developing and coordinating plans for OPSEC and defense.

Personnel, Duties, and Responsibilities . Duties and responsibilities of security and plans branch personnel are described in Table 3-8.

Table 3-8. Duties of Security and Plans Branch Key Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Petroleum Sergeant	77F	40	E7	Supervises the branch. Prepares broad planning guidance, policies, and programs for command organizations, operations, and functions. Conducts safety and environmental risk assessments for existing and proposed operations. Develops policies and guidance for training of the command and for evaluating this training. Implements the unit environmental stewardship program as it pertains to operations. Exercises staff supervision over all OPSEC activities. Manages the battalion security clearance programs.
Intelligence Sergeant	96B	20	E5	Performs intelligence preparation of the battlefield. Provides technical advice to the staff on intelligence matters. Assists in writing the intelligence estimates for operations orders and plans.
Multimedia Illustrator	25M	10	E3	Operates manual, mechanical, and electronic multimedia imaging equipment for various visual information products. Creates illustrations, layouts, map overlays, and graphs for staff elements of the battalion.
Administra-tive Clerk	71L	10	E3	Performs all administrative functions, including establishing and operating MARKS and preparing branch correspondence.

Equipment Equipment required for the security and plans branch is listed in Table 3-9, page 3-12.

Table 3-9. Security and Plans Branch TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Cable telephone: WD-1/TT DR-8 1/2 km	1
Camouflage screen support system: woodland/desert	4
Camouflage screen system: woodland/dwt radar scat without support system	4
Drafting equipment set battalion: charts, sketches, and overlays	1
Reeling machine cable hand: RL-39	1
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Telephone set: TA-312/PT	1

Operations. This branch of the S2/S3 section performs the following intelligence and security operations.

Intelligence operations include conducting intelligence preparation of the battlefield, developing intelligence estimates, and providing intelligence support. This branch maintains the current intelligence summary and an estimate. An analysis of a summary and an estimate will help in preparing an OPLAN and OPORD. The branch reviews and revises intelligence and counterintelligence requirements. Intelligence information is collected, analyzed, processed, and disseminated continuously. This process requires close supervision and planning to execute. FM 34-60 covers counterintelligence. It discusses the counterintelligence estimate, work sheet, and plan. The work sheet is an essential aid. It is the basis for preparing counterintelligence plans, orders, and requests. The security and plans branch analyzes the threat situation and makes recommendations when necessary. It also provides information to subordinate units as required. FM 34-60 gives helpful information on intelligence. Higher headquarters will provide the battalion with an intelligence report on the expected action of opposing forces. The section sends applicable report portions to all battalion units. It informs higher headquarters of subordinate units' current operational situation. The briefing covers daily organization, operation, coordination, intelligence, and physical security aspects of the unit. It emphasizes information that may affect mission performance.

Security measures include RAP (rear area protection) and OPSEC (operations security). The branch reviews, updates, and coordinates rear area security and area damage control plans for all battalion units. The branch updates ground, antiarmor, and air defense plans based on the threat level. It uses adequate programs for information and signal security. It also implements physical security and deception programs. It establishes liaison with higher headquarters intelligence. It denies essential elements of friendly information to the enemy and confuses the enemy force in its attempt to estimate the course of action the group will take.

Petroleum Operations Branch

Mission . The branch supervises the storage and distribution of petroleum products within the battalion's supply and distribution system.

Personnel, Duties, and Responsibilities . Responsibilities and duties of petroleum operations branch personnel are described in Table 3-10.

Table 3-10. Duties of Petroleum Operations Branch Key Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Petroleum Operations Officer	92F		CPT	Supervises the supply and distribution of bulk petroleum products. Coordinates with the petroleum supply companies on site location, bulk receipts, and tank allocation. Monitors operations to make sure they are minimizing environmental damage within the scope of the operational situation.
Freight Movements Officer	88B		LT	Determines bulk fuel transportation requirements for tank trucks. May also determine requirements for fuel distributed by rail, air, and water. Coordinates bulk petroleum movement by rail, highway, air, or water.

Table 3-10. Duties of Petroleum Operations Branch Key Personnel (Continued)

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Petroleum Operations Sergeant	77F	40	E7	Assists the petroleum operations officer.
Petroleum Distribution Sergeant	77F	30	E6	Maintains dispatching operations on a 24-hour basis with the assistance of the petroleum inventory control sergeant.
Dispatcher	88M	20	E5	Tracks and monitors petroleum tanker movements.
Petroleum Inventory Control Specialists	77F 77F	20 10	E5 E4	Maintains data on current bulk petroleum on-hand inventories. Additionally, maintains total ullage by terminal and fuel type. Assists the petroleum dispatch sergeant. Skill Level 1 soldier assists the inventory control sergeant in maintaining current petroleum supply records. Both soldiers serve as vehicle drivers and operate radios.
Movements Specialists	88N 88N	10 10	E4 E3	Assist the transportation movements officer in coordinating the movement of fuel by means other than hose line.

Equipment. Equipment prescribed for the petroleum operations branch by TOE 10426 is listed in Table 3-11.

Table 3-11. Petroleum Operations Branch TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Antenna: RC-292	1
Axle cable reel: RL-27	1
Cable telephone: WD-1/TT DR-8 1/2 km	4
Camouflage screen support system: woodland/desert	9
Camouflage screen system: woodland lt wt radar scat without support system	9
Installation kit: MK-2502/VRC F/AN/VRC-46/64 or AN/GRC-160	1
Power supply: PP-6224/U	1
Radio set: AN/VRC-46	1
Radio set control group: AN/GRA-39	1
Reeling machine cable hand: RL-39	2
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	2
Telephone set: TA-312/PT	2
Trailer cargo: 3/4 ton 2 wheel with equipment	1

Operations. The branch performs the following operations:

- Computes requirements for petroleum storage operations, including compliance with environmental laws and regulations.

- Plans movement of bulk petroleum by means other than pipeline and coordinates transportation support. Coordinates bulk petroleum delivery. Directs bulk petroleum transportation. Coordinates bulk petroleum diversions or "reroutes" to meet reallocation requirements with the medium truck company (petroleum) and the petroleum supply company. The transportation cell coordinates with external movements activities. It ensures bulk petroleum movements by means other than pipeline are coordinated and support the overall inland petroleum distribution plan.

- Plans quality surveillance program.

- Prepares petroleum operation plan IAW FM 101-5 and forwards it to S2/S3 for approval.

- Provides technical assistance to petroleum supply company.

- Receives and monitors stock status reports from petroleum supply company. The daily consumption reports are monitored to determine future requirements. Directs and supervises reporting procedures from the battalion. Consolidates status reports from petroleum supply companies and forwards to COSCOM or TAACOM MMC.

- Maintains current location of petroleum supply points and storage capabilities of subordinate petroleum supply companies. Develops and controls inventory procedures.

- Coordinates petroleum movement operations. The section maintains close coordination with movement programs, directives, and policies of higher commands. This ensures the branch gets the greatest use of movement capability. It also ensures Department of the Army policies concerning direct throughput of bulk petroleum products are strictly followed. FMs 10-67 and 55-10 give information on bulk petroleum transportation. FM 100-10 gives more information on rail, highway, air, and water transportation.

Petroleum Laboratory Branch

Mission . This branch analyzes petroleum products received and stored in operating units. It also provides area petroleum laboratory support as directed. It operates a mobile petroleum laboratory, which can perform partial analysis testing for petroleum products. FM 10-72 describes mobile labs and their operation.

Personnel, Duties, and Responsibilities . Responsibilities and duties of petroleum laboratory branch personnel are described in Table 3-12.

Table 3-12. Duties of Petroleum Laboratory Branch Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Petroleum Laboratory Officer	92F		LT	Directs the petroleum laboratory in inspecting and testing petroleum products.
Petroleum Laboratory Supervisor	77L	30	E6	Supervises the performance of standard physical and chemical tests on petroleum products. Evaluates test results to make sure they comply with federal and military specifications.
Petroleum Laboratory Sergeant	77L	20	E5	Performs standard physical and chemical tests on fuel handled through the battalion petroleum distribution system.
Petroleum Laboratory Specialist	77L	10	E4 E3(3ea)	Performs actual testing of petroleum products under the supervision of the petroleum laboratory sergeant. Also, drives 1-1/4 ton and 5-ton trucks.

Equipment. Equipment prescribed for the petroleum laboratory branch by TOE 10426 is listed in Table 3-13.

Table 3-13. Petroleum Laboratory Branch TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Cable telephone: WD-1/TT DR-8 1/2 km	1
Camouflage screen support system: woodland/desert	6
Camouflage screen system: woodland/dwt radar scat without support system	6
Dolly trailer converter: 8-ton, 2 wheel, with equipment	1
Facsimile set: AN/TXC-1	1
Generator set diesel engine trailer-mounted: 60kw, 60hz, mounted on M200A1 PU-650	1
Laboratory petroleum: semitrailer-mounted	1
Reeling machine cable hand: RL-39	1
Testing kit petroleum: aviation fuel contamination	1
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Telephone set: TA-312/PT	1
Sampling and gaging kit: petroleum military specification, document type	1
Truck Cargo: 5-ton, 6x6 LWB, with equipment	1

Operations . This branch conducts analyses of petroleum products received and stored in operating units and provides area petroleum lab support as directed. The branch operates a mobile petroleum laboratory which can perform all B-1 type testing of petroleum products. The mobile lab cannot totally replace a base lab, but it can be employed to support petroleum operations when total testing (Types A and B) is not required. Quality surveillance capabilities are augmented when a mobile lab team (TOE 10560LC) is attached to the petroleum supply battalion.

Communications Branch

Mission . This branch provides communications support for the battalion and company headquarters. It also operates the battalion communications center. The section provides

- Wire, radio, and high-frequency digital/voice communications.
- Switchboard, message center, and net control station (NCS) services.

Personnel, Duties, and Responsibilities . Responsibilities and duties of communications branch personnel are described in Table 3-14. Duties of the communications-electronics staff officer are described in Table 3-1.

Table 3-14. Duties of Communications Branch Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Section Chief	31U	40	E7	Supervises soldiers assigned to the branch. Assists the C-E officer in planning and executing the communications plan.
Signal Information Service Specialist	31U	10	E4	Maintains accountability and serviceability of equipment. Operates radios and switchboard. Emplaces the communications wire to support the battalion's wire net plan.

Equipment. Equipment prescribed for the communications branch by TOE 10426 is listed in Table 3-15.

Table 3-15. Communications Branch TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Axle cable reel: RL-27	2
Cable telephone: WD-1/TT RL-159 2 km	2
Camouflage screen support system: woodland/desert	2
Camouflage screen system: woodland/dwt radar scat without support system	2
Reeling machine cable hand: RL-31	2
Tone signaling adapter: TA-977/PT	1
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Splicing kit telephone cable: MK-356/G	1
Switchboard telephone manual: SB-22/PT	2
Telephone set: TA-312/PT	1

Operations. The branch—

- Develops a wire net plan. There are 16 TA-312 PT telephone sets dispersed throughout the detachment.
- Installs and maintains field wire and switchboard.
- Recovers field wire.
- Establishes and operates in radio communications net. There are four secured radios dispersed throughout the detachment.

- Installs the two OE-254 antennas controlled by the branch.
- Operates an NCS.
- Provides radio-teletypewriter service. The branch has two teletypewriters.
- Provides switchboard service. The branch has two SB-22/PT switchboards.
- Provides message center service.

Section VI. S4 SECTION

MISSION AND RESPONSIBILITIES

The S4 officer supervises the S4 section. The S4 officer is also the battalion motor officer. The section provides technical assistance on supply and maintenance to the units in the battalion. The S4's duties include

- Ensuring section personnel coordinate with, advise, and assist the battalion and its units when the need arises.
- Directing section personnel in maintaining supply policies and levels.
- Planning, implementing, and monitoring pertinent portions of the unit environmental stewardship program.
- Directing personnel in preparing stockage lists and maintenance policies.

PERSONNEL, DUTIES, AND RESPONSIBILITIES

Responsibilities and duties of S4 section personnel are described in Table 3-16.

Table 3-16. Duties of S4 Section Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Property Book Officer	920A0		W2	Manages the unit's property books. Provides petroleum companies with technical assistance on organizational supply matters.
Senior Maintenance Supervisor	63B	50	E8	Assists the S4 officer in BMO duties. Provides technical advice and assistance on automotive equipment maintenance to petroleum companies. Establishes the environmental stewardship program for maintenance operations. Monitors maintenance operations to ensure they are conducted safely and in accordance with pertinent environmental regulations. Assists the companies in obtaining the necessary equipment and supplies needed by their maintenance sections.
Supply Sergeant	92Y	40	E7	Supervises the battalion's internal supply functions. Plans, coordinates, and inspects unit and organizational supply operations. Supervises the preparation and maintenance of supply records of subordinate units. Assists the PBO.
Supply Specialist	92Y	10	E4 E3	Assists the battalion supply sergeant.
Administra-tive Specialist	71L	10	E4	Performs all administrative functions, including establishing and operating MARKS and preparing section correspondence.

EQUIPMENT

Equipment prescribed for the S4 section by TOE 10426 is listed in Table 3-17.

Table 3-17. S4 Section TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Alarm chemical agent automatic: portable/manpack	1
Cable telephone: WD-1/TT DR-8 1/2 km	3
Camouflage screen support system: woodland/desert	6
Camouflage screen system: woodland/lightwt radar scat without support system	6
Reeling machine cable hand: RL-39	2
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Telephone set: TA-312/PT	3
Truck cargo: 2-1/2 ton 6x6 with equipment	1

OPERATIONS

The section's primary function is to provide guidance and assistance on internal logistics for the unit.

Procedures . S4 section personnel should conduct staff inspections of maintenance operations IAW DA Pam 738-750. They should review files to determine the number, type, and frequency of repairs and the time involved. The section establishes and monitors equipment service schedules. It also consolidates and forwards various equipment and maintenance status reports. Section personnel should also inspect SOPs and procedures to ensure they comply with environmental protection regulations. DA Pam 738-750 gives more information on the details of these functions.

Materiel Readiness Assistance Visits . S4 section personnel make liaison visits to subordinate units of the battalion and advise them on ways to improve their readiness. They contact direct support facilities to place command emphasis on demands and incoming requisitions. They also place emphasis on supply status reports, as well as requirements for current and planned operations.. AR 710-2, DA Pam 710-2-1, and DA Pam 738-750 are references for these actions.

Materiel Readiness Reports . The section processes DA Forms 2406 for the battalion. These reports provide information on the condition of equipment in the hands of using organizations. DA Pam 738-750 gives more information.

Storage of Supplies and Equipment . Supplies and equipment should be managed and cared for according to standards outlined in the current Unit Supply Update. Receipt, storage, and issue of environmentally hazardous materials should comply with all pertinent national, state, local, and host nation environmental regulations. The S4 section makes periodic inspections of unit supply storage procedures.

Supply Procedures . The battalion units send all authorization supply documents to the section. DA Pam 710-2-1 describes the uses of these documents. The section reviews them to see that

- All equipment authorized is on hand or on request.
- Unit supply requests and priority designator procedures are not being abused.
- Requests are included for more environmentally friendly products, as measured by reduction in volume and toxicity of the resultant hazardous wastes.
- Requested quantities for environmentally hazardous materials are the minimum needed to accomplish the mission.

- Prescribed loads of ammunition are managed IAW local policy.
- Individuals have clothing and equipment as authorized by CTA 50-900.
- Arms, ammunition, and explosives are maintained according to ARs 190-11 and 190-40 and local policy.
- Excess property is accounted for and disposed of properly.

Receipts and Records . The PBO maintains automated organizational property books and all other property records. References that should be available are ARs 70-12, 190-11, 220-1, 700-84, 710-2, 710-3, 735-5; DA Pams 600-8, 710-2-1; FM 10-27-4; SB 700-20; and the AMDF. The property book should be maintained by checking

- All equipment authorized by modification table of organization and equipment. Equipment should be on hand or on order.
- Shortage annexes. Annexes are prepared for all missing components of end items. (Personnel are held responsible for sets, kits, and outfits.)
- Components. Components should be checked for serviceability and listed on hand receipt annexes.
- Temporary hand receipts. When used, hand and subhand receipts are adjusted every six months. The six-month period starts on the date entered on the oldest temporary hand receipt. The PBO ensures that change documents are being used for turn-in and issues between the six-month hand receipt reconciliation periods.
- On-hand physical inventories. PBO ensures monthly sensitive items and 10 percent inventories are conducted. The PBO must maintain a copy of these inventories.
- The documents file for transactions for nonexpendable items. The file should be maintained as a supporting document to the property book.

Budgets . The S4 officer should evaluate and control costs in the battalion. The S4 plans supply and equipment needs for the year, recommends priorities for spending the money allocated quarterly by higher headquarters, and establishes a system of monitoring funds spent by the battalion. FM 10-27-4 gives more details on financial management.

Nonexpendable Supplies . The S4 section requests, receives, and issues nonexpendable supplies from the unit providing direct supply support. These actions are recorded on DA Form 2064.

Requests for Supplies . The section checks that items requested from subordinate units are authorized to them. It assigns a document number to the request and records it in the document register, then sends it to the supply support activity. DA Pam 710-2-1 and FM 10-27-4 give more detailed information.

Issue of Supplies and Equipment When issuing items to a supported unit, the section

- Uses DA Form 2062 to record the issue of property book items.
- Uses DA Form 3161 as a temporary hand receipt document for issue and turn-in transactions. The form should be stamped, "temporary hand receipt." Temporary hand receipts are posted to DA Form 2062 at least once every six months.
- Lists all items with serial numbers in the property book as outlined in AR 710-2.
- Issues items on DA Form 2062 if they are defined as durable items in AR 710-2 and in the AMDF.

Turn-Ins . Subordinate units turn in unserviceable items and excess serviceable items to the S4 section. The section prepares a temporary hand receipt for the turn-in and gives it to the hand-receipt holder. The section prepares a request for turn-in on all turn-in items and enters the transactions on the document register. It sends the turn-in documents to its supply support activity and turns in the equipment when directed to do so.

Lost, Damaged, or Destroyed Property . When property is lost, damaged, or destroyed by a supported unit, the S4 section is notified. The responsible unit prepares a DA Form 1659 and other documents authorized by AR 735-5.

Requests for Ammunition . The S4 section processes DA Forms 581 for basic load items. The section reviews and verifies the requests, using the weapons density, controlled supply rate, and consumption projections of each unit. It processes requests further IAW locally established policy.

Section VII. DETACHMENT HEADQUARTERS

MISSION

The detachment's mission is command and control of the battalion. It supervises administration, organizational supply, security, food service, and training activities.

PERSONNEL, DUTIES, AND RESPONSIBILITIES

Responsibilities and duties of detachment headquarters personnel are described in Table 3-18.

Table 3-18. Duties of Detachment Headquarters Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Detachment Commander	92F		LT	Responsible for the leadership, welfare, discipline, and training of all soldiers in the detachment. Sets priorities and coordinates detachment's present and future missions. Directs and supervises all technical operations and support activities that impact headquarters operations. Ensures all required reports and data are prepared and transmitted to staff elements as required. Conducts safety and environmental risk assessments for each operation.
Detachment Sergeant	77F	40	E7	Assists the detachment commander in supervising the detachment.
Supply Sergeant	92Y	20	E5	Requisitions, receives, stores, accounts for, and issues all classes of supply (except Class IX) for the detachment. Manages hazardous material supply items IAW locally established procedures and regulations. Takes care of all supply functions of the unit. Manages supply items that are hazardous materials IAW local procedures and regulations. Maintains the unit's small arms.
Light-Wheeled-Vehicle Mechanic	63B	10	E4	Augments the supporting unit assigned to provide organizational maintenance. Conducts maintenance IAW the unit's environmental stewardship program.
Personnel Admin-istrative Specialist	75B	10	E4	Performs all administrative functions for the detachment. Inputs personnel actions using SIDPERS. Also drives light vehicle and operates radio.
Cook	92G	10	E3	Cooks and serves for unit personnel. Maintains and sanitizes assigned equipment. Augments food service capability of supporting unit.

EQUIPMENT

Equipment prescribed for the detachment headquarters by TOE 10426 is listed in Table 3-19.

Table 3-19. Detachment Headquarters TOE-Prescribed Equipment List for TOE 10426

ITEM	QUANTITY
Alarm chemical agent automatic: portable backpack	1
Cable telephone: WD-1/TT DR-8 1/2 km	3
Camouflage screen support system: woodland/desert	12
Camouflage screen system: woodland/dwt radar scat without support system	12
Charger-radiac detector: PP-1578/PD	2
Drum fabric collapsible: potable water	1
Generator set diesel engine: 10kw, 60hz, 1-3 hp, AC 120/208 120/240v tactical utility	1
Installation kit: MK-2502/VRC F/AN/VRC-46/64 or AN/GRC-160	1
Launcher grenade 40mm: single-shot, rifle-mounted, detachable, with equipment	4
Light set general illumination: 25 outlet (Army)	3
Machine gun caliber .50: HB flexible (ground and vehicle) with equipment	1
Machine gun 7.62 mm: light flexible	2
Mask CBR: protective field	55
Mount tripod machine gun: Heavy caliber 50	1
Mount tripod machine gun: 7.62 mm	2
Pistol caliber .45: automatic	5
Radiac set: AN/PDR-27	1
Radiac meter: IM-93/UD	2
Radiac meter: IM -174/PD	1
Radio set: AN/VRC-64	1
Reeling machine cable hand: RL-39	2
Rifle 5.56 mm: M16A1	49
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	2
Telephone set: TA-312/PT	2
Tool kit general mechanics: automotive	1
Tool kit carpenters: engineer squad with chest	1
Tool kit small arms repairman: ordnance	1
Trailer cargo: 3/4 ton, 2 wheel, with equipment	1
Watch wrist: nonmaintainable	5

OPERATIONS

The detachment headquarters' major function is to provide supervision and direction of the overall operation of the detachment. One of its key responsibilities is to provide personnel and administrative support for the soldiers in the headquarters and headquarters detachment. Details on battalion tactical operations and training are discussed in Chapters 6 and 7.

Chapter 4

PETROLEUM SUPPLY COMPANY

Section I. THE COMPANY

MISSION

The mission of the petroleum supply company is to receive, store, and transfer bulk petroleum to divisional and nondivisional units. The company can

- Establish and operate no more than two temporary petroleum storage facilities.
- Lay, operate, and retrieve petroleum hose lines.
- Maintain a portion of the command bulk petroleum reserve stock.

CAPABILITIES

The company's capabilities are determined by the personnel strength levels prescribed in its TOE. The petroleum supply company, organized under TOE 10427, has the following capabilities.

Full Strength

At full strength (TOE Level 1) and operating on a 24-hour basis, this company can

- Establish and operate temporary bulk storage facilities. Storage capability is shown in Table 4-1, page 4-2.
- Receive and issue in any combination a total of 1.2 million gallons of bulk petroleum per day.
- Maintain a prescribed portion of the command reserve stock, up to 2,520,000 gallons.
- Establish and operate bulk Class III supply points at no more than two locations.
- Provide local delivery of 90,000 gallons of bulk petroleum fuel based on two trips per day with 75 percent availability of twelve 5,000-gallon tankers.
- Provide limited mobile filling station support.
- Lay approximately 24 kilometers (15 miles) of collapsible hose line in a day.
- Operate a Class III supply point by connecting into pipeline systems with the use of an emergency off-take point (EOP) kit.
- Operate Class III railheads and fixed Class III installations as required.

Strength Levels 2 and 3

Operational capabilities are reduced to about 90 percent for Level 2 and to 80 percent for Level 3. These TOE categories are established by AR 220-1.

Type B Organization

The capabilities of a Type B organization are the same as those of a Level 1 organization. There are some differences in personnel, however. A Type B organization requires fewer US military personnel. Vacancies in this type organization can be filled by non-US personnel. See Section II for information on using non-US labor. Interpreters and translators required under the Type B organization will be provided from appropriate teams available to the theater commander. Request assistance of these teams to provide additional capabilities. When authorized by the Department of the Army, authorization of US military personnel in the Type B organization may be modified as required by local area conditions of employment. Details on how to modify an existing TOE or MTOE are found in AR 310-49. ARs 71-31 and 71-13 will aid in developing the justification.

Table 4-1. Storage Capability (Gallons)

	Number of Collapsible Fabric Tanks 50,000-Gal	At 100% Availability	Number of Collapsible Fabric Tanks 20,000-Gal	At 100% Availability	Number of Collapsible Fabric Tanks 10,000-Gal	At 100% Availability	Totals
Per Company	36	1,800,000	24	480,000	48	480,000	2,760,000
Per Platoon	18	900,000	12	240,000	24	240,000	1,380,000
Per Supply Section	6	300,000	4	80,000	8	80,000	460,000

REQUIRED SUPPORT

This company is capable of operating independently when provided administrative, supply, and maintenance support from a higher headquarters or an adjacent unit. In some instances, supported units may provide this support in the absence of other sources. This petroleum supply company depends on

- Appropriate elements of COSCOM or TA for religious, legal, health service, finance, and personnel and administrative services.

- Engineer fire fighting teams (TOEs 0510LA00 and L5510LB00) for required fire fighting support.

- Petroleum supply and operating teams (TOE 10560LA00 [petroleum base lab] and TOE 10560LC00 [petroleum mobile lab]) for petroleum laboratory quality surveillance assistance.

- Appropriate elements of the COSCOM/TAACOM or maintenance team described in TOE 43509L (DS) for maintenance support and services. (This team belongs to TOE 43209L00.)

- Transportation medium truck company (petroleum, oils, and lubricants [POL]) (TOE 55727 [COMMZ] or TOE 55728 [corps]) for distribution of bulk petroleum.

- Supplemental transportation assets for displacement of the unit.

- Additional security forces (attached or provided by the area commander) to protect isolated petroleum storage facilities from guerrilla activity, destruction, sabotage, and pilferage.

MOBILITY

The company's mobility is determined by the number of organic vehicles authorized and the amount of personnel, equipment, and supplies that must be moved. In order to achieve the flexibility and mobility needed to support combat units, the company stores the product in collapsible fabric tanks and modular fuel systems, both of which can be quickly installed and moved. Inside the theater of operations, this unit could deploy itself with additional support from corps transportation units.

ORGANIZATION

The organization of the company is designed to meet mission requirements in changing situations. The company may be located in the corps or COMMZ. The company is organized into a company headquarters, a supply control section, two supply platoons, and a maintenance section. (See Figure 4-1.)

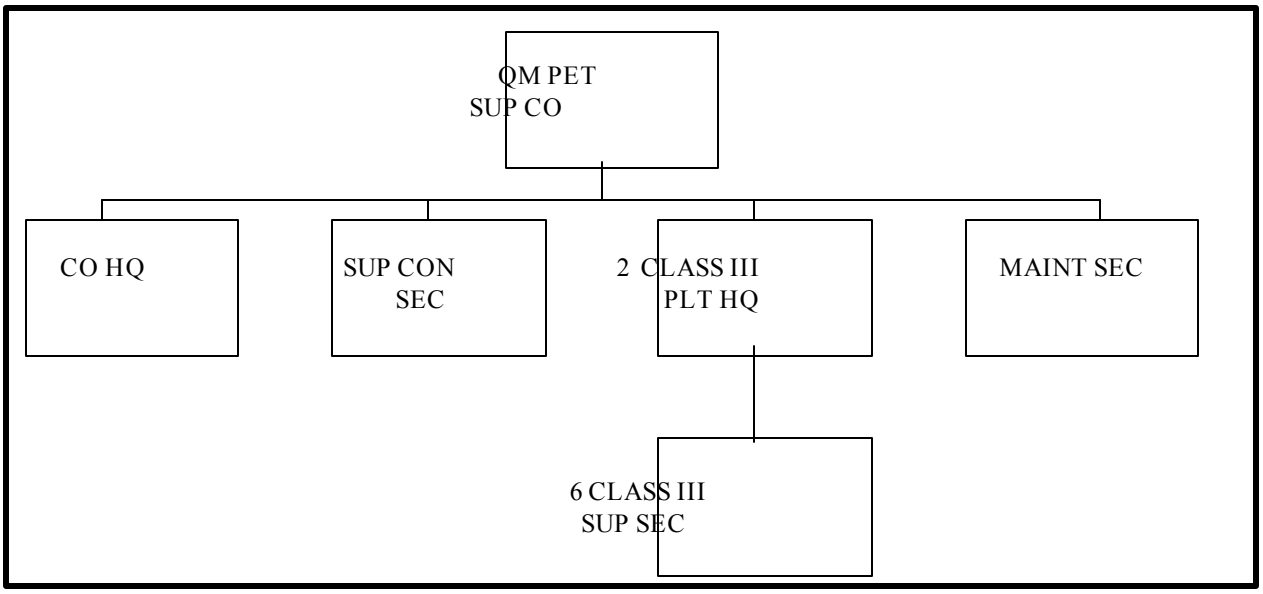

Figure 4-1. Organization of the Petroleum supply company

ASSIGNMENT

The company may be assigned to a COSCOM, a TAACOM, or a headquarters detachment petroleum group (TOE 10602). The petroleum supply company is normally attached to a headquarters and headquarters company of a petroleum supply battalion (TOE 10426). The company may be assigned to forward and rear CSGs. The group attaches the company or platoon to a CSB or a petroleum support battalion. Normally, a petroleum supply company cannot support more than one division slice of the corps. However, the size of the corps reserve affects actual allocation.

ALLOCATION

The allocation of the petroleum supply company varies according to its location and the situation. In the corps, there is one petroleum supply company for each mechanized or infantry division and one petroleum supply company per two airborne, air assault, or light infantry divisions or combinations thereof. For bulk petroleum in the COMMZ, there is one petroleum supply company per 1,244,588-gallon daily requirement or fraction thereof.

RESOURCES

Personnel and equipment are the major resources needed to run the company effectively.

Personnel

The Strength Level 1 column of TOE 10427 lists personnel needed to accomplish the mission during sustained combat operations. See Section II for detailed information on the duties of company headquarters personnel. Refer to Section V for duties of supply control section personnel, Section VI for Class III supply platoon personnel, and Section VII for maintenance section personnel.

Equipment

The company's ability to perform depends on the availability of authorized equipment. Refer to headquarters TOE-prescribed and mission-essential equipment. This chapter contains lists of TOE-prescribed equipment for the company headquarters, supply control section, supply platoons, and the maintenance section. The commander, platoon leaders, platoon sergeants, and section chiefs should refer to these lists when planning for operations. TOE 10427 lists the minimum equipment needed to perform the unit mission. Refer to AR 310-49, Chapter 3, for directions on how to request additional equipment that, because of tactical or environmental considerations, is not prescribed by TOE. Items of clothing and equipment, components of sets and kits, repair parts, tools, and expendable items are authorized by CTAs, TMs, and SBs.

Section II. COMPANY HEADQUARTERS

MISSION

Company headquarters personnel support the company elements and are responsible for the effectiveness of company operations. The headquarters provides command and control, administrative and logistical support, and tactical direction to the company elements. Headquarters personnel perform a variety of functions, which are explained in detail in various sections of this manual.

ORGANIZATION

Unit operations usually begin with the assignment of a mission by higher headquarters. The commander must prepare a plan to carry out the company mission. As part of the plan, he determines how to organize the headquarters to function smoothly and effectively and to use personnel and equipment in an efficient, mission-supportive manner. Figure 4-2 identifies TOE-prescribed personnel of the company headquarters and suggests a way to organize them for operations.

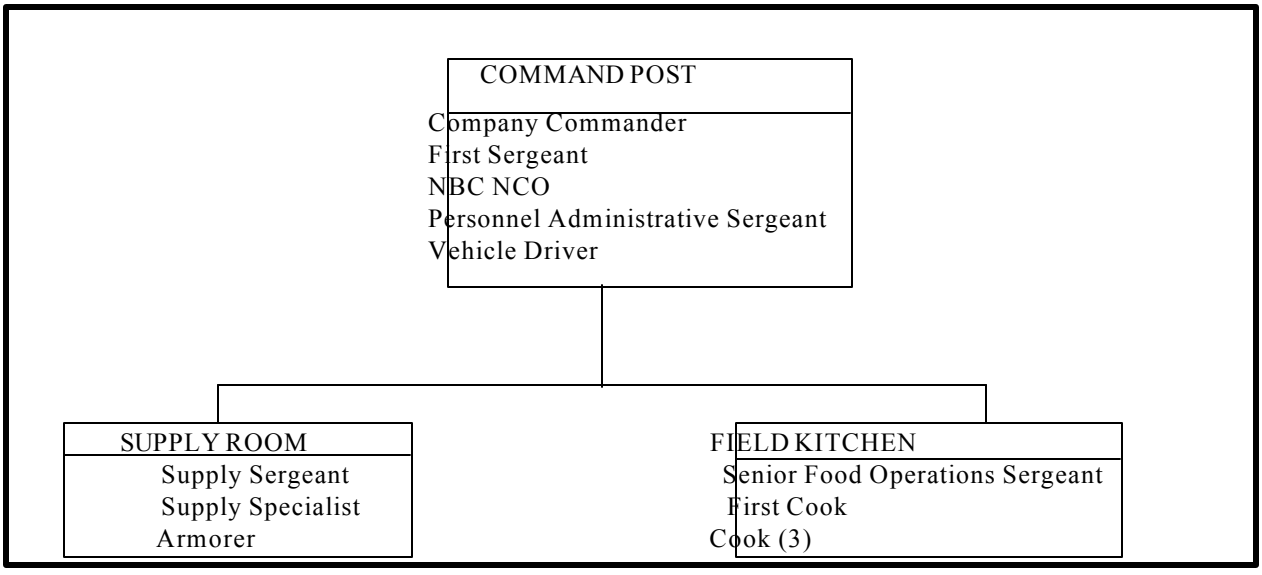

Figure 4-2. Organization of company headquarters personnel

PERSONNEL DUTIES

As Figure 4-2 shows, many headquarters personnel work in areas other than the command post. Table 4-2 details duties of company headquarters personnel.

Table 4-2. Duties of Company Headquarters Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	TOTAL	DUTIES
Company Commander	92F		CPT	1	Commands, directs, and supervises technical and support activities of mission operations. Responsible for unit readiness, site establishment, communications, defense, unit administration, food service, supply, maintenance, and training.
First Sergeant	77F	5M	E8	1	Serves as commander's primary noncommissioned assistant. Concerned with overall supervision of food service, administration, supply, communications, and area defense operations. In charge of the company during absence of all company officers. Manages the command post. Represents the company's enlisted personnel. Provides career development and counseling to enlisted soldiers.
NBC NCO	54B	3	E6	1	Serves as primary advisor to the company commander for all NBC matters. Assists the commander in planning and conducting NBC operations and advises the commander on the organization and training of the unit NBC teams. Schedules and supervises maintenance and employment of equipment. Computes radiation factors affecting personnel, equipment, and operations. Assists in preparation and analysis of NBC reports, records, maps, and sketches. Prepares radiological fallout and chemical and biological downwind predictions. Assists in analysis of chemical target vulnerability. Trains company personnel in protective measures to be taken during nuclear, biological, and chemical attacks or operations.
Personnel Administrative Sergeant	75B	2	E5	1	Performs clerical and administrative duties. Prepares SIDPERS change reports. Maintains duty rosters. Completes standard forms. Maintains suspense files and personnel data cards. Types reports, orders, and operating procedures. Posts and files correspondence, regulations, and changes to unit authorization documents
Vehicle Driver	77F	1	E3	1	Drives 1-1/4-ton cargo truck provided for use by commander andcompany personnel. Performs vehicle operator'smaintenance. Operates radio.

Table 4-2. Duties of Company Headquarters Personnel (Continued)

POSITION	SC/ MOS	SKILL LEVEL	GRADE	TOTAL	DUTIES
Supply Sergeant	92Y	3	E6	1	Prepares and maintains supply records. Provides locked facilities to safeguard supplies and property stored in unit supply room and other company storage areas. Processes unit laundry. Handles issue and turn-in of property between company and personnel. Assists personnel with supply matters. Requests, receives, and issues supplies. Prepares adjustment documents for property lost, damaged, or destroyed. Supervisesarmorer and supply specialist.
Supply Specialist	92Y	1	E3	1	Assists the supply sergeant. Requests, receives, stores, and issues authorized supplies and equipment needed for company operation.
Armorer	92Y	1	E4	1	Repairs and performs unit maintenance (excluding operator and crew) on unit small arms. Keeps weapon records (AR 710-2 and DA Pam 710-2-1). Performs duties assigned by the supply sergeant.
Senior Food Operations Sergeant	92G	4	E7	1	Supervises cooks assigned to the company. Selects field kitchen site. Prepares production schedules. Adjusts menus. Prepares food ration requests. Conducts daily meetings. Inspects food kitchen personnel. Supervises food preparation. Assigns duties. Inspects field kitchen. Prepares SOP for kitchen personnel, including instruction sheet for head counters. Instructs head counters. Inspects serving lines. Reports equipment shortages. Maintains informal equipment repair logbook.
First Cook	92G	2	E5	1	Supervises second-shift operations of field kitchen. Ensures that cooks follow menus. Inspects food storage and food preparation. Directs personnel in construction of grease traps, soakage pits, garbage pits, hand-washing devices, and incineration pits. Instructs head counters in duties. Prepares the more complex food items.
Cooks	92G	1	E4/3	3	Prepare, cook, and serve food according to recipes, cooking times, cooking temperatures, and field kitchen SOP. Clean work area, equipment, and cooking utensils. Receive, inspect, and store food items. Prepare assigned food items. Set up serving lines. Portion and serve food on serving lines or from food containers. Perform preventive maintenance on kitchen equipment.

OPERATIONS

A major function of company headquarters is to provide supervision and direction of the overall operation of the company. The commander and his staff must consider the following factors.

Command Post

The company headquarters works closely with higher headquarters and operating elements when selecting its operating area (refer to Chapter 6). It establishes the command post in a central location in the company area. Plans should include the possibility of setting up in a town or village as well as in the field.

- In the Field. The command post tent can be pitched by four soldiers in approximately 30 minutes. Detailed procedures for pitching and striking tents are in TM 10-8340-211-13. The tent, as well as headquarters vehicles, should then be camouflaged (see FM 20-3). Generators should be sandbagged to reduce noise.

- In Town or Village. The command post can be established in any existing building. Vehicles should be parked in a garage or barn or hidden beneath overhanging roof edges. If parked beneath roof edges, vehicles may be further hidden beneath camouflage nets or behind crates or boards.

Coordination

Upon arrival at a new site, the company headquarters informs higher headquarters that the move has been made and what time operations will begin. It reports location coordinates for both the command post and an alternate command post by messenger or other secure means. It confers with supervisory personnel about the administrative and operational condition of the company. If necessary, the company headquarters briefs higher headquarters on overall unit capability, stressing personnel strength and equipment availability.

Communications

The company headquarters ensures the telephone circuits and radio nets are operational. The wire party should be ready for use when the headquarters arrives at the new site (refer to Chapter 6, Sections I and II). Company personnel should enter the wire net as quickly as possible.

Defense

The company headquarters completes perimeter defense and camouflage (refer to Chapter 6, Section III). As soon as possible, it sends copies of the defense layout with overlays to higher headquarters, to the base cluster operations center, or to the base defense operations center, as appropriate. Overlays should show the specific location of all machine guns, mine fields, concertina wire, observation posts, and listening posts. The company headquarters supervises establishment of the company defense while subordinate elements prepare to occupy designated areas. It specifies the unit response to ground and air attacks, as well as camouflage activities once company elements have established defense and operating sites. Refer to STP 21-1-SMCT and FM 20-3 for camouflage details.

Maintenance

The company headquarters supervises operator maintenance once operators are assigned to equipment, and technical manuals, tools, and expendable supplies are available. It ensures that personnel perform all required operator maintenance according to appropriate technical manuals. All required entries and deficiencies should be recorded on equipment inspection and maintenance work sheets. It makes sure the need for maintenance above operator level is reported to the motor sergeant. Operator maintenance is covered in Section VII

Support Functions

The company headquarters supervises sanitation operations once the field sanitation team is operational. It sets up a procedure for processing captured enemy personnel and materiel and coordinates unit first aid requirements. These activities are explained later in this section. Shortly after occupation of the bivouac area, it ensures all personnel are informed of the following:

- Location of field kitchen and time, method, and sequence of feeding.
- Laundry pickup schedule.
- Religious services schedule.
- Bath schedule.
- Time, place, and method of mail call.
- Location of medical treatment facility and time of sick call.
- Location of latrines.

SUPPLIES AND EQUIPMENT

Table 4-3 lists equipment identified for the company headquarters by TOE 10427. Other equipment may be authorized by CTA. Use CTA 50-900 for clothing and individual equipment and CTA 50-909 for field and garrison furnishings and equipment. (See equipment registers in Appendix A for equipment descriptions.) Expendable and durable supplies are listed in CTA 8-100 and CTA 50-970.

Table 4-3. Company Headquarters TOE-Prescribed Equipment List for TOE 10427

ITEM	QUANTITY
Accessory outfit, gasoline, field range: accommodates 50 soldiers	1
Alarm, chemical agent automatic: portable/manpack	1
Burner unit, gasoline, field range outfit: with components	4
Camouflage screen support system: woodland/desert, plastic poles	15
Camouflage screen system: woodland lightweight, radar-scattering, without support system	15
Charger,radiac detector: PP-1578/PD	2
Electronic test set: TS-4348/UV	1
Installation kit: MK-2325/VRC for AN/VRC-87/88/90 in HMMWV	1
Installation kit: MK-2564/VRC-97	1
Heater, immersion, liquid fuel fired	4
Kitchen field trailer mounted: mounted on M103A3 trailer	1
Launcher, grenade, 40 mm	4
Light set, general illumination: 25 outlet	1
Machine gun, .50 caliber	2
Machine gun, 7.62 mm	4
Machine gun, grenade, 40 mm	3
Mask chemical, biological: M40	197
Mount, gun: ring caliber .50	2
Mount, gun: 40 mm MK-64	2
Mount tripod, machine gun, heavy caliber .50	5
Mount tripod, machine gun 7.62 mm	4
Night vision sight, crew-served weapon: AN/TVS-5	3
Night vision sight, individual-served weapon: AN/PVS-4	1
Pistol, 9 mm automatic	1
Radiac meter: IM-93/UD	3
Radiac set: AN/VDR-2	1
Radiac set AN/PDR-75	1

Table 4-3. Company Headquarters TOE-Prescribed Equipment List for TOE 10427 (Continued)

ITEM	QUANTITY
Radio set: AN/VRC-90A	1
Range outfit, field gasoline	2
Rifle, 5.56 mm	196
Speech security equipment, digital subscriber voice terminal: TSEC/KY-68	1
Terminal radiotelephone mobile subscriber: AN/VRC-97	1
Truck, utility: cargo/troop carrier, 1-1/4-ton 4X4 with equipment (HMMWV)	1
Tool kit, small arms repairman	1
Trailer, tank, water: 400-gallon, 1-1/2-ton with equipment	2
Truck, cargo: 2-1/2-ton 6X6 with equipment	2

ADMINISTRATIVE AND MORALE SERVICES

A personnel administration center (PAC) may be activated at a higher level of command and tasked to provide formal administrative support to the company. When this occurs, the commander retains responsibility for the readiness posture of the company and for ensuring that assigned soldiers are properly supported. The commander also retains responsibility for military justice and for informal administrative actions. The following paragraphs relate to a company tasked to perform its own administrative functions. The commander's key assistants in providing and maintaining company administrative and morale services are the first sergeant and the company clerk.

ADMINISTRATIVE MANAGEMENT

The company headquarters is responsible for developing administrative management procedures, using 340-series Army regulations for guidance. It plans for the following administrative management activities.

Reports

A report is an account or statement describing in detail an event, situation, or similar matter, usually resulting from observation or inquiry. A number of unit reports are required.

- SIDPERS. For a SIDPERS overview, see DA Pam 600-8-20. SIDPERS gives information helpful in managing people individually and collectively. However, SIDPERS works only if the company promptly reports personnel strength and organization change data. DA Pam 600-8-1 gives detailed procedures for preparing and submitting SIDPERS input reports. The personnel administrative sergeant should be accountable for prompt and accurate submission of change data, immediate resolutions of errors, and continuing maintenance of files and source data.

- Conduct and Efficiency Ratings. Along with other data, these ratings help determine eligibility for certain personnel actions, such as promotion, assignment, or award. They can also be used to determine the type of discharge a soldier will receive. Conduct ratings are based on demonstrated reliability, good moral influence, sobriety, and obedience. Efficiency ratings are based on job performance. All key personnel should be familiar with the enlisted rating system described in AR 600-200. See AR 623-105 for guidance on rating officers. All ratings must be fair and impartial.

- Unit Status Report. The unit status report produces information to help the Army manage its resources. The payoff is military readiness. The Army wants the company to have its authorized personnel on board, its authorized equipment available in working order, and its required supplies on hand. Additionally, the Army wants the company to do what it is supposed to do—turn out soldiers who assist the unit mission. See AR 220-1 for the company's reporting requirements.

- Materiel Condition Status Report. The company headquarters must be constantly aware of materiel readiness status in the petroleum supply company. This is done through a timely system of inspections and reports. The maintenance element supervisor completes DA Form 2406, following instructions in DA Pam 738-750, Appendix C. These reports should be carefully reviewed before forwarding to determine the readiness status of reportable equipment, reasons for shortcomings, and corrective actions needed.

Records

A record is an account in writing or similar means preserving the memory or knowledge of facts or events. A report becomes a record when it is filed or maintained in a repository indefinitely or for a specified time. An efficient, economical records management program will ensure the commander and supervisory and administrative staffs have needed information. Receipts should be issued for records, and they should be properly used, stored, dispatched, and (when no longer useful) destroyed. AR 25-1 governs records management activities and identifies other regulations dealing with the subject. Some of the records kept by the company headquarters are discussed here.

Plans, Orders, and Standing Operating Procedure (SOP) . Plans and orders are based on those received from higher headquarters. Plans set forth a logical sequence of steps to be taken by each unit element in performance of the company's mission. Orders should fit each specific situation, not merely refer to a checklist or repeat the SOP. The company SOP is a written set of instructions that has the force of orders. The SOP sets forth routine or recurring matters. If prepared in detail and updated frequently, the SOP is an effective management and supervisory tool for clarifying duties and responsibilities and making information available to all. The purposes of an SOP are

- To reduce the number, length, and frequency of orders.
- To simplify the preparation and transmission of orders.
- To simplify operations.
- To relieve supervisors of the need to make repetitious decisions on routine work.
- To minimize confusion and errors.
- To provide an authoritative reference for answering questions on responsibilities and recurring matters.
- To ensure uniform practices and results.

If an SOP is to serve its purpose, the authority to grant departures from it must be restricted. However, it should not be so restrictive that it prevents subordinates from exercising judgment or initiative. An SOP may include information on one or more of the topics shown in Appendix B. Thus, a company may have one SOP that covers all details of unit operations, or it may have several SOPs (kitchen SOP, unit supply SOP, safety SOP), which, combined, make up the company SOP. The SOP should reflect the company's needs. Appendix B contains an outline for drawing up an SOP; FM 101-5 contains a format for a descriptive combat service support unit SOP. However, the unit should not be restricted by either of them.

Qualification Record. This record reflects duties performed and skills acquired by personnel. It is used to determine duty assignments and required training. Although this record may not be kept at company level, it should

be reviewed periodically. AR 600-200 has information on preparing and maintaining enlisted qualification records; AR 600-8-104 has information on officer qualification records.

Duty Roster. DA Form 6 publishes duty assignments and ensures their fair distribution. The first sergeant or the personnel administrative sergeant prepares and maintains this record. The first sergeant should periodically review the duty roster to make sure the personnel administrative sergeant is following directions and samples in AR 220-45.

Policy File. This record is not mandatory, but it can be helpful. It is used to summarize decisions, experiences, directives from higher headquarters, and other information affecting unit activities. The policies, which may be in the form of plans, directives, or brief notes, may include charts, maps, and tables.

Unit Journal. This record may be required by higher headquarters. If kept, it should be prepared daily. The unit journal should be an accurate, objective record of events, actions, and operations involving the company. It may include personal recollections of persons involved and information and suggestions helpful to similar units performing under similar conditions. The unit journal is, in effect, the unit history.

Environmental Records. Spill reports, spill cleanups, disposition of contaminated materials, inventory discrepancies, etc, must be maintained IAW federal and host nation agreements, policies, laws, and regulations.

Office Management

Office management concerns routine administrative matters occurring within the company command post or orderly room, such as correspondence, files, publications, mail, and the unit fund.

Correspondence. Usually the commander or first sergeant reviews each piece of correspondence. Before signing correspondence, he should check it for proper format, correctness, and accuracy. Personnel should be trained to prepare correspondence to standards in AR 25-50. Each piece of correspondence should be handled only once.

Files. Unit file procedures should be periodically surveyed to make sure they conform to guidance in ARs 340-2 and AR 25-400-2. Proper files management involves the following questions:

- Are files properly identified, labeled, and arranged?
- Are proper file numbers used?
- Are correct disposition instructions on the folder labels?
- Are disposable records destroyed at the end of retention periods?
- Are applicable records transferred to a holding area or records center?
- Are file personnel trained to use the Army Functional Files System and proper filing procedures?

Publications. Publications management involves requesting and posting publications and making them available to those who need them. To determine publication needs, the commander consults reference listings in applicable soldier training publications and Army training and evaluation program (ARTEP)/Army mission training plan (AMTP). DA Pam 25-30 lists technical manuals for equipment listed in the TOE. The reference list at the back of this manual identifies required publications that should be in your company library. Publications must be complete, current, and accessible to personnel who need them. Changes require prompt posting. DA Pam 25-30 should be scanned periodically to see if changes have been published or publications have been superseded or rescinded. See DA Pam 310-13 for posting information.

Mail. The purpose of mail services is to safeguard official and personal correspondence and to deliver mail quickly and correctly to addressees or to dispose of mail that cannot be delivered. The commander appoints a unit mail

supervisor, who oversees a unit mail clerk and an alternate mail clerk both additional duties. See Table 4-4 for duties of unit mail personnel.

Table 4-4. Duties of Unit Mail Personnel

PERSON	RESPONSIBILITIES
Unit Mail Supervisor	Supervises unit mail clerks. Trains mail clerks. Makes sure mail is delivered promptly. Ensures collection hours are posted on mail boxes. Accounts for registered, insured, and certified mail. Inspects unit mail room. Reviews personnel locator directory for currency. Reviews postal records. Makes sure mail is treated properly. Immediately reports any known or suspected cases of loss, theft, destruction, or other mistreatment of mail to unit commander.
Unit Mail Clerk	Safeguards mail until delivery or other disposition. Ensures prompt delivery of mail. Assists and advises unit personnel on postal matters. Maintains personnel locator directory. Maintains mail records. May be held responsible for any loss brought about by improper handling of mail in his care. Appointed on DD Form 285.
Alternate Unit Mail Clerk	Takes charge of unit mail operations in absence of regular mail clerk. Appointed on DD Form 285.

Unit Fund Management

The primary source of unit fund income is a share of the profits from activities such as post exchanges and motion picture theaters. Other sources include proceeds from sales of unserviceable fund-owned property or serviceable fund-owned property sold to othernonappropriated funds. Also, the fund may receive income from savings accounts and investments in US government securities. A custodian (normally the commander), aided by a fund council, administers and supervises the unit fund.

- Custodian. The custodian receives, safeguards, disburses, and accounts for fund property and assets. Disbursements are made by check except for petty cash. Fund records are maintained according to AR 215-5. The custodian has financial responsibility for administration of the fund. The custodian may have to reimburse the fund for improper expenditures or for losses resulting from negligence or failure to comply with fund regulations.

- Council. The commander appoints the council, which consists of a custodian (as president) and at least two other unit commissioned or noncommissioned officers. The commander may appoint a specialist (E4 and above) when such appointments are approved by a higher commander. The council meets at least quarterly at the custodian's call. The custodian makes sure the proceedings are recorded and filed. The junior council member is usually the recorder.

Personnel Management

Personnel management means getting things done by soldiers. The ability to do this is a measure of the commander’s success. Commanders should

- Establish objectives. State in writing what they want to accomplish. Make sure objectives are obtainable. Make them known to their personnel in clear, realistic terms.

- Motivate personnel. Make them want to do their best as team leaders.

- Communicate effectively. Express themselves clearly and concisely. Make sure they say what they want their personnel to hear. Be good listeners.

- Be innovative. Find new and better solutions to problems. Encourage personnel to offer suggestions. If suggestions are used, they reward and recognize their personnel.

- Maintain cooperation. Use their skills to develop and sustain a spirit of teamwork within the unit.
- Develop subordinates. Assess subordinates' skills and abilities and determine the best training for their professional development. Encourage subordinates to take advantage of opportunities for career development.

- Keep abreast of personnel management trends. Participate in personnel management training sessions.

Personnel Actions

Personnel actions put personnel management principles into effect. Actions include assignment, promotion, reduction of personnel, and recommendations for awards, decorations, and commendations.

- Assignment. As a rule, personnel should be assigned according to MOS. The commander puts the right person in the right job. The commander takes the time to know what each person can do and assigns worthwhile and constructive tasks. Rotating assignments should be considered to allow for professional development as well as reassigning personnel to make better use of their skills or for reasons of health, morale, or safety.

- Promotion and Reduction. The commander's authority to promote or reduce enlisted personnel is explained in AR 600-200. Care should be taken in performing these actions. They can help or harm company morale and efficiency. The commander should be prudent in making or recommending promotions. Promotions should never be automatic or based on partiality. Commanders ensure their personnel know the qualifications and requirements for the next higher grade and encourage them to prepare for more responsible positions.

- Awards, Decorations, and Commendations. Commanders may recommend personnel for awards decorations, and commendations. See AR 600-8-22 for details. Recommendations are submitted to higher headquarters. Commanders also award letters of commendation for outstanding job performance and make sure copies of letters are placed in the individuals' personnel files.

Replacements

Replacements come to the company from higher headquarters. Personnel replacement is based on unit strength reports provided to the higher headquarters SIDPERS element. In-processing procedures can help shape new replacements' attitudes. Chapter 7 of FM 22-101 has guidance on reception and integration of new unit members. The higher headquarters S1 will normally advise where to put replacements for their best use. However, the personal desires of replacements should be considered when possible. The commander and first sergeant should meet all replacements as they arrive. The commander or the first sergeant should interview them to make sure they have what they need and understand the company's organization and mission. Replacements should be assigned sponsors to help them in-process. Then they should meet their supervisors and start their jobs.

Enemy Personnel and Materiel

Procedures prescribed for handling captured enemy personnel are in FM 19-40. FM 27-10 contains additional information, outlining how the Geneva and Hague Conventions apply.

Non-US Labor

Non-US personnel may fill vacancies. Host nation personnel may be used in any capacity except handling remains. Refer to DA Pam 690-80 and FM 41-10 for guidance on obtaining and employing non-US labor. The number of non-US personnel must be determined by higher headquarters and will depend on the capacity of available personnel, the number of shifts, and local conditions. The term "non-US labor" may include native personnel, refugees, evacuees, displaced persons, and prisoners of war. If prisoners of war are used, they may not be assigned to any dangerous or purely military activity. Training, supervision, and security need to be considered in using non-US labor.

- Training. Training may be necessary before non-US labor can operate effectively. Training should be in line with standard procedures that take into consideration cultural, language, and economic differences between non-US labor and US forces.

- Supervision. Normally, military personnel supervise non-US labor. In some areas, where close supervision is possible, local civilian supervisors may be used.

- Security. The use of non-US labor must not endanger the security of military forces and operations. All non-US personnel must have proper identification. Precautions must be taken to prevent pilferage of military goods.

MORALE SERVICES

Morale services assist the commander in maintaining a high level of morale in the unit. Also, they help protect the physical and psychological health of troops.

Safety

Injuries and accidents can seriously affect the company, possibly resulting in a drop in unit readiness. To prevent this, the commander must devise a safety program that works and that covers all aspects of company operations (see DA Pam 385-1). Soldiers must be thoroughly trained in the proper handling of material and the precautions to take when handling or storing dangerous items. All safety rules and practices must be followed without exception. Additionally, everyone should be impressed with the importance of staying alert to detect potential hazards, taking corrective action to reduce or eliminate dangers, and promptly reporting all accidents and safety hazards. The company's safety program should emphasize safety requirements for all its operations. The safety SOP should describe the program; requirements for specific operations should be covered in other SOPs. Also, personnel need training in all aspects of the safety program. Soldiers should be aware of all safety hazards associated with their work and must practice safety precautions daily. Commanders have to work at achieving safety. Following are principles of accident prevention.

- Active Interest. Safety should be emphasized at all times in all company activities. Safety programs succeed when everyone participates and keeps up an active interest. Commanders should appeal to personal pride, pointing out each individual's responsibilities in the program. They should ask for and carefully consider suggestions for making operations safe. Credit needs to be given where credit is due; the successful suggester (and the rest of the company) should know if an idea has been adopted. On the other hand, if a suggestion is not adopted, the suggester should know why. Supervisors should be interested in what the accident rate does to efficiency. Supervisory interest can be maintained by providing facts and figures that show how accidents can affect company productivity and, conversely, how increased demands for productivity can increase accidents.

- Fact Finding. When an accident occurs, the commander should get the facts. What happened? How did it happen? Was anyone hurt? Was anything damaged? When and where did the accident take place? How serious was it? The answers to these questions should answer the most important question of all: why did the accident happen? Fact finding should focus on any act connected with the accident and why the act took place. Also, any mechanical failure or physical hazard should be checked. If a tool or piece of equipment contributed to the accident, was an improper item used? Was it used properly? Was the item defective?

- Corrective Action Facts gathered on safety, accidents in the unit, personnel injuries, and equipment damage are used to come up with a workable pattern of corrective action. Requirements go beyond basic accident reporting. Near accidents must also be reported, giving all available information, so that steps cam be taken to eliminate hazards, unsafe procedures, or unsafe conditions. Also, anything that constitutes a threat to safety should be reported so that corrective action can be taken. If soldiers are repeated accident victims, they should be considered for assignments in which they are less likely to endanger themselves and others.

Field Sanitation

Disease can significantly impact the unit's ability to perform its mission. Proper sanitation practices are crucial. The commander's responsibility for sanitation includes training soldiers in preventive medicine, providing necessary sanitation equipment and supplies, and establishing and enforcing sanitation procedures. AR 40-5 directs the commander to set up and train a unit field sanitation team. After the team is operational, the commander supervises field sanitation operations, ensuring that proper sanitation procedures are followed and that standards comply with Army regulations. For more information on field sanitation operations, see FM 21-10 and AR 40-5, Chapter 15.

Health Services

The commander coordinates with higher headquarters for health service support, ensuring that it is available during operations and plans for emergency medical treatment to be available during day-to-day operations. His responsibility also includes providing for the training of all unit members in self-aid/buddy-aid (first aid) procedures. To survive on the integrated battlefield, each soldier must be proficient in first aid. See FM 21-11 for more information on first aid procedures. When a soldier goes on sick call, DD Form 689 serves as a link between the commander and the medical or dental officer. Normally, the first sergeant or personnel administrative sergeant prepares the form for the sick or injured person, who takes it to the medical facility. The commander learns the disposition of the individual's case when medical personnel return the sick slip to him. In emergencies the sick slip may be initiated at the medical facility. The sick slip is not a permanent record. After it has served its purpose, the slip may be destroyed, except when it must be forwarded to an officer exercising special court-martial jurisdiction in a line-of-duty investigation. Sick slips should be prepared according to AR 600-6. DD Form 689 is not used during maneuvers or in theater of war operations.

Shower, Laundry, and Clothing Repair

In the field troops will require periodic shower service and exchange of clothing. The commander coordinates with higher headquarters to make certain the company is scheduled for service by the SLCR section operating in the area. The SLCR section may also provide delousing operations supervised by medical personnel.

Mortuary Affairs

The company is responsible for searching for, recovering, and evacuating remains. Search involves going into the casualty area and collecting remains. Recovery involves identifying remains, recording all equipment and personal effects found with remains, and sketching the recovery site. Evacuation is the movement of remains from the recovery site to the nearest mortuary affairs collection point. Under some circumstances, the unit may have to bury remains. Emergency burial of remains should only be performed when the tactical situation does not allow evacuation or when remains are NBC-contaminated. If remains are contaminated, personnel should mark the burial site with the correct NBC marker. The commander, officers, and NCOs should be familiar with the information in JTTP 4-06.

Personal Financial Management

The commander should be concerned with the finances of soldiers and their families. Good money management can contribute to individual and unit morale. The commander should designate individuals in the company as financial counselors and set aside time for them to counsel troops. Each unit member should have a copy of TC 21-7. The practical exercises in Chapter 7 of the training circular can be used to set up personal financial management training.

TRAINING

Effective training must be available for all administrative and morale services. See Chapter 7 for more information on managing training and securing training materials.

Section III. UNIT SUPPLY

MISSION

The company supply element supports the mission elements of the company with certain supplies and TOE equipment. The supply sergeant is responsible to the company commander for internal supply operations. The most important supply publications are found in the Unit Supply UPDATE. The company's MTOE is also needed.

Required Information

To manage unit supply operations, the supply sergeant must know ~~the~~

- Requirements and authorization of the company.
- The company commander's desires regarding unit supply.
- Size and physical characteristics of the unit supply element.
- Location and layout of the supply element.
- Type and amount of support needed to run the element.
- Number, type, and particular needs of soldiers in the company.
- Impact of company operations on internal supply operations.
- Location of each supply support activity furnishing support.
- Availability of environmentally safer products as alternatives to existing products.

Unit Supply SOP

The supply sergeant develops a company supply SOP. The SOP may be separate or a part of the company SOP; it should include the following:

- Responsibilities of unit supply personnel.
- Hours of operation of the supply room.
- Procedures for securing the supply room or tent.
- Procedures for controlling durable items.
- Measures for control of property issued to personnel.
- Procedures for controlling expendable items.
- Kinds of records, reports, and forms required.
- Detailed procedures for requesting, receiving, storing, inventorying, issuing, and turning in supplies.
- Procedures for initiating adjustment action for lost, damaged, or destroyed items.
- Procedures for safekeeping property of absentees.

- Guidelines and directions for maintenance of equipment and supplies.
- Procedures for laundry service.
- Safety precautions, including procedures on risk management, hazard analysis, safety standards in the unit, and fire and other emergencies.
- Information on supply training.
- Tables of measurement equivalents.
- Procedures for operating in an NBC environment.
- Procedures for automation security.
- A continuity plan.

Responsibility

Property responsibility is the obligation to ensure that government property entrusted to a person's possession, command, or supervision is properly used, cared for, and provided proper custody and safekeeping. Although the supply sergeant, assisted by the armorer and supply specialist, runs the unit supply element, all soldiers have certain responsibilities for property. AR 710-2 requires that someone be assigned direct responsibility for each nonexpendable and durable item on hand in the unit. When the property is issued on a hand receipt, direct responsibility for it is established. This direct responsibility is in addition to the command responsibility. These direct responsibilities may be supervisory or personal in nature. See ARs 710-2 and 735-5 for property responsibilities of the company commander, supervisors, and hand receipt holders.

Accountability

Accountability is the obligation of a designated person to keep an accurate record of property. The accountable person may be the company commander or a unit supply officer appointed by the commander. The person with property accountability must

- Ensure that all property is correctly posted to property records.
- Know what is actually on hand through physical inventories.
- Take action to resolve shortages or overages.

SETUP AND CLOSEDOWN

For a unit supply element housed in a building, FM 10-14, Chapter 7, provides layout information. In the field, though, buildings are seldom available and the supply element will depend on tents.

Setup

To set up the supply element in the field, the supply sergeant needs to

- Develop a layout plan (Figure 4-3, page 4).18
- Pitch the supply tent.

- Camouflage the supply tent.
- Off-load and position supplies.
- Man and secure the supply tent.

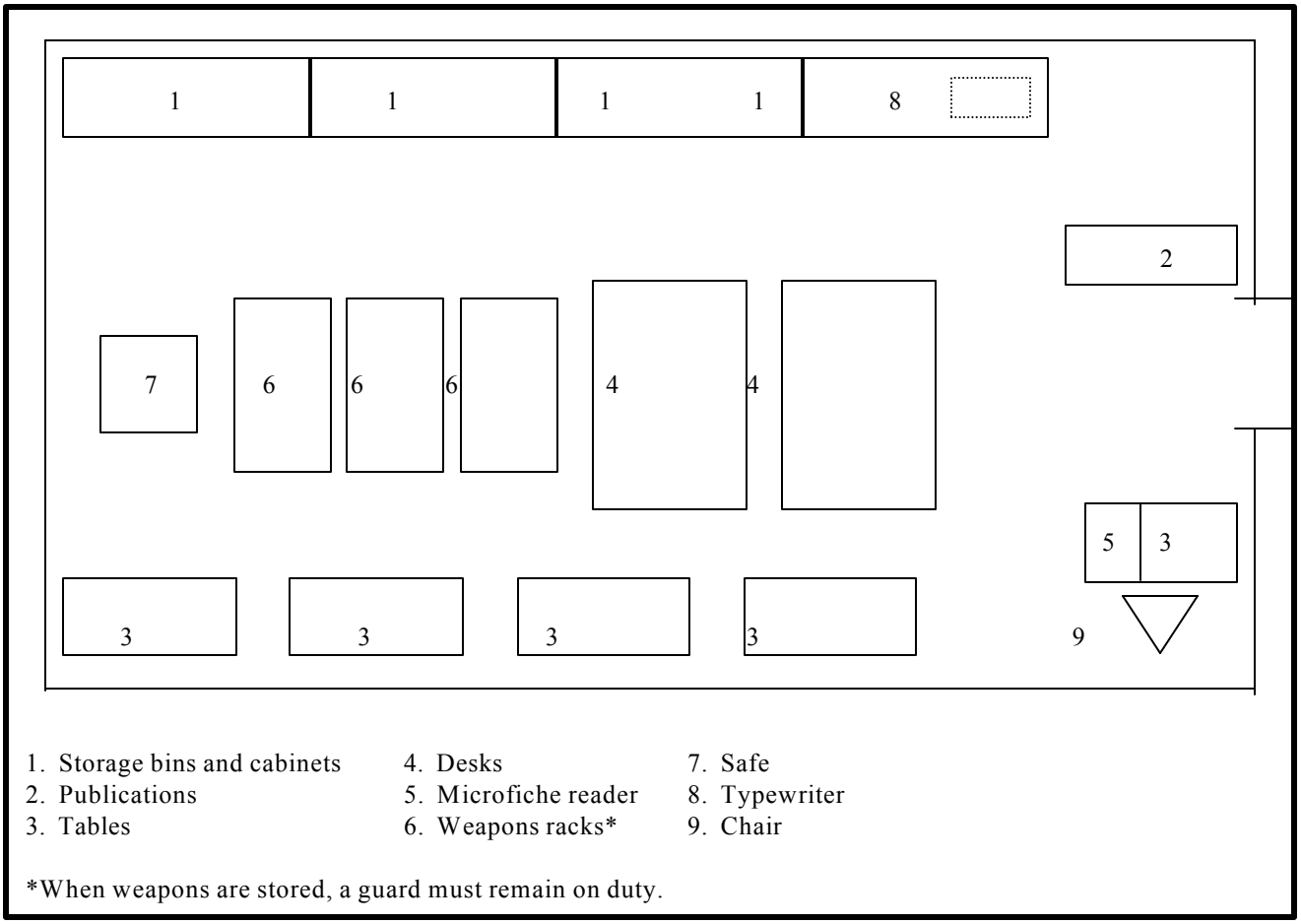

Figure 4-3. Sample Layout Plan in a Medium GP Tent

Preparation for Movement

When the company has to move, the commander will issue a warning order telling the supply sergeant when to close down supply operations and prepare for movement. The answers to the following questions will help plan the move:

- By what date must the company be ready to move?
- What types of operations are expected?
- What is the latest information on the location of threat forces and equipment?
- How many soldiers will move to the new area? Will some soldiers continue to operate at the old area?
- When will equipment be deployed?

- Does the company need any special equipment for operations?
- Is special maintenance required for equipment before or on arrival in the new area?
- Will more soldiers or details be necessary to perform the unit supply mission?
- How will contaminated supplies be handled?

Closedown

The commander will tell the supply sergeant when it is time to move. After receiving the order to close down, the supply sergeant—

- Sets up issue and cutoff times for supported activities.
- Loads supplies and office equipment
- Strikes the supply tent.
- Secures the basic ammunition load

SUPPLY OPERATIONS

The supply sergeant requests, receives, stores, protects, inventories, issues, and turns in supplies. He may also have to obtain laundry support for the company.

Requests

See Table 4-5 for authorization documents which list items that may be requested. A consolidated company request is prepared and sent to the battalion S4. See Table 4-6, page 4-20, for request and turn-in forms. The request should be checked for accuracy and completeness before it leaves the company. The supply sergeant initiates follow-up action if supplies are not received on schedule and periodically reviews the current need for requested supplies. See DA Pam 710-2-1, Chapter 2, for details.

Table 4-5. Authorization Documents for Property

TYPE OF PROPERTY	AUTHORIZATION DOCUMENT
Organization Property	MTOE CTA 50-900, Section II CTA 50-909, Appendix C TDA Joint Table of Allowance AR 840-10
Installation Property	CTA 50-909
Expendable Supplies Repair Parts	Technical manuals containing repair parts and special tool lists
Other Expendables	CTA 8-100 (medical) CTA 50-970 (all except medical, ammunition, repair parts, and heraldic items)
Personal Clothing	CTA 50-900

Table 4-6. Requests and Turn-In Forms

FORM	USED TO REQUEST OR TURN IN

DA Form 581 (Request for Issue and Turn-in of Ammunition)	Ammunition and explosives.
DA Forms 2765 and 2765-1 (Request for Issue or Turn-In)	Expendable, durable, or nonexpendable single line item with NSN listed in the AMDF.
DA Forms 3161 (Request for Issue or Turn-In) and 3161-1 (Request for Issue and Turn-In [Continuation Sheet])	One or more line items of expendable supplies normally provided by self-service supply center. Five or more line items of packaged Class III products or other supplies normally ordered on a recurring basis.
DD Form 1348-6 (DOD's Single Line Item Requisition System Document [Manual Long Form])	Non-NSN single line item. NSN single line item when the NSN is not listed in the AMDF. Modification work order and modification kit. Classified item. Any exception data item.
See DA Pam 710-2-1, Chapters 2 and 3, and FM 9-13, Chapter 8, for preparation directions	

Receipts

The commander uses DA Form 1687 to designate those authorized to sign for supplies. This form is sent to the support activity. The commander remains fully responsible for the supplies. (See DA Pam 710-2-1, Chapter 2.) Upon receipt of an item, the supply sergeant takes the following actions:

- Checks the quantities and national stock numbers.

- Checks the serial numbers when applicable. Checks each item's serial number with the one recorded on the receipt document. If no serial number is listed on the receipt document, enters it.

- Inventories components of end items against applicable technical manuals or supply catalogs to make sure all components have been received.

- Reports discrepancies to the supply support activity IAW AR 735-5.

Storage and Protection

The supply element may be required to store and protect certain items. See AR 190-51.

- Ammunition. Operational situations may prevent storage of ammunition in magazines or special storage rooms. If so, the unit commander may be authorized to store the basic load of ammunition on vehicles or trailers or in other ways demanded by the situation. See AR 190-11.

- Weapons. The armorer controls and protects stored weapons. The supply sergeant makes sure the armorer performs these functions according to FM 10-14, Chapter 7.

- Lubrication and Oils. The supply element stores containers on dunnage or pallets. If stored outside, they should be covered with tarpaulins. See DA Pam 746-1 for details on pallets. The supply element inspects all cans for leaks before storing them. Empty containers are stored separately and empty containers are disposed of in accordance with local environmental policy. Proper type fire extinguishers should be available with sand barrels nearby.

- Rations. The supply element stores the basic load of rations on dunnage under tarpaulins. This prevents damage from moisture and rodents.

- Expendable Items and Housekeeping Supplies. Small items, such as soap, may be stored beneath the issue counter, other items in bins or on shelves. Items in frequent demand should be in the most accessible places.

- Organization Clothing. A few items of clothing (to be used in emergencies) may be stored on shelves in the company supply tent. See FM 10-14, Chapter 7, for storing clothing.

- NBC Protective Items. Replacement stocks of individual MOPP gear should be stored so that they are ready for issue in the event of nuclear, biological, or chemical warfare. The supply element should be prepared to replace defective items or items that are incorrectly sized. The supply sergeant should have at least one extra overgarment for each soldier in the company. The battle dress garment provides adequate protection for up to 22 days as long as it is not ripped, torn, soaked with petroleum, or contaminated. It will protect the wearer for 24 hours after contamination by a liquid chemical agent. The garment should be exchanged as soon as tactically possible. See FM 3-4 for more details.

Inventories

The supply sergeant should be prepared to help take inventories of property. Property records should always be ready for inspection. Policies for inventories and inspections are covered in AR 710-2. Specifics are covered in DA Pam 710-2-1, Chapter 9.

Issues

The supply sergeant is responsible for issuing three types of propertynonexpendable, expendable, and durable. He must accurately account for these issues, which are usually made directly to the user identified on the authorization document. DA Form 2062 is used to subhand-receipt items from the commander, to the supervisor, to the user. DA Pam 710-2-1 gives procedures for posting transactions to DA Form 2062. To prevent frequent postings, the unit commander may authorize that DA Form 3161 or DD Form 1150 be used as a change document. Change documents should be posted to the hand receipt at least every six months, counting from the oldest change document in effect (see AR 710-2).

- Property Book Items. Issues of property book items must be recorded on DA Form 2062, DA Form 3161, or DA Form 3749. The hand receipt holder must sign the form.

- Weapons. A DA Form 3749 must be turned in to the supply specialist each time a soldier draws a weapon. The supply specialist must maintain a control log of weapons issued (if for more than 24 hours) and a master authorization list.

- Expendables. Expendables are not carried on the property book or hand receipts. The supply sergeant enforces supply discipline to prevent loss, misuse, or pilferage of items. To prevent excessive demand for expendable items, he sets up a control sheet to determine normal requirements. If demand exceeds these levels, he takes action to find out why. To enforce supply discipline, all soldiers must be made aware of the importance of preserving Army property. Any practice that wastes supplies or damages or destroys property must be corrected. Oral or written reprimands may be given, efficiency reports may be annotated, or Article 15 or court-martial may be used for a serious incident.

Turn-In

Supplies and equipment should be turned in when they exceed authorized allowances, when they are unserviceable or uneconomically repairable, or when they are found on the installation. DA Form 2765-1 is used to turn in these items to the supply support activity that usually issues them.

Laundry

Laundry service support depends on whether fixed permanent laundries are available in a host nation. In contingency areas, laundry and renovation support is provided when the tactical situation permits. QMS and field service units provide this support in the corps and COMMZ. Laundry operations under field conditions may depend more on local SOP than on procedures in FM 10-280.

Section IV. FIELD KITCHEN

MISSION

The Army field feeding system calls for two hot meals and one MRE as the basic combat ration. A food service team with its food service equipment provides the T-Ration meals from unitized modules. The unit is authorized the trailer-mounted field kitchen (MKT-75, MKT-75A, MKT-82, MKT-85, or MKT-90 [LIN L28351]). The MKT is a collection of food preparation and serving equipment mounted on a 1-1/2-ton trailer (see Figure 4-4). One MKT can be used to prepare and serve A-, B-, H&S, or T-Ration meals for up to 300 soldiers per meal. The prime movers for the MKT are the 2-1/2-ton or 5-ton medium cargo trucks. Each MKT comes with a prime mover. The containerized kitchen (CK) will replace the MKT when development is complete and as it becomes available. The CK will be capable of supporting 500 soldiers and preparing any of the group ration meals. For more information on the MKT, see FM 10-23 and TM 10-7360-206-13. The unit is also authorized a sanitation center (SC [LIN S33399]) consisting of required equipment to clean and sanitize the food service equipment. One SC is required per MKT.

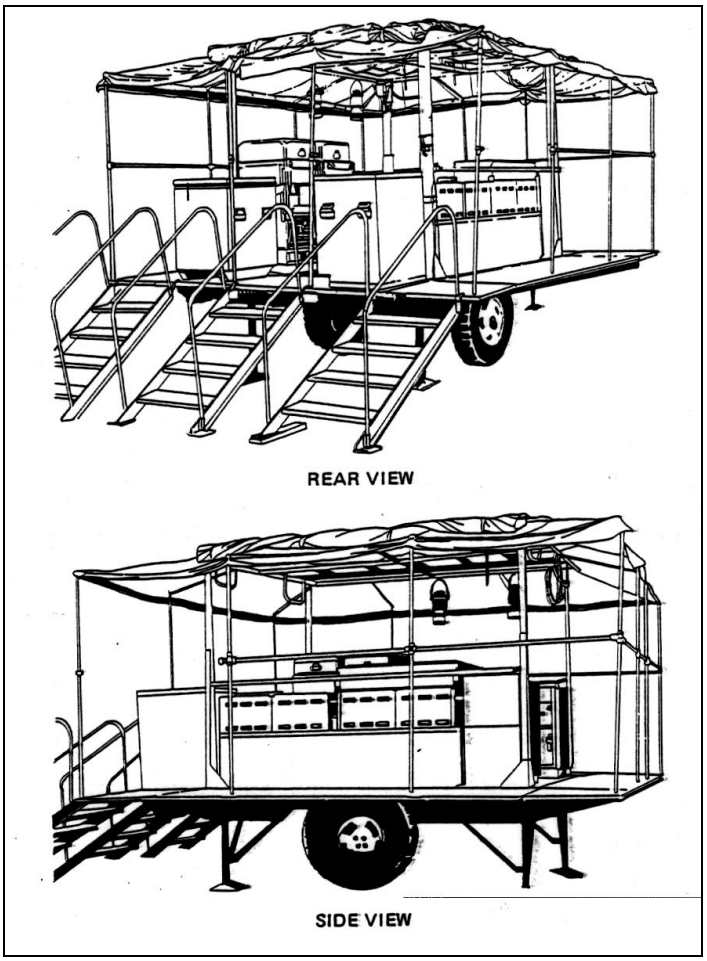

Figure 4-4. Mobile kitchen trailer MKT-75
Required Information

The senior food service sergeant is responsible for field kitchen operations. The kitchen SOP and production schedule provide written instructions. They detail on a day-to-day and meal-by-meal basis such matters as responsibilities, work procedures, standards, and acceptable methods. To manage field kitchen operations, the senior food service sergeant must know the following:

- Where the field kitchen is to be set up.
- Location and strength of supported soldiers.
- Location of transfer points, Class I supply points, and water points.
- Location of Class III supply points for refueling kitchen vehicles and securing fuel for kitchen equipment.
- Ration issue frequency and turnaround time for obtaining rations and water.
- Time required to reach and serve soldiers operating at remote locations. Food in insulated containers will hold serving temperatures for up to four hours.
- Designated ration cycle.
- Location of garbage collection points.

Kitchen SOP

A kitchen SOP ensures that all food service soldiers know what is expected of them. It may be a separate SOP or part of the company SOP. The SOP should include the following:

- Responsibilities for field kitchen operations (see Table 4-2).
- Schedule for serving meals.
- Sanitation requirements, including procedures for disposal of kitchen wastes.
- Safety precautions.
- Information on care and operation of equipment.
- Records and reports required.
- Procedures for delivery of meals for those who cannot come to the field kitchen.
- Procedures for pickup of rations and water.
- Information on how to store rations.
- Information on training programs.
- Measurement equivalents.
- Ration forecasting and accountability, meal card control, and cash control procedures.
- Preparation and serving of food and water in an NBC environment.

Operations

The senior food service sergeant establishes a system for the routine operation of the feeding site. He checks with the S1 section or has the first sergeant or unit clerk report any changes in troop strength. These changes will affect rations delivered. He informs the field kitchen of any operational changes and location of soldiers. If possible, this should be part of the SOP. He checks cooks for cleanliness and signs of illness or infection, referring those who show such signs to a medical facility for evaluation. See TB MED 530 for additional guidance. As a rule, the following assumptions apply:

- Food can be prepared in one central location. Soldiers from the supported unit will pick up, deliver, and serve prepared food at the unit location. They will return insulated food containers to the kitchen site.
- T-Rations will be issued ipreconfigured, packaged meals, according to the approved menu.
- Each T-Ration module will contain a different meal; each meal will have a unique stock number.
- MREs will be issued when T-Rations cannot be prepared.
- When rations have not been unitized, units will order rations by indicating the number of meals required.
- Cooking will be curtailed during NBC operations.

SETUP AND CLOSEDOWN

Field situations seldom allow the field kitchen to operate under ideal conditions. However, the senior food service sergeant has to do the best he can with the area assigned. He should develop a layout plan. Figure 4-5 shows a layout plan for feeding A- and B-Rations with the MKT. Other layout plans are in FM 10-23.

Setup

To set up the field kitchen, the senior food service sergeant

- Pitches the kitchen tent.
- Off-loads and positions equipment.
- Sets up the mobile kitchen trailer.
- Camouflages the area.

Closedown

After receiving moving instructions, he

- Secures rations.
- Fills containers.
- Shuts down ranges.
- Strikes the kitchen tent.
- Loads vehicles (see Figure 4-6, page 4-26).

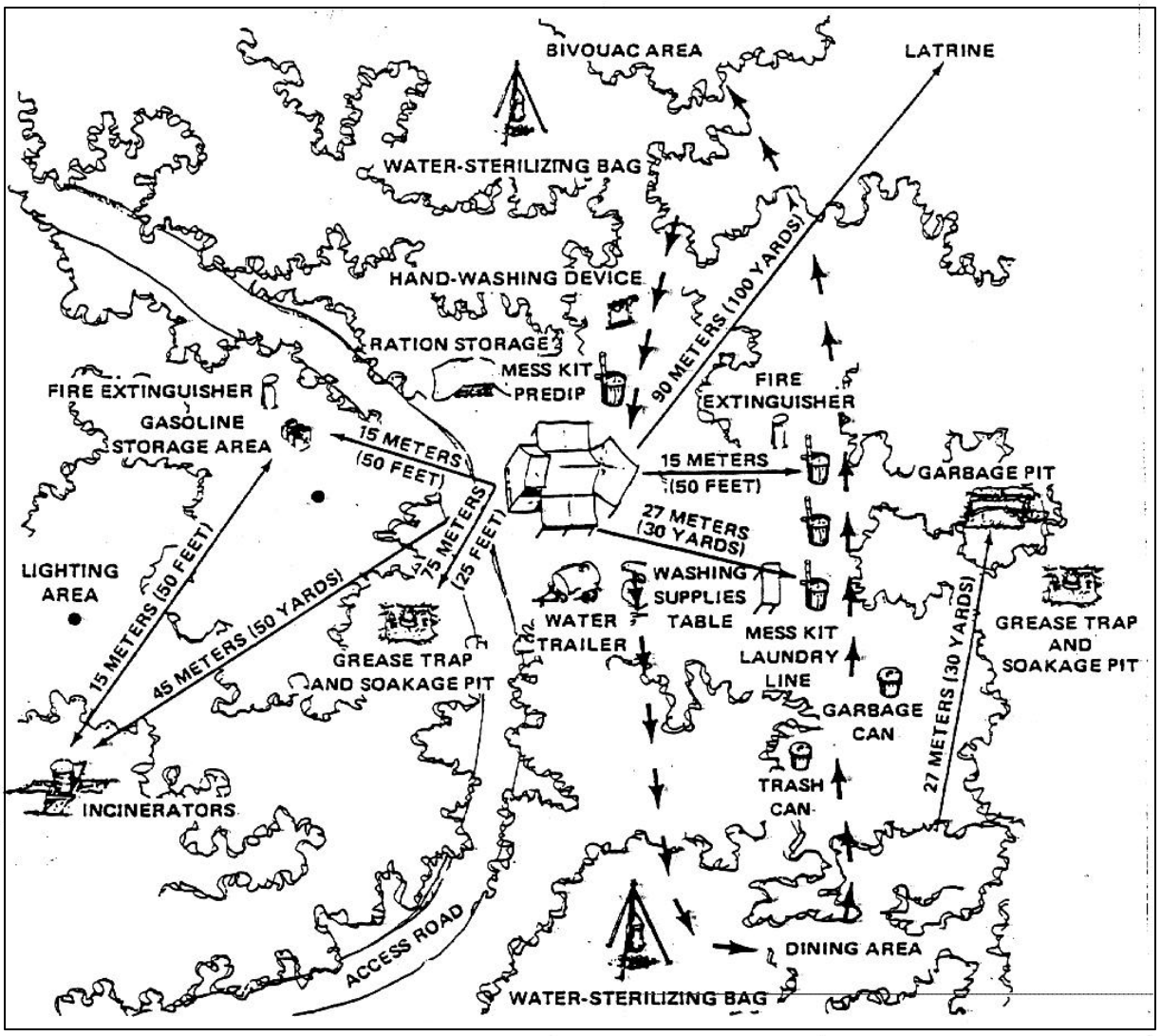

Figure 4-5. Sample site layout

OPERATIONS

Field kitchen operations include receiving rations, storing and protecting them, preparing and serving meals, and keeping records. Soldiers may also become involved in remote feeding. Rations will be packaged in standard meal packs with disposable eating ware. These packages are designed to feed a predetermined number of soldiers. They are also packaged to provide protection from NBC contamination. Each package consists of one meal with one national stock number. As a rule, the unit picks up rations. The quantity of rations requested is based on troop strength. Preplanned rations eliminate the need for complicated ration requests from units. Therefore, the senior food service sergeant must be kept informed of any changes in troop strength and in location and employment of supported troops. Such changes may cause changes in the number of T-Rations needed.

Ration Receipt

One soldier is usually designated to pick up and sign for rations. He completes a single line item receipt at the Class I distribution point, and accountability is dropped. There should be more than one authorization on file at the ration breakdown point. Those authorized to sign for supplies are also responsible for checking them for quantity,

quality, and condition. The SOP should detail exactly what should be checked. For example, supplies should be checked for damage from moisture, insects, or rodents as well as for swollen or leaking cans.

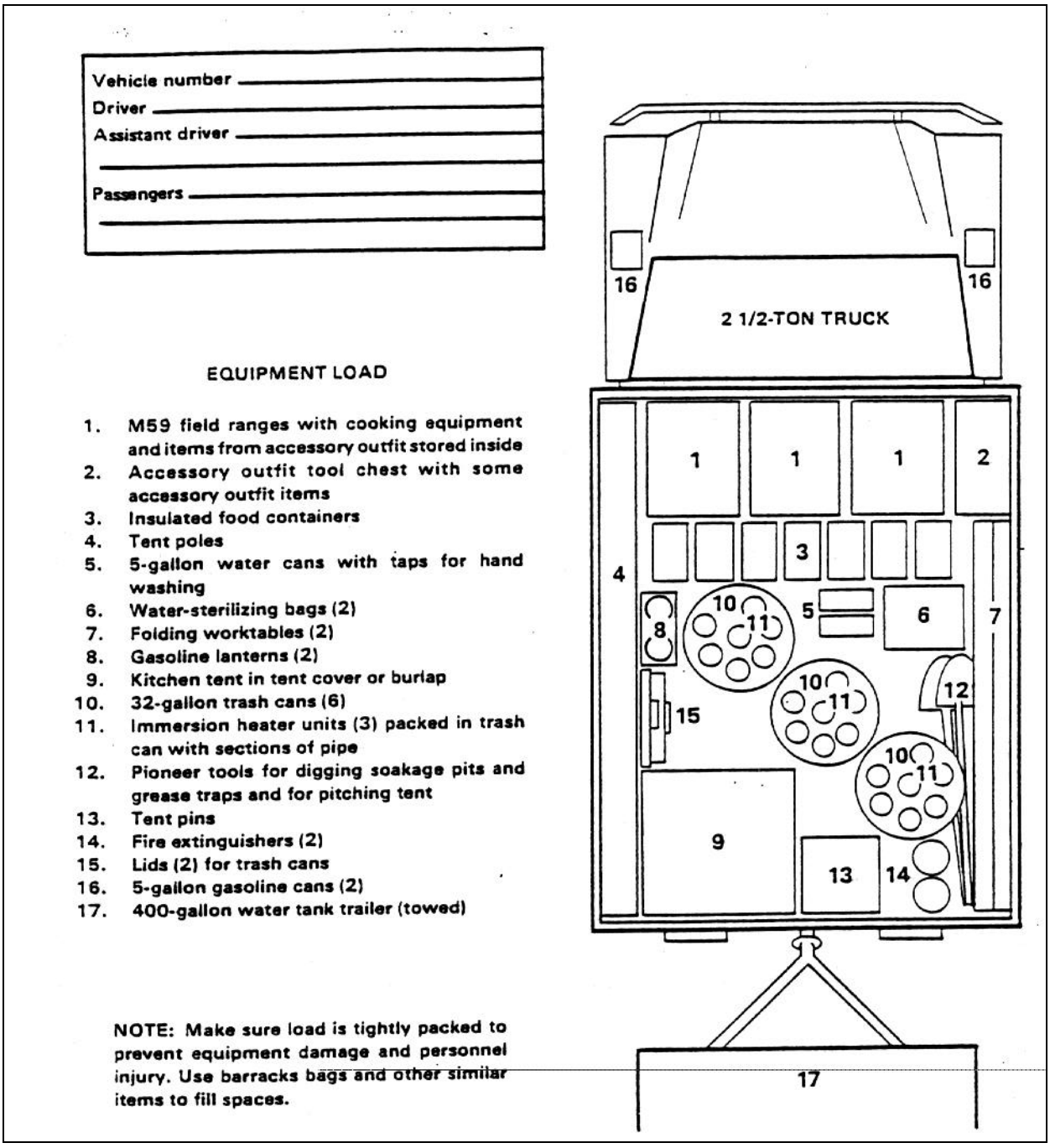

Figure 4-6. Sample loading plan for field kitchen

Ration Storage and Protection

Daily ration pickup reduces spoilage, theft, and the amount of storage space needed. The storage area should link to the road network, preferably by a one-way access road for kitchen traffic only. Aisles must be wide enough to allow items to be stored or removed from storage easily. Food items should be protected against insects and rodents

and isolated from nonfood items like cleaning solutions, pesticides, and rodenticides. Correct storage procedures will aid in the proper rotation of ration items and will ensure their use on a first-in, first-out basis. Rations should never be stored directly on the ground. Pallets or dunnage will protect rations from moisture and water damage. Dunnage can be constructed from lumber, logs, railroad ties, ammunition boxes, crates, or bamboo. See DA Pam 746-1 for more on pallets. Tarpaulins protect rations stored outside. Authorized tarpaulins may be requisitioned through supply channels. See CTA 50-909. Tarpaulins should be tied to ration cases or pins driven into the ground. To allow air to circulate in tropical climates, a tarpaulin should not cover the bottom third of the stacks. A tarpaulin spread over a triangular wooden frame provides a dry, ventilated, tent-like shelter for rations. The triangular frame should be constructed so that its edges extend beyond all sides of a stack. If a GP tent is used, the additional space can be used to store rations on dunnage inside the tent. If NBC agents are suspected in the area of operations, all open food packages should be containerized, using multiple layers of plastic bags. All food stocks should be covered with chemical-resistant plastic coverings, with cracks sealed to keep chemical vapors out of food and food containers. See FM 10-23 for more details.

Meal Preparation and Serving

Cooking instructions are printed on each tray pan. Rations should be prepared according to theater T-Ration menu guidance. Food may also be prepared according to SOP for items that have no recipe number and which do not vary in preparation (for example, fruit juices or bread). If the theater commander determines that use of A-Rations is feasible, meals may be prepared according to the theater master menu and recipes in TM 10-412.

Record Keeping

Higher headquarters will determine record-keeping requirements under field conditions. Keeping an informal equipment logbook may be helpful, with notes on maintenance services, repairs, and replacement parts. The notes will help the senior food service sergeant develop a planned replacement program. They will also help him spot careless use of equipment and poor operator maintenance.

Remote Feeding

Remote feeding is feeding soldiers deployed more than walking distance from the food preparation site. It may be done by a variety of methods. Battalions may send hot meals forward to remote units using food containers. When that is not feasible, the battalion may attach an MKT with cooks to the remote unit for the preparation of meals. Depending on its strength, length of mission, and other tactical and logistical considerations, the remote unit may be administratively attached for rations to the nearest unit with a rations preparation capability.

Section V. SUPPLY CONTROL SECTION

MISSION

The mission of the supply control section is to coordinate the receipt, storage, and issue of bulk petroleum. The supply control section ensures that petroleum will be available when and where it is needed. This section

- Coordinates transportation required to transport fuel to and from supply sections.
- Establishes and maintains stock control records.
- Coordinates procedures for receiving, storing, and issuing fuels.
- Establishes and maintains wire net communications for the unit.
- Maintains accountability of fuel stored within the company.

- Under direction of the battalion, directs, coordinates, and supervises the technical operations of the company.

PERSONNEL DUTIES

Table 4-7 details duties of supply control section personnel.

Table 4-7. Duties of Supply Control Section Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	TOTAL	DUTIES
Petroleum Supply Officer	92F		LT	1	Coordinates and controls mission functions of petroleum supply company operating elements. Coordinates bulk petroleum operations of the petroleum supply company. Directs bulk petroleum accounting operations, determines bulk petroleum requirements, and reallocates bulk petroleum according to command policies. Maintains close liaison with transportation medium truck companies that distribute bulk fuel to and from supply sections. Coordinates barge, rail, and air movements of bulk petroleum with supply platoons. Assists supply platoons in the location of suitable bulk storage areas, surveying of routes, and determination of
Petroleum Operations Sergeant	77F	5	E8	1	Assists the petroleum supply officer. Responsible for the consolidation of reports being maintained and submitted to higher headquarters. Develops communications manning schedules.
Petroleum Inventory Control Specialist	77F 77F	2 1	E5 E4	1 1	Receives, consolidates, and forwards to higher headquarters stock status information received from operating elements of the supply platoons. Maintains inventory control and location records of bulk petroleum products. Prepares and edits supply requisitions. Processes request and receipt documents. Prepares and maintains accounting records. Processes requests for follow-up and cancellation. The Skill Level 1 soldier also serves as a radio and switchboard operator.
Forward Signal Support Specialist Signal Support Systems Specialist	31U 31U	1 1	E4 E3	1 1	Installs and troubleshoots signal support equipment and terminal devices. Provides technical assistance and training for user-operated automation and communication equipment. Installs, maintains, and operates the unit's organic wire net on a 24-hour basis.
Administrative Clerk	71L	1	E3	1	Prepares and types operational reports to be forwarded to higher headquarters. Operates and performs operator maintenance on office machines. Files regulations andcorrespon-dence. Performs messenger service. Distri-butes incoming and outgoing requisitions. Handles bulk mail and prepares it for dispatch. Serves as vehicle driver. Operates radio and switchboard.

OPERATIONS

The supply control section, under the direction of the battalion, directs, coordinates, and supervises the technical operation of the company and serves as the central point of control for unit mission operations. The section coordinates the receipt, storage, and issue of bulk petroleum, which includes the delivery of bulk petroleum by organic 5,000-gallon semitrailer tankers to locally supported units. FM 10-67-1 gives detailed steps for the receipt, storage, and issue of bulk petroleum. Detailed procedures for accounting for petroleum products are discussed in DA Pam 710-2-1.

Accounting for Bulk Petroleum

The supply control section establishes and maintains stock record accounting for all bulk petroleum products, using the following accounting records:

- Receipt Records. When delivered, fuel will come with a DD Form 1348-1 or other locally approved form, depending on major command. This form is used to verify receipt of the correct amount and type of petroleum.

- Issue Records. A DA Form 2765-1 showing the amount requested will be submitted by the customer unit for fuel issues. The section retains DA Form 2765-1 for preparing the daily status report. It records issues to supported units not having organic refuel capacity on DA Form 3643 and also on the daily status report.

- Status Reports. Each day the section consolidates issues and prepares a daily status report. The status report gives the product description, amount received and issued, and the balance of stock on hand by product type. The completed report is forwarded to the POL operations branch of the petroleum supply battalion. A file copy is retained in the section. The section is also required to prepare a monthly DA Form 3644, using DA Form 3643 to post it. At the end of the month the DA Form 3644 is forwarded to the POL operations branch, petroleum supply battalion.

- Stock Records. The section maintains a DA Form 1296 for each type or grade of bulk petroleum products. The record shows how much of each product is on hand and where each product is at a given hour. DA Form 272 and DA Form 2062 are used to post and control accountable documents and maintain an audit trail. Procedures for preparing DA Form 272 are in DA Pam 710-2-2.

Fuel Inventories

In accordance with AR 710-2, inventory reconciliations are done daily where issues and receipts are made on a daily basis. In addition to daily and weekly inventories, a monthly physical inventory will also be taken IAW AR 710-2 for each type and grade of product. The petroleum supply officer is responsible for scheduling inventories and providing an SOP directive for inventory procedures.

SOP. The petroleum supply officer, assisted by the petroleum operations sergeant, should prepare or update an SOP to be used in inventorying petroleum products. As a minimum the SOP should cover

- Receiving cutoffs.

- Assignment and responsibilities of inventory count team personnel.

- Noninventoried areas.

- Assignment of inventory voucher numbers.

- Inventory counts and records.

- Issue during inventory.
- Preparation of inventory adjustment reports (IARs) and reports of survey.
- Correction of stock records.
- After-inventory actions.

Inventories. Petroleum inventory control specialists are responsible for taking and recording inventories. Rigid-wall tanks or containers will be gauged and their volume corrected IAW FM 10-67-1. Collapsible-wall tanks or containers will be inventoried by reconciling beginning inventory, issues, and receipts and by physically checking the tank, couplings, fittings, and areas around the tank to ensure no leaking has occurred. A common-sense approach must be used in visually checking the container to determine that the stated quantity appears to be present by volume. When an inventory is completed, petroleum inventory control specialists total the quantities for products held in several locations and compare inventory balances with recorded balances on DA Form 1296. The inventory is documented on DA Form 4702-R, reflecting the quantity on hand as of 0800 hours local time on the last day of the month, per AR 11-27. All supporting documents will be attached to the DA Form 4702-R and submitted to higher headquarters. The inventory SOP should explain these duties in detail.

Status Reports. Every 24 hours of operation, petroleum inventory control specialists assigned to each of the two platoon headquarters consolidate the status reports received from each of three supply sections and forward them to the supply control section. In turn, every 24 hours of operation, petroleum inventory control specialists assigned to the supply control section consolidate and forward to battalion headquarters the status received from each of the two platoon headquarters. Petroleum battalions then submit status reports to the higher headquarters. Whether these status reports will be submitted every 24 hours or every month depends on the theater situation and will be stipulated in directives, SOPs, or petroleum distribution plans. Daily and monthly reports provide the petroleum supply officer a source from which to estimate receipts and issues for the next 24 hours of operation. They will be of particular value when a company assumes the support of like units performing like missions. It is also from these estimates that the petroleum supply officer forecasts estimations for transportation requirements.

Transportation Requirements

The petroleum supply company is authorized vehicles for internal and local distribution only. In order to receive and issue bulk petroleum, it must rely on the transportation medium truck company (petroleum) that normally is organic to the petroleum supply battalion. The petroleum operations branch, petroleum supply battalion, has responsibility for coordinating the distribution of bulk petroleum. It receives its instructions from the supporting MMC; it determines transportation requirements for bulk fuel distributed by tank truck and tasks the transportation medium truck company accordingly. The petroleum supply officer is responsible for coordinating transportation to move bulk petroleum from the company to supported units. The petroleum supply company obtains its petroleum products from the petroleum pipeline and terminal operating company by any means available, based on status reports. To estimate transportation requirements, the petroleum supply officer will need to know

- The capabilities of a transportation medium truck company (petroleum) at 75 percent capacity.
- Time estimates for fuel transporters to make local hauls and line-haul round-trips between supporting and supported units.
- Time estimate changes when situations require use of alternate routes.
- Time estimates for fuel transporters to make local haul and line-haul round-trips between rail nets where railcars await loading or off-loading at each of six widely dispersed supply sections.
- Location and amount of fuel and space available in each of the six supply sections on an hourly basis. The petroleum supply officer or hisNCOs should verify status report data by telephonic communication with supply section chiefs.

Quality Surveillance Procedures

Quality surveillance requires more than periodic sampling and testing. It also requires proper handling procedures during storage, loading, and unloading operations. Quality surveillance is not only determining the quality of fuels but maintaining the quality so that products are suitable for their intended use. FM 10-67-2 provides detailed information about quality surveillance. To improve handling and control measures, the petroleum supply officer should include the following quality surveillance procedures in the unit SOP.

Storage Surveillance Procedures . Storage surveillance procedures are a necessary means to ensure safety and quality surveillance. Section personnel should

- Separate grades and products. Issue each product through a separate system. Use separate valves, pumps, and transfer lines for each type and grade of fuel.
- Convert tanks to different product IAW FM 10-67-1.
- Visually check tanks daily for water through the bottom drainage outlet.
- Allow a minimum settling period of two hours.
- Drain fuel tanks of water after each receipt of fuel.
- Inspect filter equipment according to operation and maintenance manuals.
- Sample and test dormant stocks as prescribed by minimum frequency tables for testing petroleum products in Military Handbook 200.
- Ensure that filter/separators, filter effectiveness tests, and filter differential pressures are in accordance with FM 10-67-1.

Loading and Unloading Controls for Tank Cars and Vehicles . Loading and unloading controls for tank cars and vehicles requires constant quality surveillance measures. Personnel

- When possible, store the same product in tank cars and vehicles to lessen the need for cleaning and prevent contamination. Some tank cars may be divided into two sections (for example, one side may be used for mogas and the other for JP-8). DO NOT SPLIT-LOAD TANK VEHICLES BECAUSE OF MIXING OF PRODUCT IN COMMON DISCHARGE SYSTEMS. The danger lies in using the same discharge system, which could contaminate one of these fuels.
- Inspect tank cars and vehicles for cleanliness and suitability for receiving product.
- Make a visual test and ensure an API gravity test is performed on the product sample before and after loading and before unloading.
- If the API gravity differs by more than 0.5 API degrees from that reported on the transportation documents, do not unload the product until additional testing confirms its quality. Samples of products in question should be sent to the nearest mobile or base petroleum laboratory for further testing.
- After loading, check contents, secure dome covers, and attach seals to domes and outlets.
- Check seals at destination and perform receiving checks.
- If water is present, drain it.

Communications Operations

Advance party personnel will already have laid and installed wire for telephones and switchboards according to the wire net diagram. Communications equipment should be allocated as needed to accomplish the mission. Thus, in tactical situations, phones might be given up to observation or listening posts. With arrival of communications equipment, operators will ground equipment, connect wire, and test connectors and circuits. Operators should then perform a complete communications check of equipment. They should check installation of lightning arresters and ground equipment before operation. The petroleum operations sergeant should develop manning schedules to ensure a 24-hour operation of communication equipment. The petroleum supply officer and all NCOs must continually make sure that all personnel follow COMSEC measures to prevent jamming, interference, and deception. Refer to Chapter 6 for more information on communications. Supervisors must ensure that operator and unit equipment maintenance manuals are current and available for all communications items.

EQUIPMENT

Table 4-8 lists the equipment needed for completion of the mission as prescribed by TOE 10427.

Table 4-8. TOE Equipment List for the Supply Control Section

ITEM	QUANTITY
Antenna group: OE-254/GRC	1
Axle cable reel: RL-27	1
Transit case logic module group:(supports SARRS-1)	1
Cable telephone: WD-1/TT DR-8 1/2 KM	2
Cable telephone: WD-1/TT RL-159/U 2 KM	1
Case transit monitor keyboard group: OA-9252/TYQ-33(V)	1
Case transit printer unit group: OA-9251/TYQ-33(V)	1
Camouflage screen support system: woodland/desert	5
Camouflage screen systemwdlndlt wt radar scat w/o spt sys (subst in desert/snow envir)	5
Inst kit: MK-2325/VRC for AN/VRC-87/88/90 in HMMWV	1
Inst kit: MK-2326/VRC for AN/VRC-89/91/92 in HMMWV	1
Light set general illumination: 25 outlet	1
Night vision goggle: AN/PVS-7B	1
Radio set: AN/VRC-89A	1
Reeling machine cable hand: RL-31	1
Reeling machine cable hand: RL-39	2
Radio set: AN/VRC-88A	1
Tone signaling adapter: TA-977/PT	1
Telephone wire with reel: MX-10891/G	1
Telephone digital nonsecure voice: TA-1035/U	1
Truck utility: cargo/troop carrier 1-1/4 ton 4X4 WE (HMMWV)	1
Splicing kit telephone cable: MK-356/G	1
Switchboard telephone manual: SB-22/PT	1
Utility receptacle	1
Telephone set: TA-312/PT	2
Trailer cargo: 3/4-ton 2-wheel W/E	1
Data transfer device: AN/CYZ-10 (C)	1
Data transfer device: AN/CYZ 10	2
Trailer cargo: high mobility 3/4-ton	2

Section VI. CLASS III SUPPLY PLATOONS

MISSION

The petroleum supply company has two supply platoons. The two platoons may operate in the same location or in two widely scattered areas. Each supply platoon's mission is~~ to~~

- Receive, store, issue, and distribute bulk petroleum and perform quality surveillance.
- Operate bulk petroleum storage facilities using collapsible tanks.
- Lay, operate, and retrieve 7.5 miles of collapsible hose line per day.
- Provide storage for up to 1,380,000 gallons of bulk petroleum fuels. (Each supply section can store up to 460,000 gallons of bulk petroleum fuels with 100 percent equipment availability.)
- Provide limited mobile filling station service.

ORGANIZATION FOR OPERATIONS

After a general operating area for the company is designated by battalion headquarters, the company commander may ask the platoon leader to assist in reconnaissance of the area to determine the best location for the supply platoon. Once the site has been selected, the platoon leader must establish operating areas for all elements of the supply platoon. It is his responsibility to develop a layout plan and establish these operating areas.

PLATOON HEADQUARTERS

The mission of the supply platoon headquarters is to supervise and control platoon operations.

Personnel Duties

Platoon headquarters personnel direct the operation of the supply sections, select and prepare operating sites, and operate materials-handling equipment to load, off-load, and position petroleum operating equipment. Table 4-9 details the duties of supply platoon headquarters personnel.

Table 4-9. Duties of Supply Platoon Headquarters Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	TOTAL	DUTIES
Platoon Leader	92F		LT	1	Commands the platoon. Supervises and controls platoon operations. Reconnoiters sites, develops layout and loading plans, and prepares contingency plans for demolition. Directs the placement and camouflage of supplies and equipment. Determines how to use personnel and equipment to accomplish the platoon's mission. Consolidates, prepares, and reviews technical, personnel, and administrative reports. Contributes to and updates portions of the company SOP dealing with platoon operations. Advises the company commander on the selection of an operating site. Directs the survey team on layout requirements, prepares personnel and equipment for movement, and moves personnel and equipment to the operating site. Directs the setting up of an operating site.

Table 4-9. Duties of Supply Platoon Headquarters Personnel (Continued)

POSITION	SC/ MOS	SKILL LEVEL	GRADE	TOTAL	DUTIES
Platoon Sergeant	77F	4	E7	1	Assists the platoon leader. Responsible for the consolidation of all reports prepared in the operating sections. Forwards statistical data to the company's operations section. Responsible for the maintenance of files maintained by the platoon. Notifies section chiefs of vehicle arrival time. Coordinates use of heavy construction and materials-handling equipment in preparing sites and loading and off-loading equipment. Reviews equipment records and logs. Helps develop a pilferage control program.
Petroleum Supply Sergeant	77F	3	E6	1	Assists the platoon sergeant by supervising two shift operations. Maintains close coordination with the petroleum operations sergeant.
Construction Equipment Operators	62E	1	E4/3	2	Operate the equipment used to buildberms and unimproved road nets and to recover spills, leaks, or breaks in fire walls. Serve as heavy vehicle operators when required. Level ground for FSSP. Create storage areas for collapsible storage tanks. Build fire walls around tanks and firebreaks throughout bulk storage areas. Grade and maintain unimprovedroadnet used by semitrailers for refueling and discharging bulk fuel. Participate in spill contingency and control operations.
Petroleum Inventory Control Specialists	77F	2 1	E5 E4	1 1	Maintain platoon's stock status on a 24-hour basis. Maintain inventory control and location records of bulk petroleum products within platoon. Process requisitions, requests, and turn-in documents. Adjust stock as required. The Skill Level 1 soldier drives the 1-1/4 ton truck and operates the vehicle-mounted radio.
General Construction Equipment Operator	62J	1	E4	1	Operates air compressor to evacuate assault hose line. Operates SEE and attachments, performing digging,backfilling, and loading operations.
Petroleum Laboratory Sergeant	77L	2	E5	1	Performs required quality surveillance testing of petroleum products to ensure products are suitable for intended use. Coordinates with POL laboratories for extended tests beyond the capabilities of unit's assigned testing equipment.

Direction of Overall Operations

A major function of the supply platoon headquarters is to provide supervision and direction of the overall operation of the platoon. The platoon leader and platoon sergeant assume the following responsibilities.

- Defense. Prepare personnel to respond to ground and air attacks. Procedures for responding to threat activity are covered in Chapter 6. Supervise the establishment of the unit defense while subordinate elements are preparing to occupy their designated areas.

- Camouflage. Supervise camouflage activities once unit elements have established the defense and their operating sites. Refer to FM 20-3 for details on camouflage activities.

- Capabilities. Make sure the necessary supplies are available to get the job done. Brief the company commander on the overall capability of the platoon. Emphasize personnel strength and equipment availability.

- Sanitation. Ensure that proper sanitation procedures are followed and that field sanitation standards comply with Army regulations and policies. For more information on field sanitation operations, refer to FM 21-10 and AR 40-5.

- Maintenance. Supervise operator maintenance once operators are assigned equipment and technical manuals, tools, and expendable supplies are available. Ensure that personnel perform all operator maintenance according to the appropriate technical manual. Make sure that all required entries are recorded on an equipment inspection and maintenance work sheet and that all deficiencies are noted. The need for maintenance above operator level is reported to the company motor sergeant. Operator maintenance is covered in Section VI.

Coordination of Supply Operations

Once the supply platoon is operational, the platoon headquarters must coordinate and monitor operations performed by platoon personnel. The platoon leader and platoon sergeant

- Assign tasks to the sections as required.

- Coordinate activities with supported units to ensure that the mission is accomplished and correct procedures are used.

- Ensure that plans and operations are carried out according to correct operating procedures.

Requests and Status Reports

The petroleum inventory control specialist uses AR 725-50 and DOD 4140.25M to prepare and process DD Forms 250, 250-1, 1149, and 1348-1. Every 24 hours the status report data from the supply sections will be consolidated, and a report will be sent to the supply control section. The format for the status report should be detailed in both the company and battalion SOPs.

Equipment

The ability of the supply platoon headquarters to perform its assigned functions depends on the availability of authorized equipment. Table 4-10 lists the TOE equipment for each supply platoon headquarters.

Table 4-10. TOE Equipment List for a Supply Platoon Headquarters

ITEM	QUANTITY
Antenna group: OE-254()/GRC	1
Cable telephone: WD-1/TT DR-8 1/2 KM	3
Camouflage screen support system: woodland/desert	13
Camouflage screen system: woodland/desert	13
Distribution system electrical: 120v 1ph 60 amp	1
Generator set: 5kw 60hz	1
Filter/separator liquid fuel: 50 GPM	1
Installation kit: MK-2325/VRC for AN/VCR-87/88/90 in HMMWV	1
Light set general illumination: 25 outlet	1
Night vision goggle: AN/PVS-7B	5
Power supply: PP-6224/U	1
Pumping assembly flammable liquid: 50 GPM	1
Radiac set: AN/VDR-2	1
Reeling machine cable hand: RL-39	2
Radio set: AN/VRC-90A	1
Semitrailer low bed: 40 ton 6 wheel w/e	1
Tractor wheeled: DSL 4x4 w/excavator and front loader	1
Truck tractor: MET 8x6 75000 GVW w/w c/s	1
Truck utility: cargo/troop carrier 1-1/4 ton 4x4 w/e (HMMWV)	1
Switchboard telephone manual: SB-993/GT	1
Telephone set: TA-1/PT	1
Telephone set: TA-312/PT	1
Testing kit petroleum	1
Tool kit carpenters: Engineer squad w/chest	1
Tractor full trckd low speed: 1	1
Alarm chemical agent automatic: XM22	1
Data transfer device: AN/CYZ-10	1
Truck cargo: MTV w/e	1
Pocketradiac	1

SUPPLY SECTION

The mission of each of the six supply sections is to provide and operate the wholesale bulk petroleum storage facilities. Each supply section has a storage capacity of 460,000 gallons of bulk petroleum fuels (at 100 percent equipment availability). Each supply section can lay, operate, and retrieve approximately 2.5 miles (4 kilometers) of collapsible hose line and provide limited mobile filling station service.

Personnel Duties

Duties of personnel for each of the six supply sections are given in Table 4-11.

Table 4-11. Duties of Supply Section Personnel

POSITION	SC/ GRADE	SKILL LEVEL	GRADE	TOTAL	DUTIES
Section Chief	77F	3	E6	1	Supervises and controls supply section operations and personnel. Supervises and assists in the installation, operation, and maintenance of petroleum storage facilities.
Petroleum Inventory Control Specialist	77F	2	E5	1	Maintains section's stock status on a 24-hour basis. Maintains inventory control and location records of the bulk petroleum products within the section. Processes requisitions, requests, and turn-in documents. Adjusts stock as required.
Petroleum Heavy Vehicle Operators	77F	2H7 1H7	E5 E4	1 2	Drives the 5-ton tractors that tow the 5,000-gallon semitrailers that provide internal fuel transfer between supply points, limited local delivery distribution, and hose line evacuation. Assists other petroleum-handling specialist when not operating or maintaining vehicles. Skill Level 1 personnel may be required as radio operators.
Petroleum Supply Specialists	77F	1	E4 E3	5 11	Operate the bulk petroleum storage facilities for wholesale distribution. Operate the pumps and filter/separators that simultaneously deliver fuel to 5,000-gallon tank semitrailers, receive fuel into bulk storage and discharge fuel into hose lines. Lay, operate, and retrieve hose line. Each section can lay approximately 2.5 miles of hose line per day and retrieve approximately 5/8 mile of hose line simultaneously over rolling terrain. Lay, assemble, and operate FARE when used for mobile filling station operation. When required, operate forklift and MHE. Also serve as radio operators and light vehicle drivers.

Storage

Storage facilities large enough to meet daily peak demands will increase efficiency by eliminating long waits by customers in the supply section. Each supply section has one augmented fuel system supply point, consisting of two 10,000-gallon collapsible fabric tanks, four 20,000-gallon collapsible fabric tanks, six 350-GPM pumps, and four filter/separators. Additionally, each section has six 50,000-gallon collapsible tanks supported by one 350-GPM pump for each two collapsible tanks. Each supply section has one forward area refueling equipment (FARE) with three 500-gallon collapsible drums to support limited mobile service station operations.

Equipment

A supply section's ability to perform its assigned function depends on the availability of equipment. Table 4-12, page 4-38, lists equipment prescribed by TOE for each supply section.

Table 4-12. TOE Equipment List for a Supply Section

ITEM	QUANTITY
Alarm, chemical agent automatic: portable backpack	1
Cable telephone: WD-1/TT DR-8 1/2 km	2
Camouflage screen support system: woodland/desert, plastic poles	66
Camouflage screen system: woodland light weight, radar scattering, without support system	66
Compressor unit, rotary: air trailer-mounted, diesel-driven 250 CFM, 100 PSI	1
Pressure assembly control w/multiple components	1
Floodlight set, trailer-mounted: 3 floodlights 1000 watt	1
Generator set:Ded skid-mounted 3kw, 60 Hz	1
Filter separator, liquid fuel: 350 GPM, 150 psi, 4 inch inlet, 4 inch outlet	8
Drum, fabric collapsible: liquid fuel, 500-gal capacity	3
Forward area refueling equipment (FARE)	1
Fuel system supply point: portable, 60,000 gal, less filter pump and tank	2
Hose line outfit, fuel handling: 4 inch diameter	1
Night vision goggle: AN/PVS-7B	8
Pumping assembly, flammable liquid, engine driven wheeled: 4 inch inlet/outlet 350 GPM	8
Pumping assembly, flammable liquid, engine driven wheeled: 4 inch inlet/outlet 350 GPM w/ trailer	1
Radiac meter: IM-93/UD	
Radiac set: AN/VDR-2	
Radio set: AN/VRC-119A	3
Repair kit, collapsible fabric tank: Type II, repairs up to 6 inch tears	3
Sampling and gauging kit: petroleum military spec document type	2
Semitrailer, flatbed: break-bulk/container transporter, 22-1/2 ton	1
Semitrailer, tank: 5000 gal fuel dispensing automotive with equipment	2
Tank assembly, fabric collapsible: 10,000 gal petroleum	8
Tank assembly, fabric collapsible: 20,000 gal petroleum	4
Tank assembly, fabric collapsible: 50,000 gal petroleum	6
Tank assembly, fabric collapsible: 160 gal water	2
Telephone set: TA-1/PT	2
Testing kit petroleum: aviation fuel contamination	1
Tie-down assembly: chain type for holding collapsible fabric drums	1
Tractor, wheeled, ind: DED 4X4 w/forklift and crane attached (HMMH)	1
Trailer cargo: LMTV w/ w/sides	1
Trailer cargo: high mobility 3/4 ton	1
Truck cargo: MTV w/equipment	2
Truck lift fork: DSL driven 10,000 lb cap 48 in lg ctr rough terrain	1
Truck, utility: cargo/troop carrier, 1 1/4-ton 4X4 with equipment (HMMWV)	1
Truck, tractor: 5-ton, 6X6 w/equipment	3
Yoke, towing and lifting collapsible fabric drum: 500 gal capacity	1

Fuel System Supply Point (FSSP)

The FSSP is used to receive bulk fuel from hose line/pipelines, tank cars, tank vehicles, and aircraft to dispense fuel to using units in the field. The FSSP is the principal means of issuing fuel in the combat zone. Fuel enters the fuel system through the 4-inch hose system and is moved to the collapsible tanks by one of the 350-GPM pumps. In some cases, fuel will be moved to the tanks by transporter or through pipeline pumps. When fuel is dispensed, it is pumped from the collapsible tanks through the filter/separators to the vehicles or containers. For more detailed information on the FSSP, see FM 10-67-1.

Equipment. The system consists of two 350-GPM pumps, two filter/separators, six 10,000-gallon collapsible fabric tanks, 11 types of fittings, approximately 1200 feet of discharge hose, and 1200 feet of suction hose, various tools and accessory items for connecting to pipelines, and pumping assemblies for connecting fuel transporters to the fuel system. Because the system is modular, it can be adapted to different terrains and situations. Though designed to handle one type of fuel, the system may be divided to handle two types. The system may be designed so that one tank can receive fuel while a second tank is delivering fuel to dispensing facilities. Design and manifolding options are further enhanced by the dual filler/discharge assemblies located at each cornered from each other on the tanks. Due to the nature of petroleum, the system is susceptible to enemy action and contamination. Depending on the experience of personnel, it should take eight soldiers approximately four hours to off-load, lay out, and connect the manifolds in the FSSP. (Additional time is necessary for required earthwork.) Eight soldiers are needed each shift to operate the FSSP (Figure 4-7, page 4-40).

Layout. FM 10-67-1 discusses the layout of an FSSP in detail. The FSSP can be changed to a U, V, rectangular, or semicircular arrangement. These are not the only possible arrangements. The unit SOP and mission training plans should provide plans on how the FSSP will be employed. Any unit that can operate the FSSP can develop its own arrangement to meet its needs. However, equipment should be dispersed enough to counter the threat of fire but not to where it is difficult to defend the supply point from the threat of theft and sabotage. When selecting a fuel system supply point site, the section considers cover and concealment, roadnets, dispersion factors, terrain, and site preparation. When a site is chosen, it is prepared by front loader/backhoe, by an engineer unit using scooploaders or armored combat earthmovers (ACE), by civilian labor, or by details from the unit supply section. The site should be sloped from 3 to 6 inches toward both the issuing fill port and manifold end of each collapsible tank. The 10,000-gallon collapsible tanks are required to be at least 40 feet apart. Fire walls around the tanks should be 3 feet high and 18 inches wide at the top. The inside dimensions should be 26 feet by 26 feet. A distance of 3 feet should be maintained from the edge of the tank to the base of the fire wall. The fire wall must be large enough to hold the contents of the tank and one foot of freeboard to contain spills and reduce fire hazards. The chance of sighting by enemy aircraft can be lessened by avoiding rigid geometric patterns. When possible, the layout should be planned to take advantage of shadows caused by natural terrain features. String camouflage nets should cover earth scars caused by fire walls around the tanks. Suggested layouts are in FM 10-67-1.

Displacement Plan. Leapfrogging is commonly used to move fuel system supply points. While half of the fuel remains at the old site to maintain limited service, the other half is moved to the new site. This provides continuity of operations, and fewer vehicles are needed to transport the equipment. Eight soldiers should be able to drain, dismantle, and load the FSSP in approximately four hours. (See Figure 4-8, page 4-41.) Time may vary according to the experience of personnel and the type of terrain. The site should have been initially prepared with a 3 to 6 inch slope toward the issuing fill port and manifold of each collapsible tank. This makes it easier to completely drain the tanks. A forklift truck is needed to load the 350-GPM pumps, filter/separators, and collapsible fabric tanks onto the flatbed semitrailer or 5-ton cargo trucks. The supply control section should have already coordinated for sufficient 5000-gallon semitrailer tankers to receive fuel drained from the FSSP.

FSSP Storage Augmentation. The FSSP can be augmented to increase the storage capability of the petroleum supply company through the use of 20,000- and 50,000-gallon collapsible fabric tanks. With the exception of fire wall dimensions and tank spacing for the 20,000- and 50,000-gallon collapsible tanks, layout and displacement is the same as for the 60,000-gallon FSSP. The 20,000-gallon collapsible fabric tanks must be 40 feet apart; fire walls must be 4 feet high and 18 inches wide at the top. The inside dimensions of the fire wall should be 35 feet long and 31 feet wide. A distance of 3 feet should be maintained from the edge of the tank to the base of the berm. The 50,000-gallon tanks must be at least 150 feet apart, and the fire walls must be 4 feet high and 18 inches wide at the top. The inside dimensions of the fire wall should be 73 feet long and 33 feet wide. Maintain a distance of 4 feet from the edge of the tank to the base of the berm.

50,000-Gallon Collapsible Fabric Tank

The 50,000-gallon collapsible tank is issued as a single item of equipment, not as part of a system. It has a hose and valve assembly to help transfer the product. The assembly consists of a 4-inch, wire-reinforced hose assembly and a 4-inch gate valve. The female end of the 4-inch hose assembly is connected to the 4-inch elbow fitting of the

filler/discharge assembly on the tank. The male end of the hose assembly is coupled to the 4-inch gate valve. The 50,000-gallon collapsible tank is used to store liquid fuels in large quantities for fuel system

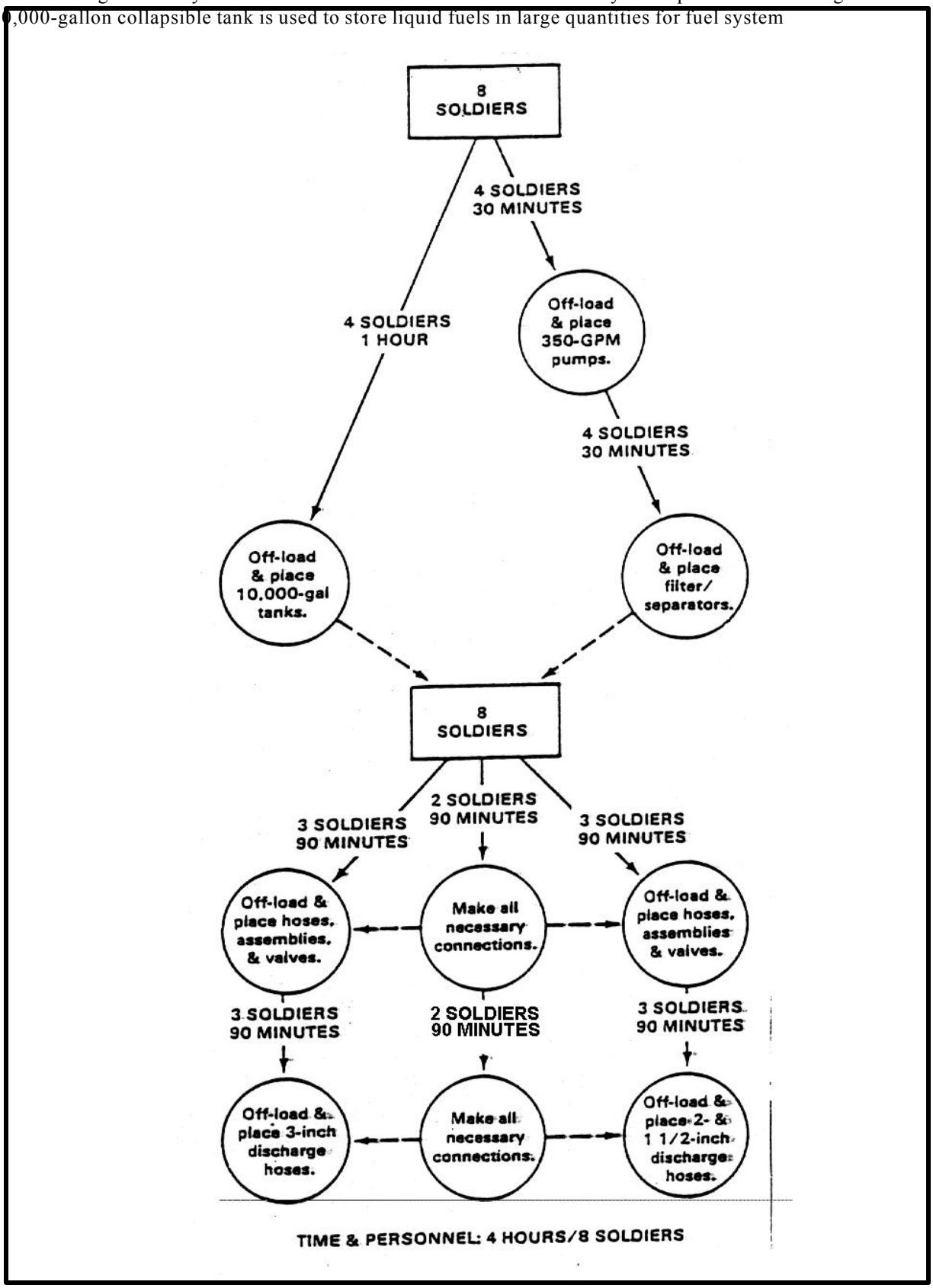

Figure 4-7. Time and personnel requirements to off-load and manifold a FSSP

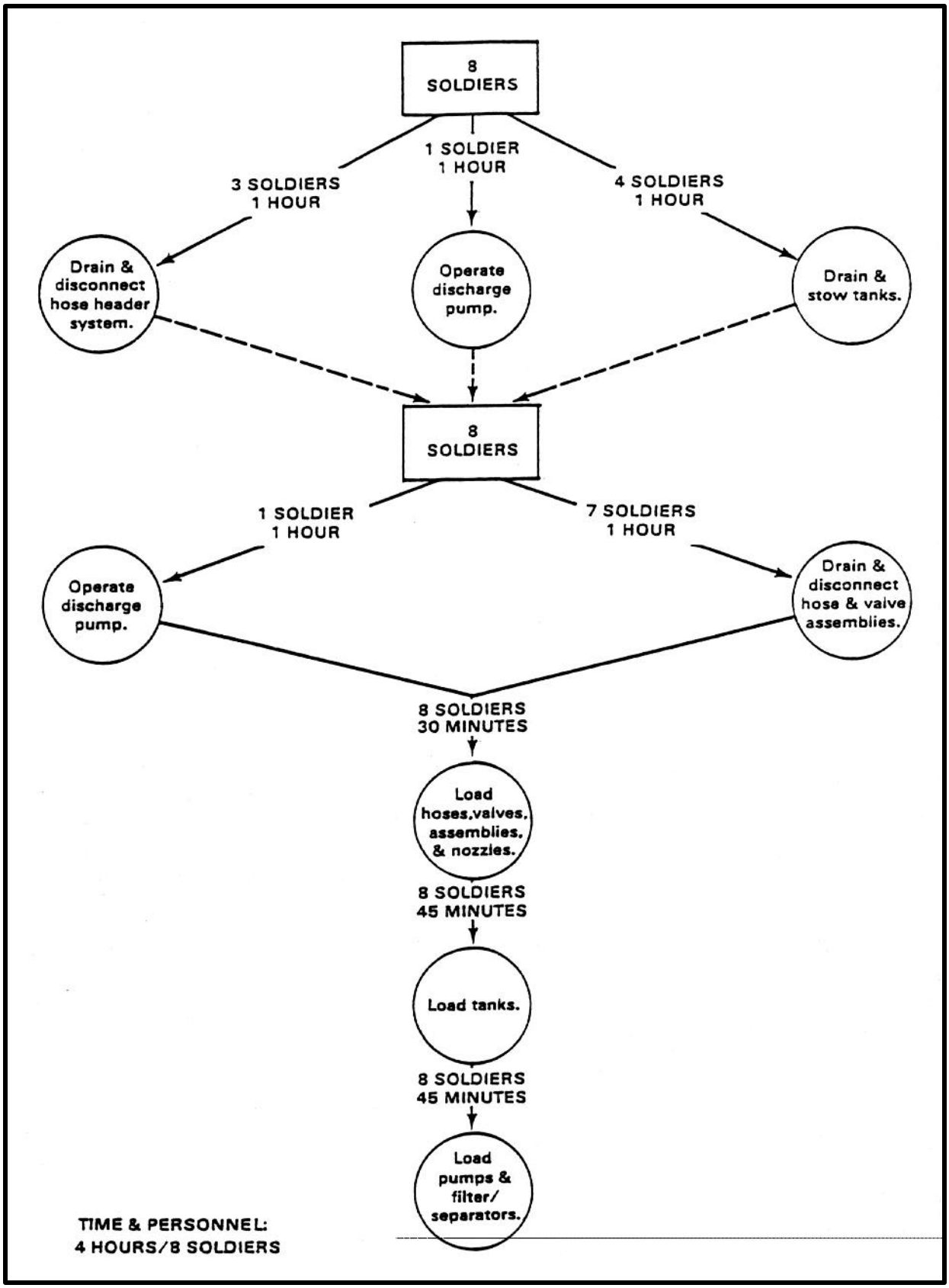

Figure 4-8. Displacement plan for the FSSP

supply point operations and to store a portion of the command reserve stock. The 50,000-gallon tanks give the unit the storage capability to support several divisions. Six 50,000-gallon tanks are allocated to each supply section. These tanks provide maximum flexibility to handle various fuels. Normally there is a minimum of two tanks per product to allow for both receipt and issue of a product at the same time. However, the dual filler/discharge assemblies on the tank allow for both receipt and issue by configuring separate issue and receiving pumps and filter/separators. The type and quantity of fuel stored depends on the types of units supported.

Hose Lines

Hose lines are a quick means of moving large volumes of fuel from pipehead or railhead to inland storage facilities or to high-gallon users such as airfields. The installed hose line system must have proper surveillance to protect against sabotage.

Hose Line Outfit . The initial petroleum distribution system in an undeveloped theater relies primarily on the 4-inch collapsible assault hose line outfit to move bulk fuel. The outfit consists of

- 13,000 feet (about 2.5 miles) of 4-inch collapsible hose packed in flaking boxes.
- 350-GPM pumping assembly.
- Flow-control kit.
- Regulator assembly kit.
- Roadway crossing guard.
- Hose line suspension kit.
- Hose line displacement and evacuation kit.
- Sling assembly.
- Hose line packing kit.
- Repair kit.

The 350-GPM pumping assembly is a separate item of equipment. Each section is equipped with one hose line outfit. The laying and operation of the hose line can be performed by a minimum of three persons (one driver, one flaking box monitor, and one person walking behind the truck straightening bends and kinks).

Packaging . The hose is packed in 13 flaking boxes, 1000 feet per box. Each 1000-foot section consists of two 500-foot lengths joined together with an aluminum grooved coupling. A swivel joint with grooved ends is attached to one end of the assembly. This lets the hose assembly rotate continuously at the swivel connection. Three to five full flaking boxes are usually carried on a truck, but this depends on the type of truck and the terrain the truck must cross to lay the hose line. The special sling assembly is used for lifting as many as three flaking boxes at a time onto the transporting vehicle.

Route Selection . A direct route free of obstacles should be chosen for the hose line. The route should be parallel to an existing or planned road to aid in construction, patrol, operations, and security of the line. A route next to a secondary all-weather road is better than one next to a main supply route. All natural concealment, such as hedgerows, fence lines, and woods, should be used. Difficult terrain, such as populated areas, marshes, swamps, and land subject to flooding, should be avoided.

Section VII. MAINTENANCE SECTION

MISSION

The maintenance section provides the personnel and equipment to perform unit maintenance required for generators, MHE, construction and engineer equipment, wheeled vehicles, and quartermaster special-purpose equipment for the petroleum supply company. The maintenance section also provides limited vehicle recovery support.

PERSONNEL

Table 4-13 lists maintenance section personnel and their duties.

Table 4-13. Duties of Maintenance Section Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	TOTAL	DUTIES
Unit Maintenance Technician	915A		W2	1	Plans, supervises, and directs the unit maintenance of all organic equipment of the petroleum supply company. Keeps the commander and staff members advised of the maintenance material readiness situation.
Motor Sergeant	63B	5	E8	1	Assists the unit maintenance technician in the supervision of all maintenance functions. Directly responsible for the supervision of motor maintenance and supporting personnel. Applies production and quality control principles and procedures to maintenance operations. Prepares informal daily work assignment sheet, listing priorities, tasks, mechanics, area cleanup responsibilities, and special requirements for such items as tools, parts, and lubricants. Monitors use of hand and power tools. Responsible for security of tools. Conducts informal spot-check inspections. Enforces safety procedures. Supervises recovery operations. Performs administrative duties.
Senior Mechanic	63B	3	E6	1	Performs light wheeled vehicle mechanic duties, performs heavy wheeled vehicle mechanic duties, supervises lower-ranking soldiers, and provides technical guidance to the soldiers of the maintenance section. Supervises unit maintenance on wheeled vehicles, materials-handling equipment, power generation equipment and upkeep of hand and power tools. Performs battlefield damage assessment and repair (BDAR). Supervises recovery operations.
Construction Equipment Repairer	62B	2 1	E5 E4 E3	1 1 1	Performs unit maintenance on construction equipment (crane and bulldozer), air compressors, and pneumatic tools. Inspects traction suspension, booms, and blades. Inspects clutches and brakes for wear, alignment, and slippage. Replaces starters, generators/alternators, spark plugs, carburetors, fuel pumps, radiators, fans, hoses, and belts. If needed, serves as a welder. E5 supervises lower-grade soldiers and provides technical guidance to soldiers. E3 also serves as a light wheeled vehicle driver.

Table 4-13. Duties of Maintenance Section Personnel (Continued)

POSITION	SC/ MOS	SKILL LEVEL	GRADE	TOTAL	DUTIES
Light Wheeled Vehicle Mechanic	63B	2 1	E5 E4 E3	2 2 3	Performs unit maintenance on the company's organic vehicles and equipment. Maintains power-assisted brake systems, wheeled vehicle suspension systems, wheel/hub assemblies, mechanical and hydraulic steering systems, and wheeled vehicle crane/hoist/winch assemblies. Records maintenance on DA Form 2402. Maintain tools and test equipment. The E5 also supervises lower-grade soldiers and provides technical guidance to them. The E3 light wheeled vehicle mechanics also drive the 5-ton cargo truck when required.
QM &Chem Equipment Repairer	63J	2 1	E5 E4 E3	2 2 3	Performs unit maintenance on quartermaster equipment, including fuel system supply point elements (350-GPM pumps, filter/separators), tank and pump unit, field ranges, immersion heaters, space heaters, and tents. Disassembles, inspects, and replaces equipment components. Lubricates equipment. Records maintenance on DA Form 2402. Maintains tools and test equipment. The E5 also supervises lower-grade soldiers and provides technical guidance to them.
Heavy Wheeled Vehicle Mechanic	63S	2 1	E5 E3	1 4	Performs unit maintenance on company materials-handling equipment. Assists light wheeled vehicle mechanics when required. The E5 also supervises lower-grade soldiers and provides technical guidance to them.
Welder	44B	1	E4	1	Operates and performs preventive maintenance on the welder's tool kit and cutting and welding torch outfit.
Power Generator Equipment Repairer	52D	1	E4	1	Performs unit maintenance on company generators.
Recovery Vehicle Operator	63S	1H8	E4	1	Operates the 5-ton wrecker used to recover disabled organic vehicles and equipment. Also operates radio when required.
Equipment Records & Parts Specialist	92A	1	E4 E3	1 1	Assists the unit maintenance technician in maintaining equipment maintenance records and schedules for organic vehicles and equipment as required by The Army Maintenance Management System (TAMMS). Maintains stock locator system and administers document control procedures. Performs prescribed load list (PLL) and shop stock list (SSL) duties in manual and automated supply applications. Requests, receives, and stores all repair parts and reference publications to support mechanics performing unit maintenance. Prepares maintenance reports and schedules vehicles for maintenance. Performs dispatching procedures using manual and automated systems. Also serves as radio operator and drives light vehicle when required.
Petroleum Light Vehicle Operator	77F	1H7	E3	1	Operates and drives fuel tank truck. Fuels and refuels vehicles and equipment.

EQUIPMENT

Table 4-14 lists equipment necessary for completion of the maintenance section mission as prescribed by TOE 10427L.

Table 4-14. TOE Equipment List for the Maintenance Section

ITEM	QUANTITY
Cable telephone: WD-1/TT DR-8 1/2 km	2
Camouflage screen support system: woodland/desert, plastic poles	25
Camouflage screen system: woodland lightweight, radar scattering, without support system	25
Charger battery: PP-34/MSM	1
Cleaner, steam pressure jet: with steam gen base mounted 100 psi	1
Generator set: ded skid mounted, 10 kw 60 Hz	1
Generator set: ded skid mounted, 3 kw 60 Hz	1
Compressor unit, reciprocating: truck, 2-wh, pneumatic tires, gasoline-driven, 5 CFM, 175 psi	1
Data transfer device: AN/CYZ 10	2
Distribution system electrical: 120 ph 1 60 amp	2
Dispensing pump, hand driven: hose-nozzle discharge adjust range	1
Installation kit: MK-2195/VRC for AN/VRC-87/88/90 in 2-1/2 and 5-ton	1
Installation kit: MK-2325/VRC for AN VRC -87/88/90 in HMMWV	1
Heater duct type, PTBL: 1200-00 BTUs	1
Hose assembly: nonmetallic, fuel/oil hydrocarbon	4
Jack dolly type, hydraulic: 10-ton capacity	2
Lubricat-serv unit, power operated: trailer mounted, 15 CFM air comp, gas driven	1
Multimeter, digital: AN/PSM-45	1
Night vision goggle: AN/PVS-7B	6
Reeling machine, cable hand: RL-39	1
Radio set: AN/VRC-90A	2
Truck wrecker: tactical 8x8 heavy expanded mobility with winch	1
Truck utility: Cargo/troop carrier 1-1/4 ton, 4X4 w/E (HMMWV)	2
Trailer flatbed: 5-ton, 4 wheel, general purpose	1
Test set electronic systems: AN/PSM-80(v)2	1
Truck tank: POL MTV with equipment	1
Tank unit, liquid dispensing trailer mounting	1
Telephone set: TA-312/PT	2
Tent: Frame type, maintenance, medium, light metal cotton duck OD	1
Utility receptacle	2
Shop equipment auto maint and repair: OM common No 1 less power	1
Shop equipment auto maint and repair: org supply No 1 less power	1
Tool kit, general mechanics: automotive	25
Tool kit welders	1
Tool set, vehicle, full tracked: org maint supply No 2 less power	1
Torch outfit, cutting and welding: org maint set No 5	1
Trailer cargo: 3/4 ton 2 wheel with equipment	1
Trailer cargo: MTV with drop sides	1
Truck, cargo: 4x4 LMTV with equipment	1
Truck cargo: 4x4 LMTV with equipment with winch	1
Trailer cargo: LMTV with drop sides	1
Wrench impact pneumatic: 3/4 inch diameter max rated thread size	1
Wrench set socket: square drive 3/4 inch across flats hex type sockets	1

OPERATIONS

Because the petroleum supply company distributes bulk petroleum throughout the theater of operations, its supply sections may be widely scattered. Since this company does not have enough vehicles to transport items to the maintenance area for repair, it must train maintenance teams to perform on-site maintenance. These teams may include QM equipment repairers, power generation equipment repairers, and wheeled vehicle mechanics. The 1 1/4-ton cargo truck and 3/4-ton cargo trailer have been allocated to transport personnel, equipment, and repair parts for on-site maintenance. With personnel performing maintenance at distant sites as well as in the maintenance area, efficient scheduling is crucial. The motor sergeant may need to reschedule maintenance services to enable mechanics to repair malfunctions reported by equipment operators on DA Form 2404. The motor sergeant must schedule maintenance to keep personnel working at or near capacity. To do so, he needs to know maintenance personnel duties, equipment capabilities, and typical repair times. The sergeant must schedule the sequence of repairs around the availability of parts. This means understanding the repair parts request system and request times.

Setup and Closedown

Site setup and closedown are important and complicated. Field situations seldom afford ideal conditions. However, the area selected for maintenance should be centrally located, be on or near a good road, provide concealment, be easy to secure, and be relatively hard and well-drained.

Setup. See FM 55-30 for information on setting up a tactical motor pool. Setting up the maintenance element in the field involves developing a layout plan (Figure 4-9), pitching tents, positioning equipment in the tents, and organizing for maintenance operations and repair parts issue.

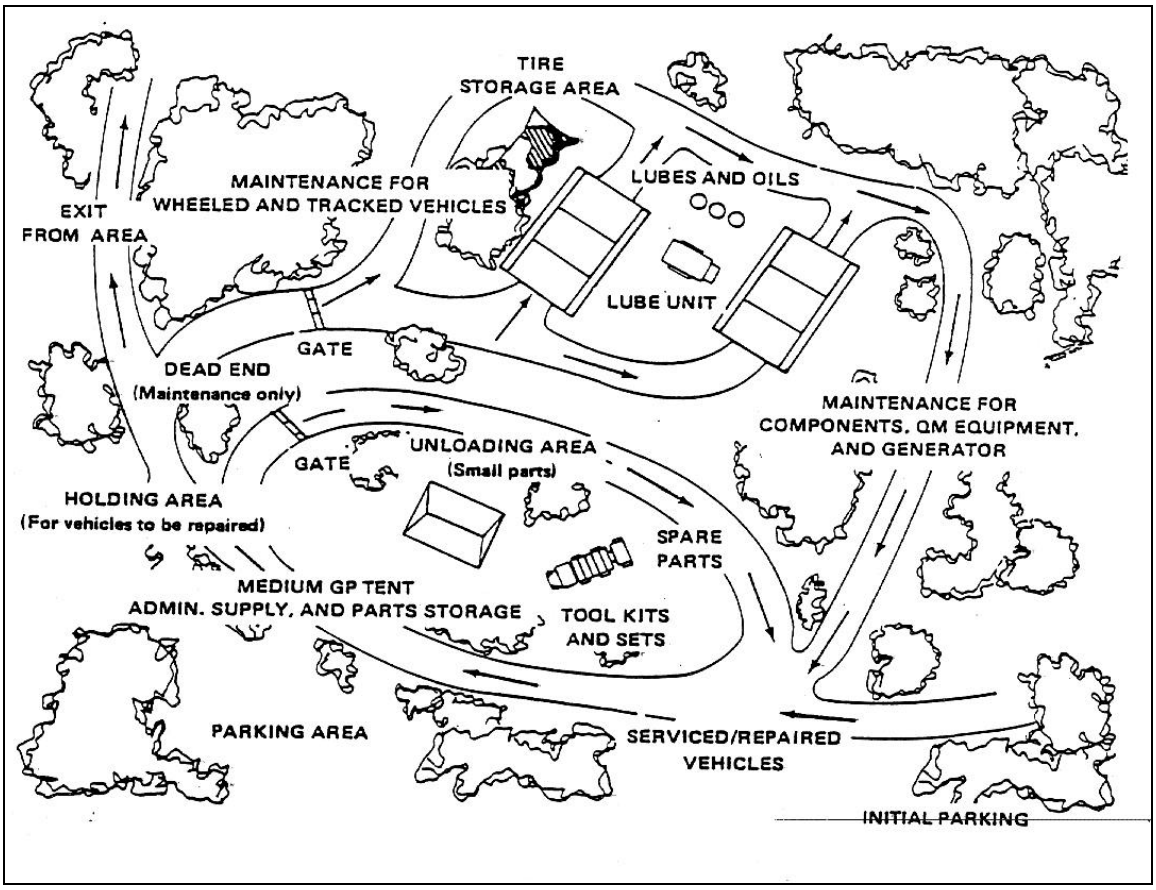

Figure 4-9. Sample maintenance section layout

Closedown . When the unit has to move, the commander issues a warning order telling when to close down and prepare to move. When planning for the move, the following should be evaluated:

- By what date must the unit be ready to move?
- What types of operations are expected?
- How many soldiers will move to the new area?
- Will some soldiers continue to operate at the old area?
- When will equipment be deployed?
- Is special maintenance required for equipment before or on arrival in the new area?
- Will advance elements require any special maintenance support?
- What are climate and terrain like in the new area?

Unit Maintenance

Soldiers should not perform maintenance beyond their capabilities. Deficiencies discovered before, during, and after operation that are beyond the operator's capability become the responsibility of unit mechanics. They perform maintenance services on equipment and repair items sent to them. When they cannot repair items, they send them to

DS maintenance. Mechanics should use technical manuals for the equipment when performing quarterly maintenance services and troubleshooting. They also use DA Form 2404, just as the operator does, to note any defects they find. If the mechanics cannot correct the defects and must send the equipment to DS maintenance, they note that on the form. Once the DS maintenance activity completes the work, DA Form 2407, showing the hours of labor, parts, and other materials used and the cost of repairs, is sent back to the unit.

Repair Parts

The maintenance section is authorized a PLL to support daily maintenance operations. Usually, this is for a specific number of days' supply, based on the average customer wait time. The unit commander approves the PLL. The motor sergeant supervises the PLL clerk and makes sure the list is set up and maintained according to DA Pam 710-2-1 (TMs in the 38-L32 series, if the unit is automated).

Mandatory Parts List . Consolidated MPLs list repair parts required for use on combat-essential equipment. The unit commander should check that there is an MPL for each on-hand end item identified in the Mission Profile Development List for the unit. Additional MPLs can be requested according to DA Pam 710-2-1. The commander should also check the mandatory stockage quantity and update the PLL records according to DA Pam 710-2-1.

Repair Parts Requests . The PLL clerk makes requests for parts. The average maximum lead time for requested items must be known to ensure requests are submitted in a timely manner. Daily requests will prevent an accumulation and help ensure continuous supply. Procedures should be specified for establishing PLL levels, for using priority designators, for requesting follow-ups, and for reporting delays.

Tool Maintenance and Accountability

The motor sergeant establishes an effective tool control system and inventories tools regularly. Lost, damaged, or destroyed tools must be accounted for and replaced according to AR 735-5. See TM 9-243 for details on tool use and care. DA Pam 710-2-1 has toolroom procedures. The section is authorized a set of common tools and equipment. The set is usually mounted on a secured vehicle. One side of the vehicle can be used for storing tools and test equipment, and the other side can be used to store key repair parts. This setup helps soldiers find the tools they need quickly and speeds on-site repair. A tool keeper is assigned to maintain a tool sign-out register. Equipment is returned at the close of each working day. Each mechanic is issued an automotive tool kit on a hand receipt. Each mechanic is responsible for ensuring that assigned tools are properly maintained and stored when not in use. A secure tool storage area should be set up.

The Army Maintenance Management System

TAMMS is the key to good maintenance management. TAMMS records give the commander the data needed to manage equipment resources. These records enable him to evaluate modification work orders, repair parts requirements, material readiness, and support requirements. They help him evaluate equipment operation, including availability, deficiencies, and failure frequency. DA Pam 738-750 contains specific instructions on the preparation and use of maintenance system forms. The three types of records are operational, maintenance, and historical. Operational records are used to control operators and equipment, to plan for maintenance operations, and to make best use of equipment. Maintenance records control maintenance scheduling, inspection procedures, and repair work loads. They also provide a uniform method for recording corrective actions. They are used to determine equipment readiness and reliability and to determine use and logistical requirements. Historical records document permanently the receipt, operation, maintenance, and disposal of equipment.

Unit-Level Logistics System—Ground

ULLS-G provides supervisory control and flexibility to maintenance operations. ULLS expedites repair parts supply and maintenance functions at the lowest level. ULLS also communicates with other systems by magnetic media (diskette) transfer or telecommunications. Also incorporated into ULLS is the Army Material Status System (AMSS), which replaces the manual reporting requirements in AR 700-138. ULLS performs many jobs for the unit with little

input from the operator. When the clerk orders repair parts, ULLS edits the request, updates the document control register, and provides information to update the deadline. ULLS edits transactions using an internal catalog and information provided in the equipment data file. When the clerk issues a part from the PLL, ULLS makes, computes, and generates a replenishment requisition. ULLS is divided into three major areas: Class IX supply, maintenance, and utilities or files maintenance. ULLS supply data is sent to the supply support activity at the DSU level. Data is then forwarded to the DS4 level. ULLS speeds up supply and maintenance operations at the unit level while eliminating errors that could occur under a manual operation. It allows supervisory control of the system with passwords, user identification codes, and the commander's exception report. When ULLS is not available or operative, the unit may use manual procedures in an emergency. For procedures and frequency of ULLS application, see Table 4-15.

Dispatch

Dispatch procedures apply to vehicles, generators, forklifts, and engineer equipment. They also apply to other items the commander may designate.

- Before Mission. The operator contacts the dispatcher with a vehicle requirement. A vehicle is designated. The operator performs a before-operation check using the appropriate technical manual and DA Form 2404. If he finds any deficiencies, they are either corrected or another vehicle is designated. The operator documents the discrepancies on DA Form 2404. The dispatcher uses DA Form 2401 and DA Form 1970 to dispatch the vehicle to the operator.

- During Mission. The operator performs during-operation checks. The operator knows that any maintenance problems found during these checks should be reported at once, if possible, and recorded on performance records for the equipment.

- After Mission. The operator tops off the fuel, performs after-operation checks, and makes appropriate entries on DA Form 2404. The operator then returns the DA Form 2404 and DD Form 1970 to the dispatcher. The dispatcher reviews the entries and posts the mileage or hours. He then enters the time of return to close out the DA Form 2401 entry for that item.

Table 4-15. Operator/Supervisor Working Matrix

PROCEDURE	DAILY	WEEKLY	MONTHLY
Dispatch vehicles	X		
Process received/installed parts	X		
Requisition parts:	X		
1. Review AMSS reports	X		
2. Verify information (NSN, part number, etc.)	X		
3. Check PLL	X		
4. Enter part data	X		
5. Run commander's exception report	X		
6. Process requisitions through OSC	X		
7. Review OSC transactions	X		
8. Turn inmaint/supply diskette	X		
9. Processmaint/supply status	X		
Review NMC report and maintenance request register	X		
Review next day dispatch requests	X		
Back up data files	X		

Provide commander w/NMC report and maintenance request register		X	
Run zero balance report (verify requisition status)		X	
Review document control register (update)		X	
Provide commander AMSS reports		X	
Review excess management report and process excess for turn in		X	
Update Class IX catalog		X	
Review PLL inventory report and inventory			X
Review demand analysis report and make required changes			X
Provide commander service scheduled listing			X

Recovery and Evacuation

It may become necessary to recover equipment that becomes disabled in a location away from the motor pool. If soldiers are unable to repair disabled equipment, it should be evacuated and serviced elsewhere.

- Recovery. Technical manuals should be consulted for the weight of the item and for other necessary data to prepare for recovery. The area should be reconnoitered to determine the best method of anchoring the wrecker. FM 9-43-2 discusses various types of ground anchors, equipment needed, safety precautions, and records for computing equipment capacities. FM 21-305 provides each vehicle driver with vehicle recovery and field expedient information. Each driver should have a copy of FM 21-305. The maintenance SOP standardizes signals between wrecker and winch operators. If an item is so contaminated that it cannot be recovered, the section contacts the higher headquarters for advice and assistance.

- Evacuation. If a unit cannot recover an equipment item, it notifies the supporting maintenance activity and requests evacuation. It tells the maintenance activity the type of equipment and its location. If the situation allows, a crew member should remain with the equipment until it is picked up by the supporting activity.

Chapter 5

TRANSPORTATION MEDIUM TRUCK COMPANY (PETROLEUM)

Section I. THE COMPANY

MISSION

The transportation medium truck company (petroleum) (TOE 55728L2) provides transportation for the movement of bulk petroleum products.

ASSIGNMENT

The company (TOE 55728L2) is normally attached to the petroleum supply battalion (TOE 10426L). However, when the petroleum supply battalion is assigned to echelons above corps (EAC), the transportation medium truck company (petroleum) (TOE 55727L2) may be attached. The transportation medium truck company (petroleum) may also be staffed with host nation personnel.

CAPABILITIES

The company (TOE 55728L2) ~~ca~~n

- Transport 900,000 gallons in local hauls and 450,000 gallons in line-hauls per day. This is based on TOE Level 1 with 75 percent vehicle availability, operating on a two-shift basis, making four round-trips per day in local hauls and two round-trips in line-hauls. Under TOE Levels 2 and 3 the capabilities are reduced in 10 percent increments to 90 percent and 80 percent, respectively.

- Assist in coordinated defense of unit's area or installation.

- Perform unit maintenance on all organic equipment except COMSEC, communications-electronics, and power generation equipment.

- Transport 50 percent of its TOE equipment and supplies in a single lift.

- Substitute military personnel with DA civilians, contractor personnel, and local and third country nationals as determined by the ASCC or theater commander.

The transportation medium truck company (TOE 55727L2) has the same capabilities as the TOE 55728L2 company, except tha~~t~~—

- Because of its authorization of 7,500-gallon petroleum tank~~s~~emitrailers, its local haul capability increases to 1,350,000 gallons and its line-haul capability increases to 675,000 gallons per day.

- Only 33 percent of its TOE equipment and supplies can be transported in a single lift, using organic vehicles.

ORGANIZATION

Figure 5-1, page 5-2, shows the company's organization. Sections II through IV discuss each element of the company. For more detailed information refer to ARTEP 55-717-30-MTP, FM 55-15, and FM 55-30.

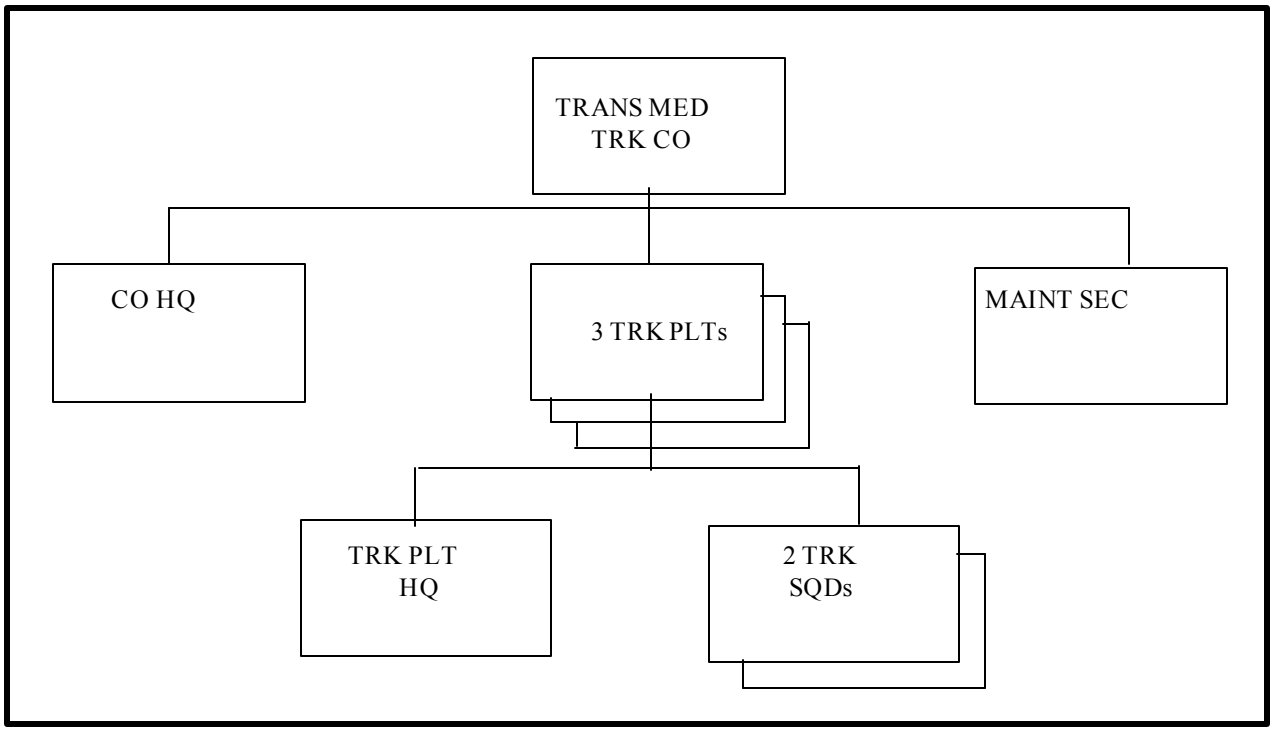

Figure 5-1. Organization of the Petroleum Medium Truck Company

Section II. COMPANY HEADQUARTERS

MISSION AND OPERATIONS

Company headquarters personnel support the company elements and are responsible for the effectiveness of company operations. The headquarters provides command and control, administrative and logistical support, and tactical direction to the company elements. Headquarters personnel perform a variety of functions. These functions are essentially the same as those discussed in Chapter 4, Section II. For detailed information on the medium truck company mission and operations, refer to FM 55-30.

PERSONNEL, DUTIES, AND RESPONSIBILITIES

Personnel assigned to the company headquarters with their duties and responsibilities are described in Table 5-1.

Table 5-1. Duties of Company Headquarters Key Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Commander	88D		CPT	Commands, directs, and supervises technical and support activities of mission operations. Is responsible for unit readiness, site establishment, communications, defense, unit administration, food service, supply, maintenance, and training.
First Sergeant	88Z	5M	E8	Serves as commander's primary noncommissioned assistant. Is concerned with overall supervision of food service, administration, supply, communications, and area defense operations. Is in charge of the company during absence of all company officers. Manages

				the command post. Represents the company's enlisted personnel. Provides career development and counseling of enlisted soldiers.

Table 5-1. Duties of Company Headquarters Key Personnel (Continued)

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Truckmaster	88M	40	E7	Assists the commander in coordinating, supervising, and controlling company mission operations. Organizes and supervises driver training. Reconnoiters routes. Coordinates maintenance matters with maintenance sergeant and platoon sergeants. Assists the company commander in preparing operational reports. Maintains personnel status and vehicle availability. Records safe driving mileage accumulated by unit drivers and advises commander of personnel authorized safe driving awards. Maintains a file of unit accident reports. Organizes and establishes unit motor park.
Senior Food Operations Sergeant	92G	40	E7	Supervises cooks assigned to the company. Selects field kitchen site. Prepares production schedules. Adjusts menus. Prepares food ration requests. Conducts daily meetings. Inspects food kitchen personnel. Supervises food preparation. Assigns duties. Inspects field kitchen. Prepares SOP for kitchen personnel, including instruction sheet for headcounters. Instructs headcounters. Inspects serving lines. Reports equipment shortages. Maintains informal equipment repair logbook.
NBC NCO	54B	30	E6	Serves as primary advisor to the company commander for all NBC matters. Assists the commander in planning and conducting NBC operations and advises the commander on the organization and training of the unit NBC teams. Schedules and supervises maintenance and employment of equipment. Computes radiation factors affecting personnel, equipment, and operations. Assists in preparation and analysis of NBC reports, records, maps, and sketches. Prepares radiological fallout and chemical and biological downwind predictions. Assists in analysis of chemical target vulnerability. Trains company personnel in protective measures to be taken during nuclear, biological, and chemical attacks or operations.
Assistant Truckmaster	88M	30	E6	Assists the truckmaster. Performs duties as truckmaster for second shift operations.
Senior First Cook	92G	30	E6	Supervises second shift operations of field kitchen. Ensures that cooks follow menus. Inspects food storage and food preparation. Directs personnel in construction of grease traps, soakage pits, garbage pits, hand-washing devices, and incineration pits. Instructs headcounters in duties. Prepares the more complex food items.
Supply Sergeant	92Y	30	E6	Prepares and maintains supply records. Provides locked facilities to safeguard supplies and property stored in unit supply room and other company storage areas. Processes unit laundry. Handles issue and turn-in of property between company and personnel. Assists personnel with supply matters. Requests, receives, and issues supplies. Prepares adjustment documents for property lost, damaged, or destroyed. Supervises armorer and supply specialist
Personnel Administra-tive Sergeant	75B	20	E5	Performs clerical and administrative duties. Prepares SIDPERS change reports. Maintains duty rosters. Completes standard forms. Maintains suspense files and personnel data cards. Types reports, orders, and operating procedures. Posts and files correspondence, regulations, and changes to unit authorization

				documents.
Dispatchers	88M 88M	20 20	E5 E5	Dispatch vehicles; verify vehicle logbooks. Receive and fill requests from authorized persons for motor transport. Compile time, mileage, and load data. Operate the company vehicle operations center under supervision of the truckmaster.
Cook	92G	20	E5	Provides technical guidance to lower grade personnel. Ensures that proper procedures, temperatures, and time periods are adhered to during food preparation. Performs limited supervisory and inspection functions.
Vehicle Driver	88M	10	E4	Drives 1 1/4-ton cargo truck provided for use by commander and company personnel. Performs vehicle operator maintenance. Operates radio.

Table 5-1. Duties of Company Headquarters Key Personnel(Continued)

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Cooks	92G 92G 92G	10 10 10	E4 E4 E3	Prepare, cook, and serve food according to recipes, cooking times, cooking temperatures, and field kitchen SOP. Clean work area, equipment, and cooking utensils. Receive, inspect, and store food items. Prepare assigned food items. Set up serving lines. Portion and serve food on serving lines or from food containers. Perform preventive maintenance on kitchen equipment.
Armorer	92Y	10	E4	Repairs and performs unit maintenance (excluding operator and crew) on unit small arms. Keeps records for weapons (AR 710-2 and DA Pam 710-2-1). Performs duties assigned by the supply sergeant.
Supply Specialist	92Y	10	E3	Assists the supply sergeant. Requests, receives, stores, and issues authorized supplies and equipment needed for the operation of the company.

EQUIPMENT

Table 5-2 lists equipment required for operation of the company headquarters as prescribed in TOE 55728L2. For a complete listing of authorized equipment, refer to TOE 55728L2.

Table 5-2. Company Headquarters TOE Prescribed Equipment List for TOE 55728L2

ITEM	QUANTITY
Accessory outfit gasoline field rangeaccom 50 men	1
Antenna group: OE-354/GRC	1
Axle cable reel: RL-27	1
Monitor chemical agent	2
Burner unit gasoline field range outfit: with components	7
Cable telephone: WD-1/TT DR-8 1/2 km	5
Cable telephone: WD-1/TT RL-159/U 2km	1
Electronic test set: TS-4348/UV	4
Installation kit: MK-2325/VRC for AN/VRC-87/88/90 in HMMWV	2
Installation kit: MK-1234/G F/AN/VRC-46 53 64 GRC125 160 in M151	1
Kitchen field trailer mounted: mounted on M103A3 trailer	1
Launcher grenade 40mm: single shot, rifle mounted, detachable, with equipment	4
Light set general illumination: 25 outlet	1
Machine gun caliber .50hb flexible (ground and vehicle) with equipment	1
Machine gun 5.56 mm: M249	22
Mask chemical biological: M40	185
Mount gun: ring caliber .50	1
Mount tripod machine gun: heavy caliber .50	4
Mount tripod machine gun: 7.62 mm	4
Machine gun grenade 40mm: MK19 mod III	3
Night vision sight individual served weapon: AN/PVS-4	7
Night vision goggle: AN/PVS-7B	3
Power supply: PP-6224/U	1
Pistol 9mm automatic: M9	1
Range outfit field gasoline	2
Radiac set: AN/VDR-2	1
Radiac set: AN/VDR-75	1

Reeling machine cable hand: RL-31	1
Reeling machine cable hand: RL-39	5
Radio set: AN/VRC-90A	2
Rifle 5.56mm: M16A2	166

Table 5-2. Company Headquarters TOE Prescribed Equipment List for TOE 55728L2 (Continued)

ITEM	QUANTITY
Sanitation center: food	1
Tone-signaling adapter: TA-977/PT	1
Telephone wire with reel: MX-10891/G	2
Telephone digitahonsecure voice: TA-1035/U	2
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Test kit mask protective: M41	2
Splicing kit telephone cable: MK-356/G	1
Switchboard telephone manual: SB-22/PT	1
Utility receptacle	1
Telephone set: TA-312/PT	4
Tool kit carpenters: engineer squad with chest	1
Tool kit small arms repairman: ordnance	1
Trailer tank: water, 400 gallon, 1-1/2 ton, 2 wheel, with equipment	1
Alarm chemical agent automatic: XM22	1
LOGMARS(T) communications modem group: CY-8538/G	1
Boresighting equipment weapon: small arms XM30	1
Computer digital: CP-2251	1
Data transfer device: AN/CYZ-10	2
Computer digital: CP-2245	2
Trailer cargo: LMTV wid dropsides	1
Lightweight weapon sight: squad/platoon surveillance device	4
Lightweight weapon sight: thermal crew served weapon sight	2
Truck cargo: 4x4, LMTV, with equipment	2
Mount gun: 40mm, MK64, mod 7	3
LOGMARS(T) microprocessor group: CY-8537/G	1
NAVSTAR GPS precision lightweight GPS receiver: PLGR	1
Pocketradiac	1
Tent: extendible modular temper 16Lx20W	1

Section III. TRUCK PLATOON

MISSION AND ORGANIZATION

There are three truck platoons in the transportation medium truck company (petroleum). Their mission is to perform line-haul and local haul to distribute bulk petroleum from the petroleum supply company to supported units. The truck platoon is organized as a platoon headquarters, exercising command and control over two truck squads.

PERSONNEL, DUTIES, AND RESPONSIBILITIES

Personnel assigned to the truck platoon are described in the following tables. Table 5-3, page 5-6, describes duties of platoon headquarters personnel; Table 5-4, page 5-6, describes duties of truck squad personnel.

Table 5-3. Duties of Truck Platoon Headquarters Key Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Platoon Leader	88D		LT	Responsible for hauling of bulk petroleum by motor transport. Instructs and supervises personnel in truck and convoy operations, driver maintenance, and loading methods. Prepares daily availability report of platoon personnel and vehicles. Patrols routes traveled by platoon vehicles. Conducts preliminary investigation and prepares reports on accidents involving platoon personnel. Functions as the commander of an independent detachment when detached from the company. Enforces discipline and internal control during convoy operations. Manages ecological environmental program IAW unit SOP and local, state, federal, and host nation laws and regulations.
Platoon Sergeant	88M	40	E7	Assists the platoon leader. Assumes platoon leader duties during absence of the platoon leader. Directs platoon drivers in truck and convoy operations, driver maintenance, and loading of vehicles, through the squad leaders. Performs as convoy commander during two-shift operations. Coordinates vehicle maintenance with motor sergeant. Coordinates platoon operations with truckmaster. When the platoon is operating separately from the company, assumes the duties normally performed by the first sergeant. Monitors ecological environmental program IAW unit SOP and local, state, federal, and host nation laws and regulations
Vehicle Driver	88M	10	E4	Drives and maintains platoon headquarters command and control vehicle. Operates radio.

Table 5-4. Duties of Truck Squad Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Squad Leader	88M	30	E6	Trains and directs squad personnel in driver maintenance, loading techniques, and maintenance of equipment records. Trains new drivers and manages the driver sustainment training program. Maintains a record of availability of equipment and personnel and reports to platoon sergeant. Supervises drivers performing preventive maintenance checks and services. Reports to platoon sergeant mechanical defects beyond operator's ability to repair. Plans, organizes, and operates a motor vehicle convoy. Commands a convoy march unit or serial. Supervises personnel preparing vehicles for deployment. Ensures compliance with ecological environmental policies, laws, and regulations in transporting hazardous material.
Heavy Vehicle Drivers	88M	30 20 10	(2)E6 (8)E5 (10)E4	Operate wheeled vehicles and equipment over varied terrain and roadways for support of combat operations and SASO. Comply with ecological environmental policies, laws, and regulations in transporting hazardous material. Employ land navigation techniques. Correct or report all vehicle deficiencies. Oversee and check proper loading of cargo. Support mechanics when necessary. Prepare vehicles for movement/shipment by air, rail, or vessel.

EQUIPMENT

The truck platoon's ability to perform its assigned mission depends on the availability of equipment. Table 5-5 lists equipment authorized for the truck platoon headquarters under TOE 55728L2. Table 5-6 lists equipment authorized for the truck squad under TOE 55728L2. As mentioned earlier, when the petroleum supply battalion is assigned to EAC, the transportation medium truck company (TOE 55727L2) may be attached. Similar equipment is authorized for both companies, except that 5,000-gallon tanksemitrailers are authorized in TOE 55728L2; 7,500-gallon tank semitrailers are authorized in TOE 55727L2. For complete information on equipment, refer to the appropriate TOE.

Table 5-5. Truck Platoon Headquarters Prescribed Equipment List for TOE 55728L2

ITEM	QUANTITY
Alarm chemical agent: XM22	1
Cable telephone: WD-1/TT DR-8 1/2km	2
Installation kit: MK-2325/VRC for AN/VRC-87/88/90 in HMMWV	1
Night vision goggle: AN/PVS-7B	1
Radiac set: AN/VDR-2	1
Reeling machine cable hand: RL-39	1
Radio set: AN/VRC-90A	1
Truck utility: cargo/troop carrier, 1-1/4 ton, 4x4, with equipment (HMMWV)	1
Telephone set: TA-312/PT	1
NAVSTAR GPS precision lightweight GPS receiver: PLGR	1
Pocketradiac	1
Data transfer device: AN/CYZ 10	1

Table 5-6. Truck Squad Prescribed Equipment List for TOE 55728L2

ITEM	QUANTITY
Installation kit: MK-2195/VRC for AN/VRC-87/88/90 in 5-ton truck	1
Night vision goggle: AN/PVS-7B	5
Radio set: AN/VRC-88A	1
Semitrailer tank: 5000-gallon, fuel dispensing, automotive, with equipment	10
Data transfer device: AN/CYZ 10	1
NAVSTAR GPS precision lightweight GPS receiver: PLGR	1
Truck tractor: MTV with equipment	10
Water heater: mounted ration	2

OPERATIONS

Operations of the transportation medium truck company are discussed in FM 55-15, FM 55-30, and ARTEP 55-717-30-MTP.

Section IV. MAINTENANCE SECTION

MISSION

The maintenance section provides personnel and equipment to perform the unit maintenance required for wheeled vehicles and quartermaster special-purpose equipment for the transportation medium truck company (petroleum). The maintenance section also provides limited vehicle recovery support.

PERSONNEL

The section's most valuable resource is its personnel. Table 5-7, page 5-8, lists maintenance section personnel and their duties.

Table 5-7. Duties of Maintenance Section Personnel

POSITION	SC/ MOS	SKILL LEVEL	GRADE	DUTIES
Unit Maintenance Technician	915A		W2	Plans, supervises, and directs the unit maintenance of all organic equipment of the medium truck company. Keeps the commander and staff members advised of the maintenance material readiness situation.
Motor Sergeant	63B	4	E7	Assists the unit maintenance technician in the supervision of all maintenance functions. Directly responsible for the supervision of motor maintenance and supporting personnel. Applies production and quality control principles and procedures to maintenance operations. Prepares informal daily work assignment sheet, listing priorities, tasks, mechanics, area cleanup responsibilities, and special requirements for such items as tools, parts, and lubricants. Monitors use of hand and power tools. Responsible for security of tools. Conducts informal spot check inspections. Enforces safety procedures. Performs administrative duties.
Senior Mechanic	63B	3	E6	Performs light wheeled vehicle mechanic duties, performs heavy wheeled vehicle mechanic duties, supervises lower-ranking soldiers and provides technical guidance to the soldiers of the maintenance section in accomplishment of their duties. Supervises unit maintenance on wheeled vehicles and upkeep of hand and power tools. Performs BDAR. Supervises recovery operations.
Light Wheeled Vehicle Mechanics	63B	2 1 1	E5(4ea) E4(3ea) E3(4ea)	Perform unit maintenance on the company's organic vehicles and equipment. Maintain power-assisted brake systems, wheeled vehicle suspension systems, wheel/hub assemblies, mechanical and hydraulic steering systems, and wheeled vehicle crane/hoist/winch assemblies. Record maintenance on DA Form 2402. Maintain tools and test equipment. The E5 also supervises lower-grade soldiers and provides them with technical guidance. The E3 light wheeled vehicle mechanic also drive the 5-ton cargo truck when required.
QM & Chem Equipment Repairer	63J	1	E4	Performs unit maintenance on quartermaster equipment, including field ranges, immersion heaters, space heaters, and tents. Disassembles, inspects, and replaces equipment components. Lubricates equipment. Records maintenance on DA Form 2402. Maintains tools and test equipment.
Heavy Wheeled Vehicle Mechanics	63S	2 1	E5 E4 E3	Perform unit maintenance on company heavy wheeled vehicles and assist light wheeled vehicle mechanics when required. The E5 supervises lower-grade soldiers and provides them with technical guidance.
Recovery Vehicle Operator	63B	1H8	E4	Operates the 5-ton wrecker used to recover disabled organic vehicles and equipment. Also operates radio when required.
Equipment Records & Parts Specialists	92A	1	E4 E3	Assist the unit maintenance technician in maintaining the equipment maintenance records and schedules for organic vehicles and equipment as required by TAMMS. Maintain stock locator system and administer document control procedures. Perform PLL and SSL duties in manual and automated supply applications. Request, receive, and store all repair parts and reference publications to support mechanics performing unit maintenance. Prepare maintenance reports and schedule vehicles for maintenance. Perform dispatching procedures using manual and automated systems. Also serve as radio operator and drive light vehicle when required.
Heavy Vehicle Driver	88M	1	E4	Drives and operates the 5000-gallon tank - semitrailer allocated to the maintenance section

EQUIPMENT

Table 5-8 lists equipment prescribed by TOE 55728L2 for the maintenance section.

Table 5-8. TOE Equipment List for the Maintenance Section

ITEM	QUANTITY
Cable telephone: WD-1/TT DR-8 1/2 km	1
Charger battery: PP-34/MSM	1
Cleaner, steam pressure jet trailer mounted	1
Generator set:Ded skid mounted, 5kw 60Hz	1
Generator set:Ded skid mounted, 3kw 60Hz	1
Compressor unit, reciprocating: air, gasoline-driven, 16fm, 175psi	1
Data transfer device: AN/CYZ 10	2
Distribution system electrical: 120v 1PH 60amp	1
Installation kit: MK-2195/VRC for AN/VRC-87/88/90 in 2-1/2 and 5-ton truck	1
Installation kit:MK-2325/VRC for AN VRC-87/88/90 in HMMWV	1
Heater duct type, PTBL: 1200-00 Btu	1
Hose assembly: nonmetallic, fuel/oil hydrocarbon	4
Machine gun caliber .50: HB flexible (ground and vehicle) with equipment	1
Mount gun: ring caliber .50	1
Mount tripod machine gun: heavy caliber .50	1
Multimeter, digital: AN/PSM-45	3
Night vision goggle: AN/PVS-7B	5
Reeling machine, cable hand: RL-39	1
Radio set: AN/VRC-90A	2
Truck wrecker: MTV, with winch, with equipment	1
Truck utility: cargo/troop carrier 1-1/4 ton, 4X4 W/E (HMMWV)	1
Semitrailer tank: 5000-gallon, fuel dispensing, automotive, with equipment	1
Test set electronic systems: AN/PSM-80(v)2	1
Towbar motor vehicle: wheeled vehicle	12
LOGMARS (T) communications modem group: CY-8538/G	1
Telephone set: TA-312/PT	1
Tent: frame type, maintenance, medium, light metal cotton duck OD	1
Utility receptacle	1
Shop equipment automaint and repair: OM common No 2 less power	1
Lightweight weapon sight: (thermal crew served weapon site)	1
Tool kit, general mechanics: automotive	17
LOGMARS (T) microprocessor group: CY-8537/G	1
NAVSTAR GPS precision lightweight GPS receiver: (PLGR)	1
Towing device: fifth wheel tractor mounting	1
Truck tractor: MTV with equipment	1
Trailer cargo: MTV with dropsides	1
Truck, cargo: 4x4 LMTV with equipment	1
Truck cargo: 4x4 LMTV with equipment with winch	1
Wrench impact pneumatic: 3/4 inch diameter max rated thread size	2
Wrench set socket: square drive 3/4 inch across flats hex type sockets	1

OPERATIONS

The operations of the maintenance section, transportation medium truck company (petroleum), are the same as those for the maintenance section, petroleum supply company (see Chapter 4, Section VII).

Chapter 6

TACTICAL OPERATIONS

Section I. UNIT DISPLACEMENT

APPLICABILITY

This section covers unit displacement in the theater of operations. Unit displacement—leaving one place and going to another—is dictated by mission assignment. The unit may be relocated because it has completed its mission at its present location, or it may be relocated for better defense. For movement from CONUS to an overseas theater or from one overseas theater to another, see Appendix C.

PREPARATION

Preparation for company movement is a continuous process, beginning long before the unit receives a warning or movement order. The commander should start preparing the company for a move when he takes command. The commander reviews existing movement plans, SOPs, and loading plans to make sure they are complete and correct. If none exists, he prepares a movement plan with SOPs and loading plans. Personnel should be trained to follow the procedures the commander draws up. He should keep in mind that successful movement depends on effective planning as well as on unit readiness. When planning a movement, the battalion commander and leaders evaluate the risk and safety hazards before selecting a course of action that maximizes the operation and minimizes the risk.

Movement SOP

The movement SOP should cover routine aspects of displacement. In this way, the commander will not have to plan and issue separate directives for operations that follow a pattern. A movement SOP may include the following:

- Closedown procedures.
- Organization of march units.
- Organization and duties of quartering party, convoy advance party, rear party, and reconnaissance elements.
- Vehicle densities and speeds.
- Control measures.
- Actions to take in event of an enemy attack (including NBC).
- Procedures to follow in case of an accident.
- Maintenance, refueling, and feeding procedures to follow during halts.
- Communications methods and communications security.
- Personnel and equipment loads for organic vehicles.
- Movement training, including periodic rehearsals.

Displacement Plan

To ensure that closedown of the present site is as efficient as possible, the commander develops a displacement plan as part of the movement SOP and keeps it current. He should consider the experience of personnel as he plans. The following should be included for each operation:

- Order in which elements are to close down.
- Number of personnel required for closedown.
- Tasks each person performs.
- Estimated time required.

Loading Plans

The commander must prepare loading plans. Initial loading plans are based on authorized or prescribed personnel and equipment. The unit may have to make a shuttle move, so he should plan for multiple loads for vehicles. One plan should be made for each trip. The commander determines which elements of the company should move first and which can move later and updates the plans as needed.

- Initial. In developing loading plans, the commander considers the type of transportation, the number of personnel involved; and the type, size, weight, and quantity of supplies and equipment to be moved. Loading plans for vehicles should show the number of the vehicle (indicating its position in a convoy), the personnel to ride on the vehicle, and the equipment to be loaded on the truck or trailer. Loading diagrams for each vehicle show the positioning of personnel and equipment.

- Updated. When the commander receives a mission or movement order, he updates the loading plans, adding any mission-essential supplies and equipment. He prepares loading plans for any additional vehicles provided to assist the company in the move.

- Rehearsals. Periodic rehearsals should be conducted to make sure personnel are trained in the roles each will play during deployment. Rehearsals help the commander evaluate the unit's state of readiness and allow him a chance to adjust the movement plans.

RECONNAISSANCE

The first notice received from higher headquarters of an impending move is a warning order. It may be oral or written. It notifies the commander of the move, the general destination, and the probable route. After receiving the warning order, the commander organizes a reconnaissance party made up of some members from each company element to help survey the suggested route and the new area. If NBC weapons have been used in the area, the unit's NBC team should accompany the reconnaissance party, conduct an NBC reconnaissance en route and at the new site, and mark contaminated areas. See FMs 3-3 and 3-100 for procedures. Route reconnaissance provides current, accurate information on obstacles, road conditions, and critical terrain features along the march route. For more on route reconnaissance, see FM 5-36. Topographic units located at EAC or corps level can assist with route planning and terrain analysis. Site reconnaissance provides information to help find the best location for the battalion and its activities. When surveying the site, the commander gives first priority to the space and special terrain features needed for operations, as well as characteristics that determine how well the area can be defended. The three methods of reconnaissance are map, ground, and air. Table 6-1 outlines conditions to check when using these reconnaissance methods.

Table 6-1. Conditions to be Checked by Map, Ground, and Air Reconnaissance

CONDITIONS	ROUTE			SITE		
	MAP	GROUND	AIR	MAP	GROUND	AIR
Road surfaces	X	X	X	X	X	X
Railways			X	X	X	X
Obstacles	X	X	X	X	X	X
Waterways	X	X	X	X	X	X
Amount of available water				X	X	X
Condition and arrangement of available buildings					X	X
Types of terrain	X	X	X	X	X	X
Location of bypasses and detours	X	X	X			
Inclines and valleys	X	X	X	X	X	X
Cover and concealment		X	X		X	X
Bridge repair and construction requirements		X	X			
Enemy movements		X	X		X	X
Width of roads and trails		X	X		X	X
Critical points	X	X	X			
Distance between points	X	X	X			
Clearance and capacity for loads		X				
Facilities for refueling en route		X	X			
Location of bivouac sites and rest halts	X	X	X			
Best spots to station road guards		X				
Fording sites	X	X	X			
Contamination	X	X	X	X	X	X

Map

Maps should be used for all reconnaissance operations. Maps of the new area may be obtained from unclassified map (Class II) supply. When choosing the new location, the commander considers terrain features, roads, wooded areas, and waterways shown on the map. However, he keeps in mind that map reconnaissance is not always reliable; terrain features may have changed since the map was printed. For information on map reading, refer to FM 21-26.

Ground

When time and security permit, ground reconnaissance should follow map reconnaissance. This will help locate critical points along the route, such as structures or features that limit road width and overhead clearances. It will also help determine vehicle loads and will show features that interfere with the meeting or crossing of two or more lines of traffic. Odometer readings should be recorded at the beginning and end of the reconnaissance to measure the distance between the old and new areas. When conducting ground reconnaissance, the commander will need the following:

- Maps and photographs of the area.
- Binoculars.
- Compass.
- Copies of engineer route reconnaissance overlay, if available.

- Map overlay paper.
- Notebook and pencil.
- Frequency modulated radio (if authorized by MTOE).
- Radiological and chemical detection equipment.

Air

Aerial reconnaissance, if available, provides current information regarding the site. Aerial photographs may be used to supplement or replace ground reconnaissance.

SITE SELECTION

Site selection is an important and complicated process. After choosing the specific area for the unit, the commander must select an operating site for each unit element. On arrival at the general area designated by higher headquarters, the commander determines if the sites he has marked on the map have satisfactory terrain features. Specific features to look for in a site ~~are~~

- Location near a main supply route.
- Location near railways and waterways.
- Good roads to and within the site to support the movement of heavy, bulky equipment, to ease strain on vehicles, and to make resupply and evacuation easier.
- Areas where heavy rains and flooding will not interfere with movement on roads.
- Areas away from landmarks that may be used by the enemy as reference points.
- Areas suitable for parking vehicles.
- Ease of defense, including positioning of weapons, building of obstacles, and using natural concealment.
- Existing communications that may be used.
- Available buildings that can be used after they are inspected and found safe. (Buildings should have enough entrances and exits for supply distribution. Floors should be sturdy enough to support the weight of stacked supplies and equipment.)
- Adequate space for all operations, including bivouac areas.
- The absence of environmentally sensitive areas, such as wetlands, seashores, or endangered species habitats.

The commander must keep in mind that field situations seldom allow the unit to operate under ideal conditions. Trade-offs may be necessary. When making trade-offs, the commander must consider the mission and the type and location of the enemy threat. In combat service support operations, site selection is determined for the most part by tactical considerations. The commander should select an alternative area in case the unit must move because of enemy action or the effect of weather on the terrain. Then he should select an operating site for each unit element. He considers the volume of traffic, needed space, and safety requirements. He then prepares an overlay of the preliminary layout for use by the unit and the quartering party and for submission to higher headquarters.

MOVEMENT

While waiting for the operation order to move, the commander reviews the movement plans and begins preparations.

Types

The manner in which the move to the new site is organized depends on the purpose of the move. The two principal types of movements are administrative and tactical. An administrative movement is one during which no enemy interference or contact is expected. Emphasis is on economy, including maximum use of unit transport capability. A tactical movement is one in which enemy interference or contact may occur. Emphasis is on successful accomplishment of the unit mission. Personnel, supplies, and equipment are loaded so that they may be unloaded easily, quickly, and in an order that allows the mission to resume without delay.

Operation Order

When the time or conditions under which the operation plan is to be placed in effect occur, the plan becomes an operation order. Refer to FM 101-5 for more information on operation plans and operation orders. Final preparations for movement begin when an operation order (either written or oral) is received from higher headquarters. It will give the specific destination and time of the move. Some operation orders outline every step of the move; others may only inform the commander that the unit is to move. In some cases the order may be oral. FRAGOs are issued to implement changes to the OPORD and annexes. A detailed operation order is in a five-paragraph format with annexes. It may include a strip map. See FM 101-5-1 for symbols used on strip maps. When the operation order is received, the commander and supervisory personnel should review loading and unloading procedures, compute or review external transportation requirements, and assign duties. The types of information to expect in a detailed operation order are—

Paragraphs covering—

- The situation (why the unit is moving).
- The mission (when and where it is moving).
- Execution (how to move).
- Service support during the move (food and fuel required).
- Command and signal (who is in charge).

Annexes giving details on—

- Convoy organization.
- Movement conduct.
- Checkpoints.

Strip map showing—

- Start and release points.
- Route numbers

- Place names.
- Critical points.
- Checkpoints.
- Directional arrows.
- Distances between points.
- Bivouac, rest, halt, and refueling areas.

Movement Order

On receipt of the operation order, the commander warns subordinates of the impending move so that they may begin preparations. The battalion S2/S3 section determines additional requirements for movement of subordinate units, selects tentative march routes, directs route reconnaissance activities, selects specific march routes, coordinates external movement support requirements, develops overall movement schemes for detachment headquarters and battalion move, and distributes movement order. The battalion S4 section coordinates internal support requirements for the move. After the battalion issues the movement order, the subordinate commander issues the company movement order (oral or written) with time of the move, destination, and policies and procedures to be followed by company personnel. It may include the same data and be in the same format as a detailed operation order. The commander briefs supervisory personnel on the movement order. They will then brief their personnel on specific roles in carrying out the order. Each driver should receive a copy of the strip map.

Liaison

The commander should stay in contact with personnel at higher headquarters, supported units, and units that support the unit as it prepares to move. He should

- Meet with the higher headquarters S3 to update area maps, plan the move, and discuss convoy support and security force requirements.
- Submit requests for transportation, fuel, rations, and engineer, air, combat arms, maintenance, and recovery support.
- Obtain final highway clearances so as not to conflict with other traffic using the same route.
- Notify higher headquarters and supported units of the date and time of closedown at the old site and when he plans to begin operations at the new site. He does not have to give notice of date and time of closedown if a like unit will be moving into the old site.

Detached Parties

The commander must organize quartering, convoy advance, and rear parties.

Quartering . A quartering party is a group of unit representatives sent to a new site before the main body to secure, reconnoiter, and organize the area. Quartering party personnel should take with them individual field gear, rations, and weapons; engineer tape; area maps; compasses; guide signs; and materials for making and erecting signs. They should also take tools, NBC detection equipment, and a tactical radio. Duties of the quartering party are—

- Check the area for mines, boobytraps, trip flares, and NBC hazards.

- Set up outposts. This is the first step in setting up a unit defense. Refer to Section III for details. Priority for setting up sections should be in the SOP.

- Mark locations for the command post, motor pool, and latrines.

- Mark trails and locations of unit elements to help drivers of convoy trucks move to their locations without delay.

- Set up the command post.

- Lay communications wire from the command post to defense positions and supply areas.

- Prepare a kitchen area. Food service personnel should be in the quartering party so that a meal will be ready when the main body of the convoy arrives.

Convoy Advance . Personnel in the convoy advance party go ahead of the main convoy. They post guides along the selected route to help personnel find the new location.

Rear . The commander designates a rear party to stay behind and close out operations after the main body of personnel has begun to move to the new site. The rear party performs functions such as covering sumps and filling emplacements. It maintains communications with higher headquarters until the command post in the new area becomes operational.

ROAD MOVEMENT

In a theater of operations, the company usually moves by motor transportation. Even if air, rail, or water movement is used, the company moves by motor transportation to a railhead, airfield, or port. In many cases, the unit's move may be part of a move by a larger organization. Then the commander will be in charge of his unit's part of the convoy. If the company moves by itself, he will be in charge of the convoy. The commander must be thoroughly familiar with the road movement methods and procedures covered below.

Loading Procedures

The commander is responsible for supervising loading operations. It will be helpful to assign an NCO, such as the motor sergeant, or an officer to inspect the loading operations. Drivers are responsible for loading their trucks according to company loading plans and to the weight and dimensions specified on the vehicle data plate on the dashboard. For specific procedures on loading equipment, supplies, and troops, see FM 55-30.

Manifests

Each company element's leader prepares a manifest for that element and gives it to the commander before the convoy leaves. The commander needs a complete set of convoy manifests listing all personnel and equipment. These manifests give vehicle bumper numbers, names of drivers and assistant drivers, names of passengers, and types of cargo. The manifests should be checked when vehicles are in the assembly area so that any last minute changes can be made. Copies of the manifests should be sent to higher headquarters. The manifests can be attached as an annex to the movement order. They will help plan unloading operations at the new site. If there is an ambush or accident, the manifests will provide an accurate roster for taking a head count and reorganizing the march units.

Final Briefing

Before the convoy leaves the assembly point, the commander briefs all drivers, assistant drivers, and personnel. This briefing allows him to review main points of the planned movement along the selected route and allows him to inform personnel of any last minute changes. A list of topics to include is

- Destination.
- Location of unloading sites.
- Route and rate of march.
- Start and release points.
- Vehicle gap.
- Checkpoints and critical points.
- Free-fire and no-fire zones.
- Location of security elements.
- Location of refueling points.
- Arrangements at destination.
- NBC defense.
- Contaminated areas, personnel, and equipment.
- Call signs and radio frequencies.

A recommended format for drafting the final briefing is in FM 55-30. Also helpful are the convoy commander's checklist and report formats in FM 55-30. After giving the final briefing, the commander has the convoy move to the starting point shown on the strip map given to each driver.

Control

Motor movements are controlled by effectively organizing and identifying convoy vehicles; coordinating communications; and setting march rate, movement method, checkpoints, halts, and procedures for maintenance operations. All of these should be covered in the movement order. The battalion S2/S3 section monitors the movement of subordinate companies and the battalion headquarters. They maintain communications with each subordinate element during movement. As they receive information on an element's movement and march progress, they annotate it on the situation map and movement graph. If there are any deviations from the movement order (for example, speed, interval, route adjustments, or increased MOPP level), the S2/S3 section provides corrective action. Current movement status and a final movement report are provided to the battalion commander and petroleum group S2/S3 (or higher headquarters) when received from subordinate elements.

- Organization. The convoy command vehicle should be at the front of the convoy. Vehicles carrying company personnel and equipment that will be needed first at the new site should come next. The slowest vehicle should be near the front to help keep the convoy together.

- Vehicle Flags. Flags 12 inches high and 18 inches long should mark each serial in the convoy. The lead vehicle in each serial will display a blue flag; the rear vehicle, a green flag. If the convoy moves at night, blue and green lights are used in place of flags. The command vehicle and each serial commander's vehicle will display a flag divided on the diagonal to show white and black triangles. The flag is mounted on the left side of the vehicle at the front or rear. It should not interfere with the driver's vision or with the lights or any other working part of the vehicle.

- Vehicle Numbers. The convoy clearance number should be on both sides of each vehicle and on the front of each if there is room. It should also be on the hood of the lead and trail vehicles of each serial. This will help friendly forces recognize the vehicles from the air.

- Communications. The commander establishes the communications methods and security to be used during motor movement. For more information on communications, see Section II.

- March Rate. Convoy speed depends on road and traffic conditions, drivers' experience, and the slowest vehicle's speed. On a long move over rough highways, speed should not exceed 15-20 mph with a catch-up speed of no more than 25-30 mph.

- Movement Methods. The three basic methods of movement are close column, open column, and infiltration. The difference between them is based on the distance or gap between vehicles. With the close column and open column methods, there is a uniform distance between vehicles. With the infiltration method, vehicles are usually sent one by one, in small groups, or at irregular intervals. Vehicles are sent at a rate that keeps the traffic density down and keeps vehicles from bunching together. The convoy commander must decide which method is best for his situation. See the table, "Types of Column Formations," in FM 55-30 for guidance. As each vehicle passes the designated starting point, it should be traveling at the correct speed and with the correct distance between it and the preceding vehicle. For details on plotting a move using distance and time factors, see FM 55-30.

- Checkpoints. Checkpoints along the route help control convoy movement. When the commander reaches each checkpoint, he notifies higher headquarters by radio. If he must halt the convoy, the checkpoints serve as reference points to report the convoy's location.

- Halts. Halts during the move should be planned. They should occur every two hours for ten minutes. Longer halts should be planned to eat, refuel, and bivouac. As a rule, all vehicles in the convoy will halt at the same time to keep vehicle gaps unchanged. Most of the vehicles can travel 300 miles before refueling. If refueling is required during the move, it should occur during a halt.

- Maintenance. Vehicle maintenance takes place during a halt if time permits. Drivers inspect their vehicles and do both unit and operator maintenance.

Night Movement

Several factors must be considered when the company moves at night: rate of march, vehicle density, and light discipline. The commander instructs officers and NCOs on safety precautions to be followed in a night move. Refer to FM 55-30 for more information on night convoys, including their advantages and disadvantages. The commander chooses the lighting best suited to the move from the following three basic types:

- Normal Lighting. Normal lighting is the lighting prescribed by the law of the country the unit is in. RAWLs (red amber warning lights) should be used on vehicles with hazardous cargo IAW local law and SOP.

- Reduced Lighting. Reduced lighting is the decreasing of the brightness of all interior and exterior lights. This is done either by cutting the power to the lights or by screening them.

- Blackout. Blackout can mean either no lights at all or using only blackout lights.

Vehicle Security Preparations

Vehicles must be prepared for possible attack. This should be done by preparing windshields and hardening vehicles. Tarpaulins and cab tops can be used to improve security.

Preparing Windshields. Higher headquarters may dictate how to position the windshields. If not, the commander considers the following when deciding whether to remove, lower, or leave the windshields in place. Windshields left

in place protect against dust and heavy rain. Chicken wire may be connected to the raised windshield and stretched across the windows to protect troops in the vehicle from incoming grenades. Windshields in place may protect troops in the vehicle from wires stretched across the road. Windshields should be lowered or removed during blackout operations or when they get in the way of weapons being used. A piece of plywood or similar material covered with sandbags should be placed between a lowered windshield and the hood to prevent glass breakage from shock vibration.

Hardening Vehicles . Floors of troop-carrying vehicles should be covered with at least one double interlocking layer of sandbags. A double layer of sandbags should be placed under the driver's seat of all vehicles. Sandbags will last longer if covered with a mat. Sandbags may also be placed on the gas tank, fenders, and hood. The windows of trucks can be removed and the doors filled with sand. Note that hardening of HMMWVs can cause damage to the axle because of additional weight. The maintenance technician should be consulted for the proper procedures before hardening HMMWVs.

Using Tarpaulins and Cab Tops . In most cases, the commander decides whether or not to use tarpaulins, canvas truck tops, and cab tops. Before making a decision, he should consider the advantages and disadvantages. The main advantage in covering a shipment is that it is harder for an ambush force to identify prime targets such as ammunition and fuel. The disadvantage in using the truck top or tarpaulin is that it must be removed to load and unload the truck. Sometimes, a truck top will block the driver's vision to the rear and a security guard's fire to the rear. This is a serious disadvantage when the convoy is under attack. By leaving the cab top on vehicles loaded with fuel, some protection is given the driver if a fuel tank is hit by fire. If cargo will be damaged by bad weather, it should be covered.

Defense

Because a convoy offers a good target for the enemy, a well-planned defense is essential. The defense principles described in Section III and in FM 55-30 should be used. FM 55-30 provides good coverage of active and passive convoy defense measures. The commander decides how much and what kind of security support he needs. Depending on the expected hostile threat, he may get support from his own unit or others. When outside support is needed, it must be coordinated closely with the security force. Security support from another unit must be requested from higher headquarters.

Military Police Support . MP convoy security support may be either full-time or on a mission basis (as required). MP commanders are responsible for coordinating convoy security operations within their area of responsibility.

Area Support . The commander of an area where the convoy is operating may be assigned to protect the convoy within the area. Escort, artillery support, and air cover, in any combination, may be provided.

Unit Internal Support . The convoy may have to provide its own security support (hardened vehicles, shotgun riders, or fire teams). The commander should remember that, with limited troops and vehicles, too many security measures may hurt the unit's mission capability.

Covering Force . The covering force travels well forward of the main convoy to trigger any ambush. When attacked, the force reacts by trying to defeat the ambush force or to deceive, delay, and disorganize enemy forces until the main force can prepare for action. The covering force travels ahead of the advance guard of the convoy and provides its own security. The covering force will probably come from outside the unit because of its limited personnel and vehicles.

Guard Groups . An advance guard, flank guards, and a rear guard should protect the convoy. Their size, makeup, and position in relation to the convoy will vary with mission, terrain, and tactical situation. The advance guard prevents delay of the main convoy and protects against surprise attack. Flank guards cover routes that might be used by the enemy to attack the column flanks. The flank guards try to drive off ambush forces and warn of approaching larger enemy forces. Usually, flank guards come from outside the company. The rear guard follows and

protects the main body of the march, defeating or delaying hostile forces attacking from the rear, protecting the trains, and collecting stragglers.

Mines and Boobytraps . Mines and boobytraps are frequently used by ambush forces. Command-detonated mines are often used to start an ambush. Mines will also be planted along the shoulder of the road for harassment and interdiction. A boobytrap system may be used against personnel in vehicles and could consist of hand grenades attached to tree branches over the road where antennas or other projections from vehicles will snag and detonate them. Claymore mines or artillery shells may be suspended from trees to be command-detonated when a vehicle passes. To decrease mine damage, drivers should track the vehicles in front of them and avoid driving on the road shoulders. Damage from mines and boobytraps can be lessened by hardening vehicles and requiring troops to wear protective equipment.

Destruction . When a vehicle breaks down, it may be necessary to destroy it so that the enemy cannot use it. For more information on vehicle destruction, see vehicle technical manuals.

MOVEMENT BY AIR, RAIL, OR WATER

Besides road movement, units may move by air, rail, and water.

Air

As a rule, tactical airlift of military units is ordered by the headquarters commanding both the transported and transporting units. The commander of the Air Force or aviation unit specifies the cargo load allowed for the type of aircraft used. See FM 100-27 for procedures for requesting USAF tactical airlift support. Refer to TM 38-250 for preparing hazardous material for military air shipment. The two methods of loading are internal and external.

Internal Loading Loading plans will vary according to factors such as the tactical conditions of the flight, the security of the landing area, the time available for disassembly and assembly of equipment, and the amount of supplies to be transported. Helicopter internal load operations are given in detail in FM 55-450-2.

- External Loading. Sling loading is a useful, practical, and routine transport mode for all units. Detailed coverage of helicopter external load operations is in FMs 55-450-3, -4, and -5. Unit personnel must be selected and trained as ground crews. They will be responsible for rigging all TOE equipment. The unit is responsible for providing its external loading equipment. The unit's equipment and material should be inventoried by each platoon, section, or crew to determine what is needed to rig the loads. The number of slings and other required equipment should be requisitioned. Stock numbers and nomenclature of air delivery equipment and slings are found in FMs 55-450-3, -4, and -5 and in TM 10-1670-298-20&P. Company SOPs should contain rigging and loading plans to assist the ground crews. This will help prevent confusion at a time when speed and control are necessary.

Rail

During training and preparing for movement by rail, unit personnel must become familiar with procedures for packing, boxing, and crating organic equipment. They must learn how to load equipment and personnel on railway cars. The commander prepares a loading plan and keeps it current. Information on procedures for unit movement by rail will be provided by the area transportation movement office. Details on rail movements are in FM 55-20 and FM 101-10-1/1.

Water

For water movement, equipment must be waterproofed, packed, crated, and marked. Personnel must be trained in embarkation, debarkation, and shipboard procedures. Destination, anticipated use, available shipping space, and type of vessel are factors to consider. Instructions based on movement requirements are provided by the transportation movement officer or local transportation officer. Details on water movements are in FM 55-50 and FM 101-10-1/1.

SITE OCCUPATION

As the unit approaches the new site, members of the quartering party should meet it at the release point designated on the strip map. Quartering party members should lead unit elements to their new operating sites. Cross-country routes are marked at the release point to help vehicle drivers reach their areas quickly. When organizational elements arrive at their operating sites, they should begin at once to unload and set up operations.

Company Layout

Suggested company layouts are discussed in Chapter 4. Supervisors must ensure that individual operating sites are set up for ease of operations.

Perimeter Development

One of the most important steps in site setup is perimeter development. After the commander sets up the defense, unit personnel should be able to provide 360-degree coverage of the area.

Command Linkup

The commander informs higher headquarters at once when sites have been set up for all unit elements and the company is ready to start operations. The report should include encoded map coordinates of all operating sites, the administrative and operational condition of the company, and what time the unit will start operations.

Section II. COMMUNICATIONS

ASSETS AND SERVICES

Communications help to support unit missions, to carry out administrative duties, to maintain contact with higher headquarters, to transmit tactical information, and to defend the unit. The commander must set up communications with all elements. Their personnel must communicate with higher headquarters, supported units, and internal elements. Communications help may be needed in setting up an adequate system. Assistance can usually be obtained from the COSCOM or EAC in which the unit is operating, from the battalion headquarters company of subordinate units, or from the headquarters detachment of a petroleum group.

Assets

Authorized communications equipment includes the AN/PRC-114/VRC-87/88/89-series radios and the AN/VRC-97 MSE. The AN/GRA-39 radio set control group is maintained at battalion level. See Appendix A for data on this equipment. The commander is responsible for allocating these communications assets. Equipment should be allocated as needed to perform the mission. For example, in a tactical situation observation posts (OPs) or listening posts (LPs) might have priority on phones. Another source of communications would be the MP security company, if attached to the petroleum group. It has organic communications equipment mounted on each of its vehicles.

Services

Communications services will differ depending on the area or zone in which the unit operates. Services are provided in both the COMMZ and the corps area.

- In COMMZ. Because the unit will be deployed throughout the COMMZ, it will need outside help to set up a communications system. This assistance comes from signal organizations of the communications command in EAC.

These signal units install, operate, and maintain a network of area signal centers in the COMMZ. Trunking systems connect the centers. The centers should be used to supplement organic communications to higher, subordinate, or nearby units.

- In Corps. The corps communications system operates in the combat zone and provides communications for corps units. It is an integrated system with a single-channel command radio and multichannel facilities to provide service on both command and area bases. Direct links go from corps main command post to assigned divisions and selected subordinate units. The area communications system links to the command system. The area system has area signal centers (nodes) situated to provide corpswide access. The corps system links to the communications system of the EAC and to adjacent corps and divisions.

METHODS

There are many different communication methods. The commander should use those that offer maximum reliability, flexibility, security, and speed with a minimum of effort and material. He should not depend on one method but should use methods that complement each other. Signal equipment (particularly when connected to cables or antennas) can be damaged by electromagnetic pulse. Alternative means of communication should always be available in the event of nuclear warfare. Refer to FM 24-1 for more information.

Wire and Cable

Wire systems use field wire and cable, telephones, and a switchboard to provide person-to-person conversations. Wire is more secure than radio. If radio links are used, the enemy can intercept telephone conversations. Personnel should know this and practice communications security. The unit SOP should cover security; it should include details of the telephone system, priorities for laying wire, and responsibilities for setting up the system. The wire system shown in Figure 6-1, page 6-14, supports the company headquarters. The wire installer installs and operates it. The command post uses this system to provide internal communication 24 hours a day. Figure 6-2, page 6-15, shows the wire net of a supply platoon when each platoon operates at a separate location. See TC 24-20 for information on field wire activities and the general characteristics of equipment used with field wire systems.

Radio

The allocation of radio equipment should be documented in the SOP. A proposed unit radio net is shown in Figure 6-3, page 6-16. Radio is one of the most versatile methods of communication. Since it is wireless, it can operate while the unit is mobile. It can handle large volumes of traffic. Radio is the commander's main method of communication with unit elements too far away for contact by local telephone. However, radio is the least secure communications method. Radio communication is subject to jamming and interception, deception, and interference. Radios can be severely damaged by the electromagnetic pulse resulting from a nuclear detonation. During the blackout (ionization of the atmosphere) following detonation, radio transmissions will be impossible. If the unit is in, or expects to be in, a nuclear environment, measures must be taken to protect its radios. For more information, refer to FM 25-50. The unit SOP should contain both security and protective measures. When setting up operating sites, personnel should enter the net using procedures in FM 24-18.

Automation

Automation involves methods of sending, receiving, processing, or storing information by an automated capability (such as computers). An automated capability can process large volumes of information and provide real-time delivery. Automation is easily secured and provides speed, accuracy, improved text and video display, and programmable output and formats. However, it requires a manual system for backup and is susceptible to electromagnetic pulse, power fluctuations, induced viruses, and magnetic disturbances.

Manual

The manual method consists of sending, receiving, or storing documents by physical capabilities, without using electronic media. This method includes messengers and a records management system. The method is reliable and flexible and uses assets found in every unit. It is also the most secure means available. The records management system provides a backup for data storage. However, the method requires a large amount of space and is manpower-intensive. The messenger, when used, is subject to enemy intervention as well as constraints of weather, terrain, and time.

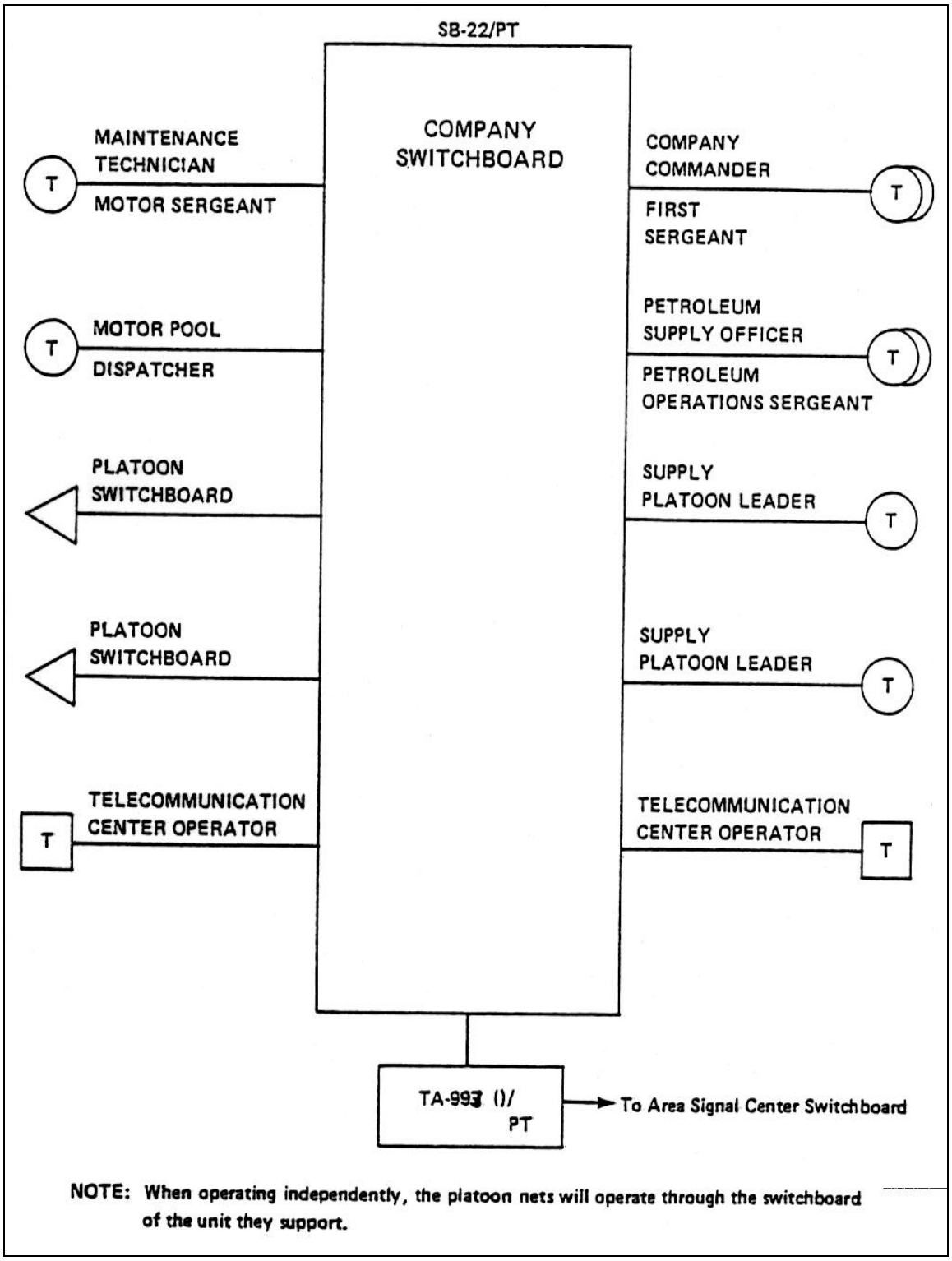

Figure 6-1. Organic wire net for a petroleum supply company

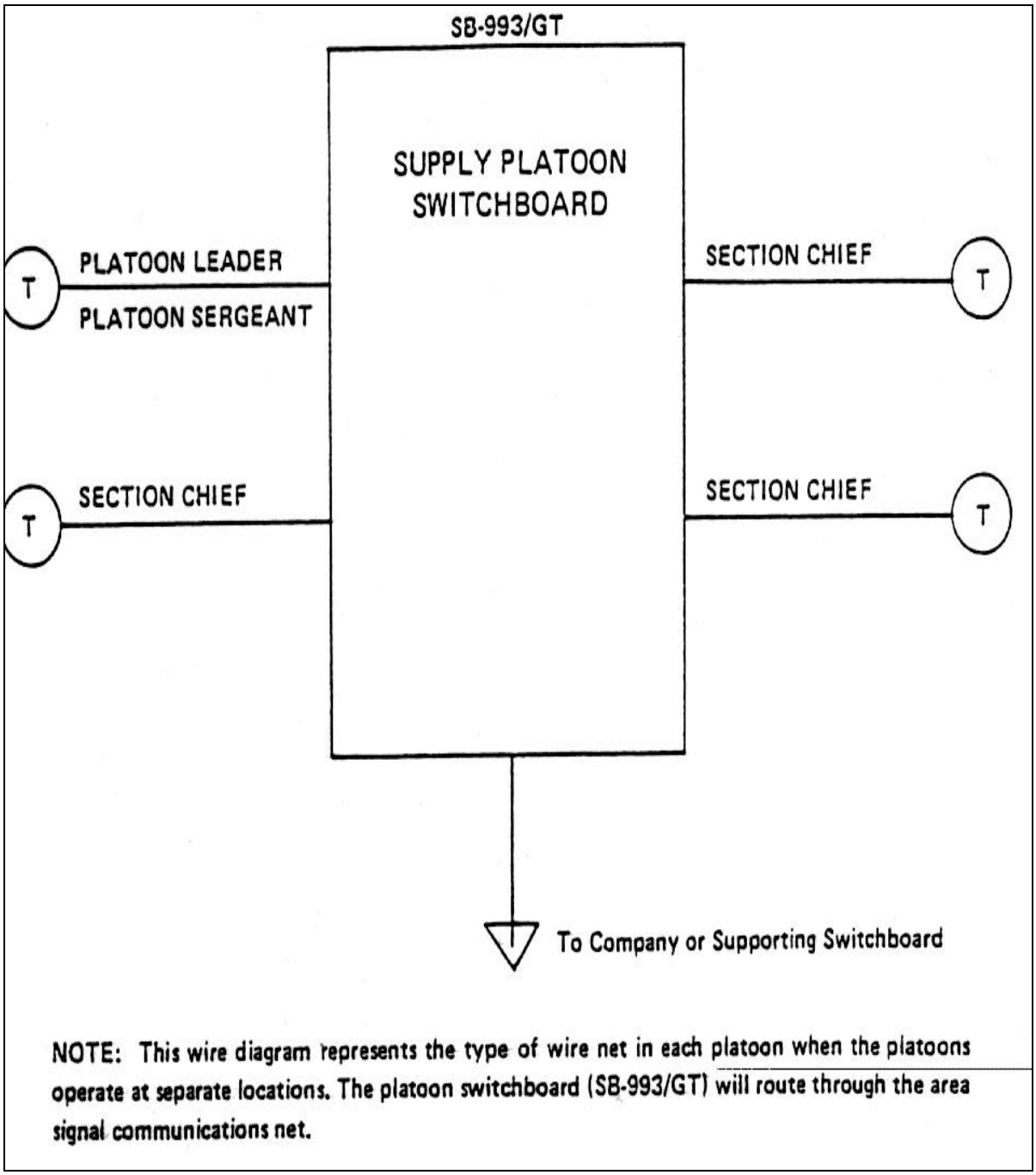

Figure 6-2. Wire net of the supply platoon

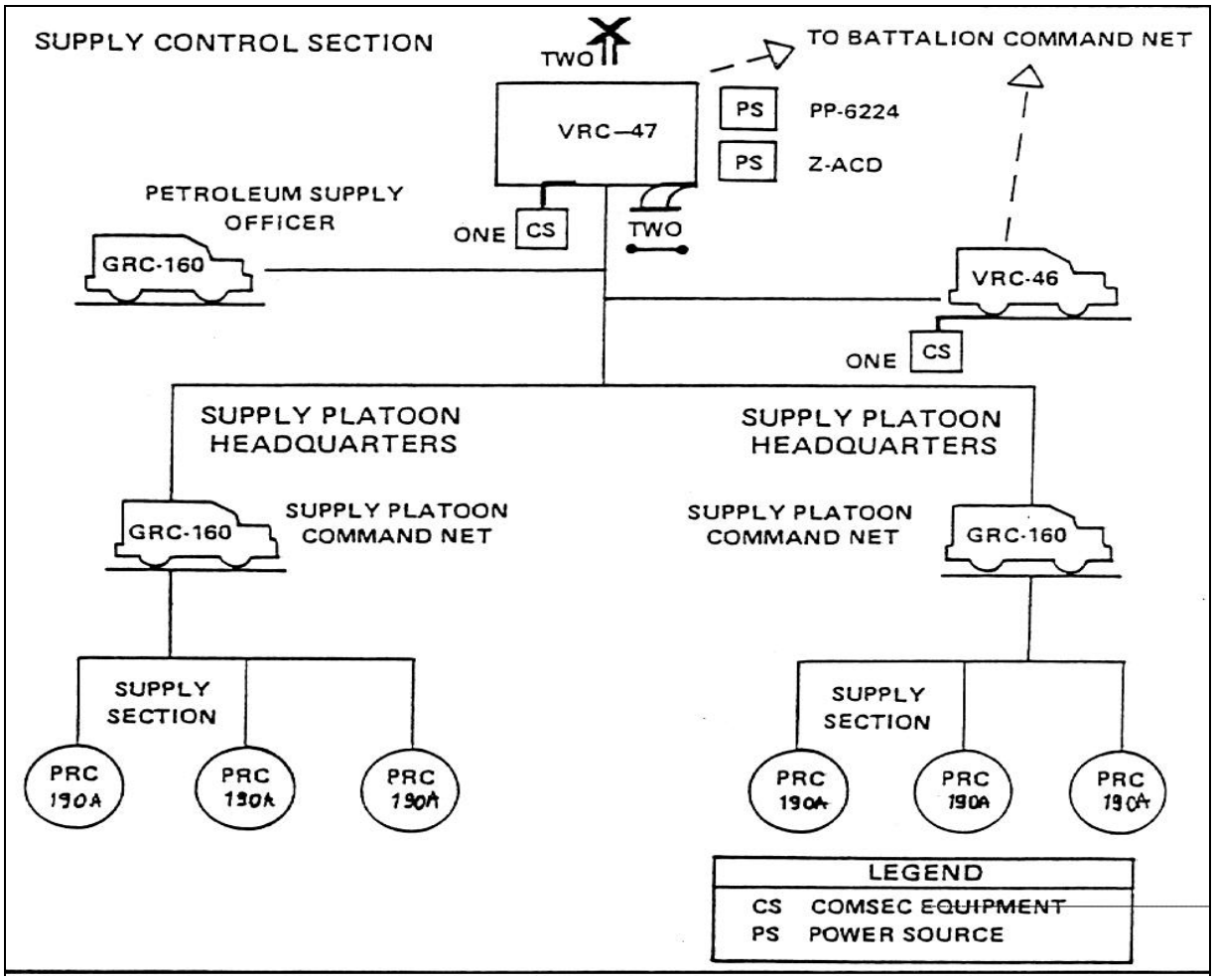

Figure 6-3. Proposed radio net for a petroleum supply company

Visual and Sound Signals

Visual and sound signals are used to send messages over short distances. These signals are most useful during periods of radio silence. They are used as alarms or warnings, especially of enemy attack, or as a means of sending prearranged messages. Messages transmitted by visual or sound signal are easily misunderstood; therefore, care must be taken in the selection of the means and the message to be conveyed. Messages transmitted by this means should be few, prearranged, and simple. Visual signals include road signs, flags, lights, panels, arm and hand signals, and pyrotechnics. Sound signals include horns, bells, whistles, weapons fire, and sirens.

SECURITY

Communications security consists of measures to keep unauthorized persons from getting information from the communications system. Personnel should understand and observe the COMSEC measures described in AR 380-40. Two measures they should practice are transmission security and physical security.

Transmission

All transmissions are governed by the signal operation instructions (SOI). SOI is a series of orders issued for technical control and coordination of signal support activities for a command. As a rule, the commander receives only an extract of an SOI, that part necessary to manage the unit's nets. Among other things, the SOI may provide a list of essential elements of friendly information (EEFI) that must not be transmitted. Operators will have a copy of

this list. They should monitor transmissions to see if information on the list is being passed. Other ways for making transmissions more secure are—

- Choose a means of communication according to the urgency of the situation. Use the most secure means to send a message.
- Transmit only when necessary.
- Use low transmitting power when possible.
- Be wary if a radio station's signal strength suddenly changes.
- Plan the message. Keep it as short as possible.
- Cut out unnecessary talk. Maintain communication silence as much as possible.
- Use only authorized codes and ciphers.
- Avoid identifying yourself or others.
- Demand authentication. Do not talk to anyone who will not authenticate.

Physical

Operators should be impressed with the need to protect communications equipment from abuse, damage, or capture. They should guard against disclosing the location of equipment. Phone wires should be put inside the defensive perimeter and along frequently traveled routes. Burying wires and cables whenever possible will protect them against electromagnetic pulse. Proper grounding will also protect electronic equipment during nuclear attack. Radios should be put in well defended locations. Operators should move transmitters frequently. The commander should be sure to rotate operators so that an enemy will not associate an operator with a specific unit or operation.

UNWANTED SIGNALS

Radio reception may be hindered, confused, or prevented by unwanted signals. These signals may be unintentional (from friendly or natural sources) or intentional (from unfriendly sources). Unwanted signals should be reported according to SOI supplemental instructions. Before reporting an unwanted signal, the operator should disconnect the receiving antenna to determine whether or not the signal is from an outside source. The operator should follow the procedures in FM 24-33 to determine the nature of the unwanted signal.

Unintentional

Electromagnetic signals caused by sources other than the enemy may interfere with radio reception. These sources include friendly radio signals, faulty electrical components, weather conditions, and nearby generators. This type of unwanted signal is caused by interference.

Intentional

Electronic devices provide ways for the enemy to operate against the unit in combat situations. Through electronic warfare, the enemy attempts to monitor and break up unit communications. The intentional unwanted signals most often encountered include deception, jamming, and squelch capture.

- Deception. Deception is the entrance of false or altered information into friendly signal paths so that operators react to it. The enemy may try to enter the communications system by imitating a friendly unit or station to get or give information that could affect an operation. Operators need training to counter deception by using correct

operation codes, brevity lists, and operating signals. They should require authentication and observe transmission security.

- Jamming. Jamming is a deliberate effort to prevent the passage of information or to degrade reception. It can disrupt a single frequency or a frequency spectrum. All radio frequencies can be jammed. An operator who hears an unusual noise on the radio must try to determine its source. If it cannot be traced to a friendly source, the radio is probably being jammed. The operator should try to identify the kind of noise and report it. Under no circumstances should the operator let the enemy know that jamming efforts are successful. Antijamming measures and techniques are described in FM 24-33, Chapter 3.

Reports

An operator who suspects interference should notify the commander immediately. The operator should make a report according to SOI supplemental instructions and in the format shown in FM 24-1. The report should be made whether or not the operator is successful in working through the interference. After reviewing the report, the commander sends it to higher headquarters as required by the SOI.

Section III. BASE DEFENSE OPERATIONS

COMMAND RESPONSIBILITIES

A base or base cluster commander is responsible for the internal defense of the base or cluster. The unit commander will be a base commander, or if more than one unit is present in the base, the senior unit commander will be a base commander. Commanders of an independent or isolated base will report directly to the rear area operations center (RAOC). The objective is to form a base defense perimeter to defend against enemy attack. The base or base cluster commander prepares, plans, and supervises an internal defense that ensures the protection of personnel, equipment, and resources from enemy attack. When assets permit, the commander develops a response force to augment the defensive posture of the base or base cluster. The company's responsibilities as part of the base defense force will be designated by the base or base cluster commander.

BASE/BASE CLUSTER

The unit must be capable of protecting itself against a Level I enemy incursion. Because the unit is not trained or equipped to conduct a sustained defense against Level II and Level III attacks, it will normally be grouped with combat support and other combat service support units into a base for defense operations. (All units in the rear area will be assigned to a base or will establish a base.) The base enhances each unit's defense as well as that of joint support combat forces. The base is a geographically small, defendable unit or multiunit position with a defined perimeter and established access control. Army, other services, or host nation units may make up a base. Combat support and combat service support bases in the rear, grouped together for the rear battle or mission-related purposes, form base clusters. A base cluster has no clearly defined perimeter. The division rear battle officer will usually propose bases/base clusters and designate their commanders. (The unit commander may be designated as a base commander.) The rear battle officer also establishes the rear area operations center for control, planning, and staff coordination of the rear battle throughout the division rear area. The center provides assistance to all base commanders for base defense, for MP interface with base forces, and for supporting direct and indirect fire.

THREAT

A major element of threat doctrine is the disruption of the rear areas. This reduces efficiency of operations and support to the main battle area. The three levels of enemy threat activity are shown in Table 6-2. Threat activity will not occur in a specific order. The unit may face one or all actions at a time. In some cases, Level I or Level II activities will be conducted to support a Level III incursion or a major attack occurring in the main battle area. Some activity may take place well ahead of hostilities, including a terrorist attack against key personnel and activities.

Table 6-2. Levels of Enemy Threat Activity

LEVEL	TYPE OF ACTIVITY
Level I	• Activity by enemy controlled agents. • Sabotage by enemy sympathizers. • Terrorism.
Level II	• Diversionary and sabotage operations conducted by unconventional forces. • Raid, ambush, and reconnaissance operations conducted by combat units. • Special missions or unconventional warfare (UW) missions.
Level III (battalion-sized or larger)	• Heliborne operations. • Airborne operations. • Amphibious operations. • Ground force deliberate operations. • Infiltration operations.

AIR-LAND BATTLE

Air-land battle fundamentals provide the basis for fighting the rear battle (see FM 100-5). CSS companies can support the battle by—

- Ensuring continuing logistical support.
- Being prepared to shift support to different user units, without interruption, when directed by higher headquarters.
- Reacting to any rear area threat.
- Sustaining combat service support forward.

COMPONENTS

An effective base defense system must include procedures for detection, delay, and destruction. These areas are described more fully below.

Detection

Detection efforts include using day and night observation devices, MP and counterintelligence information, and chemical or radiological monitoring devices. Also included are warning systems and procedures to notify all personnel of various alert postures.

Delay

After detection and warning, the attackers' progress must be sufficiently hindered to permit base defense forces to respond. Delay measures include mines, boobytraps, obstacles, and barriers.

Destruction

Following detection and delay, the enemy force must be destroyed. If the threat exceeds available base assets, preplanned delay measures may be seriously tested until additional forces arrive to destroy the threat.

PREPARATION

The following steps can reduce the chances of being attacked.

Plans

The commander plans the defense of a new area before the company moves. He asks the higher headquarters S2/S3 for information on the threat from opposing forces in the new area if the unit is part of a base or base cluster. He obtains data on terrain or natural obstacles that may be used to camouflage or conceal operations. The commander performs a reconnaissance of the new area, sketching the area on a map and laying out a tentative defense plan. He requests the additional supplies needed for obstacles and camouflage as well as additional ammunition, if necessary. He instructs personnel on the effective execution of the defense plan.

Layout

The advance party will have already started work on defense measures such as barriers and camouflage. As the battalion moves into the area, the commander continues to develop the defense. When the defense is set up, he makes a detailed sketch and an artillery fire plan. These are sent by secure means to the battalion S2/S3 and/or base cluster commander within two hours after the battalion reaches the area. The sketch should give correct map coordinates (encoded for security) so that the location can be posted to a tactical map at battalion and higher headquarters. The sketch should be drawn as close to scale as possible, using correct military symbols and graphics (see FM 101-5-1).

Camouflage, Cover, and Concealment

The commander directs soldiers to camouflage and conceal their areas and equipment as they set up operations. They should take full advantage of natural terrain. The commander should stress that survival of the company depends on every soldier not being seen by the enemy. See Table 6-3 for camouflage ideas. Information on camouflage, cover, and concealment is also contained in FM 20-3.

Dispersion

Operations should be spread so that they are not all in one small area. Class III supplies should be kept away from other supplies. If possible, Class V supplies should be kept at least 180 meters from other supplies. This makes it harder for the enemy to destroy all the unit's supplies in one strike. As the unit disperses, security problems increase. This dilemma must be resolved based on estimations of optimal dispersion. Higher headquarters should have a dispersion information plan to help resolve the problem. The commander should spread out the unit as much as possible. The unit must still be able to perform the mission; dispersion is secondary to mission accomplishment.

Light and Noise Discipline

Light and noise discipline are important in maintaining good defense. Troops should be trained to work quietly and with little or no light.

- Light. The only safe time to issue and receive supplies may be at night. Night operations are slower and more difficult than daylight operations, especially during a blackout. Materials-handling equipment is almost impossible to use. Troops should be trained to work in the dark. Everyone who needs one should have a flashlight. Flashlights should have appropriately colored and filtered lights. Tents or buildings should be used for operations if possible.

- Noise. Noise discipline is a defense against any attack. The more quietly soldiers work, the less they reveal about the company's position, especially to an enemy who is more familiar with the terrain than they are. They should also be able to direct trucks using flashlight signals or voice commands. For more details on signals, see FM 21-60.

Table 6-3. Ideas for Camouflage and Concealment

PEOPLE
• Use camouflage paint sticks on the face, neck, and hands. Anyone who is allergic to the paint should use mud or grease. • Wear camouflage clothing. • Make sure web equipment blends in. Paint it or use mud if you have to. • Wear a camouflage cover on your helmet. Put leaves and branches in the slits or under the band. Change the leaves and branches at least once a day. • Wear no shiny jewelry. • Camouflage boots with mud, if necessary.
WEAPONS
• Wrap weapons with strips of cloth that match the color of plants in the area. • Make sure you do not interfere with the works of the weapon when you camouflage it.
TENTS
• Darken faded canvas with mud or charcoal.
OPERATIONS AREA
• Have a traffic plan. Foot troops must use paths. They must not take shortcuts. • Trucks should use marked roads and turns. They must not use shortcuts.
VEHICLES
• Make sure bumper markings, unit identification, and other white markings have been blackened out or are in subdued colors. • Cover headlights, except blackout lights. • Fold down and cover the windshield, if you can. • Hide trucks under the eaves of the buildings or in the woods. Cover them with netting when they are stopped for more than a few minutes. Use natural camouflage as much as possible. • Use pattern painting on trucks and equipment. Use only approved patterns. • Camouflage moving vehicles with foliage as long as it does not interfere with the driver's vision.
FIGHTING POSITIONS
• Arrange natural material around the position to match the surrounding terrain. • Use only as much brush as needed for concealment. A pile of bushes in the middle of a bare place can be a giveaway. • Hide the soil taken from foxholes. Spread it around the area. Do not leave the soil piled up near the position.

Alarm Systems

The alarm system can warn (first stage alarm) unit personnel that an attack is imminent. Ideally, the unit's defense plan should allow increases in perimeter defense while continuing support missions. The company should be trained to respond appropriately. However, when attack is imminent, all personnel stop their normal duties and take defensive positions. The commander's first responsibility is to secure the unit. If he cannot defend against enemy activity, military police will support him. The commander coordinates with the higher headquarters and the base commander, as appropriate.

NUCLEAR, BIOLOGICAL, AND CHEMICAL OPERATIONS

The enemy has the means to conduct operations involving NBC weapons and can be expected to incorporate them into any battlefield scenario. When this happens, the company must be able to survive an attack and continue its mission in a contaminated environment. AR 350-41 establishes the requirement for unit NBC defense teams. One platoon should be given responsibility for the defense team. The commander chooses an officer, an NCO, and an enlisted alternate to lead and train the team. If one section has the mission, it can execute the NBC tasks in a much more timely manner. The team should be trained to decontaminate troops and equipment, do radiological monitoring and survey, and detect chemical attacks. Since the unit has radiation detection and survey equipment, AR 350-41

also requires the commander to appoint at least one survey party for each item of equipment. Each party should have at least two soldiers. Other officers and NCOs must know and be able to apply all the principles of NBC defense as outlined in FM 3-100. For techniques on mitigating the effects of an NBC attack (before, during, and after the attack), see FM 3-4, Chapters 3 through 5.

Nuclear Defense

The conduct of post-nuclear defense operations will require soldiers to operate in a contaminated environment. To reduce the effects of these hazards, soldiers must know what to do.

- Before Attack. The best defense is to dig in. If they have not already done so, soldiers should prepare foxholes or shelters for protection. Deeply dug foxholes give good protection against initial and residual radiation. Dirt is a good shielding material. Caves, tunnels, or storm drains should also be used. They provide good shelter when there are no cave-ins that would allow radiation to enter. Usually, buildings do not provide adequate protection. The basement of a concrete or steel-framed building can be used, but windows and other openings should be avoided. Doors, windows, and vents should be kept closed at all times. Clothing, equipment, and other items should be kept in the foxhole or wherever soldiers are sheltered. Tying down items will keep them from becoming lethal missiles during the blast wave. Ammunition and other explosives should be dispersed. All equipment should be turned off, and power, communications, and antenna cables disconnected. Grounding cables should remain connected to equipment.

- During Attack. Soldiers need training to act without hesitation. As a rule, a nuclear attack will be a surprise. The first sign is a flash. If a flash occurs, soldiers should drop to the ground or to the bottom of a foxhole, facing away from the flash. They should close their eyes, place their hands and arms near or under their bodies, and keep helmets on to protect exposed skin from the heat. Soldiers should count the flash-to-bang time for NBC-1 reporting purposes. Once the burst is heard, falling debris and radiation follow. To minimize casualties from heat and flying debris, soldiers should stay down until the blast wave has passed and returned and debris has stopped falling.

- After Attack. The commander reports the attack to the battalion S2/S3. FM 3-100 gives the standard format for reporting NBC threats or attacks. The battalion SOP should have instructions for the commander's use. Table 6-4 shows the reports he is responsible for. The commander will have to check on personnel and equipment, prepare for fallout, and avoid contamination.

Table 6-4. NBC Reports

LEVEL	USE
NBC-1	To report initial and subsequent data on an attack. Send this report to the battalion S2/S3.
NBC-2	To pass evaluated data of an NBC attack to a higher command. The S2/S3 sends this report to the DISCOM or to the NBC control element.
NBC-3	For immediate warning of expected contamination. The S2/S3 receives this report from DISCOM or the NBC element and gives the data to the commander and other unit commanders.
NBC-4	For reporting radiation dose rate measurements. If the commander is in charge of the monitoring teams in his area, he will send this report to the S2/S3.
NBC-5	To locate areas of radiological, biological, or chemical contamination or hazards. The S2/S3 receives this report from DISCOM or the NBC element.
NBC-6	To summarize information concerning a chemical or biological attack.

Check on personnel and equipment

The most common injuries will usually be burns, fractures, and cuts. The commander directs personnel to give first aid to the wounded. If time and conditions permit, the remains of soldiers killed in the attack are recovered and sent to the mortuary affairs collection point. Unit equipment should be located and organized so that the mission can continue. If feasible, personnel should repair and reinforce their positions to improve protection from fallout.

Prepare for fallout

Timely warning should be given to protect personnel and equipment from radiation. The S2/S3 should receive an NBC-3 report from higher headquarters warning that fallout is expected. Soldiers should start monitoring the area. At least two people should be trained to operate each radiac instrument. Soldiers should prepare and improve shelters if needed, cover equipment, and place water, rations, and individual equipment in covered foxholes or other protected areas. Soldiers may need to put on protective clothing.

NOTE: MOPP gear will not protect against the initial nuclear radiation. Neither will it protect against the hazards of residual radiological contamination from induced gamma rays and fallout. However, it gives some protection because of complete body coverage. It will reduce the chance of beta particles coming in contact with skin and causing burns, and it reduces the possibility of wearers ingesting alpha particles. This encapsulation also aids in simplifying decontamination.

Avoid contamination

When a monitoring team detects fallout, one of the members sounds an alarm. The NBC defense annex to the battalion SOP will tell what kind of alarm to use. The commander ensures that an NBC-4 report is given to the S2/S3. Personnel take cover and stay there until the all-clear is given or until they are told to move. After the all-clear, the commander sees that personnel, food, water, and equipment are monitored with a radiac set to check for contamination. Soldiers and equipment must be decontaminated.

Biological Defense

Biological agents may cause death or long-term disability. These attacks are hard to detect. See FM 3-100.

- Before Attack. The commander sees that soldiers stay healthy, get enough rest, and keep high standards of personal hygiene. If possible, personnel should be immunized against diseases that may be caused by biological agents. Soldiers should wear protective clothing. They should eat and drink only approved food and beverages. They should also treat cuts and wounds, no matter how small. The need for good field sanitation, including pest control, should be stressed.

- During Attack. As soon as the alarm for an attack is noticed, soldiers should put on protective masks and gloves. A biological attack should be suspected when low-lying aircraft producing a mist or spray, or any other spray device, is seen operating in the area. Bomblets that seem to have no immediate effect or swarms of insects not native to the area, or that appear soon after aircraft have been in the area, are other indications. If many people are sick for no known reason, this may be due to biological agents.

- After Attack. Soldiers keep their masks on until the commander tells them to unmask. Soldiers may decontaminate themselves and their clothing with soap and water. They should use germicidal soap if available. Sunlight usually decontaminates unshaded areas. If large areas or buildings need to be decontaminated, the commander informs the battalion S3 so that needed support can be requested. Food and water should not be used until determined to be safe. All illnesses should be reported to medical personnel. They may be able to identify the agents used in the attack and keep the disease from spreading through the unit.

Chemical Defense

Protective clothing and equipment must be worn in defense against chemical attack. The mission-oriented protective posture is a system used to indicate which protective clothing should be worn. The MOPP may vary from no protection to full protective clothing and equipment. It is based on the chemical threat, the mission work rate, and the temperature. The S2/S3 analyzes these factors and recommends the MOPP level for the battalion commander's approval. Instructions on the MOPP are usually provided in an annex to the SOP. They tell what variations may be

made and when the MOPP must be followed with no variations. FM 3-100, Chapter 3, gives more details on the use of the MOPP. See FM 3-4, Appendix A, Table 12, for performance degradation data for combat service support units in a chemical warfare environment. The commander must remember that, no matter what the conditions, the accomplishment of the mission comes first.

- Before Attack. The commander should know the MOPP and variations allowed. When the chemical threat is constant, soldiers may need to wear protective clothing longer. If soldiers' jobs keep them from wearing full protective gear, they must stay alert and be aware of the threat. It usually takes longer to put on the clothing than it does to receive a fatal dose of a chemical agent. The commander sees that soldiers understand signals and alarms and react to them quickly. They should cover themselves and their equipment before going to sleep. The commander sets decontamination priorities (soldiers first, then mission-essential equipment). He organizes standby decontamination stations, prepares protective shelters, and direct drivers to park their vehicles under foliage or trees. He designates detection teams to survey contaminated areas and establishes an evacuation plan for casualties. Soldiers should be trained to recognize and report attacks and hazards. They also need training in gas mask procedures. The commander holds frequent gas mask drills and provides first aid and self-aid training to everyone. Chemical agent detection kits should be inventoried for completeness and issued as needed. Ample quantities of decontaminating agents should be stocked. These are authorized by CTA 50-970.

- During Attack. The first person to recognize a chemical attack puts on his mask and gives the alarm. Alerted soldiers mask immediately, cover themselves with ponchos or shelter halves to protect against chemical droplets or sprays, and continue the mission. As soldiers work, they watch for nerve agent poisoning and use antidotes if symptoms appear.

- After Attack. After the attack, soldiers do not unmask unless given the order. They may not take food or water until the commander approves. Personnel may continue to do their jobs. First aid should be given to the wounded; casualties are reported IAW the SOP. Exposed skin should be decontaminated immediately. Clothing and equipment should be checked for contamination. Items that must be handled, such as weapon hand guards, telephone headsets, and radio microphones, should be checked first, then other equipment. Most items can be decontaminated with soap and water or with the M13 decontaminating kit. Some items should be replaced through the exchange procedure.

Contaminated Areas

The unit may have to cross a contaminated area. If the area is marked, it will be marked as shown in Figure 6-4. If the unit must cross a contaminated area, the following precautions will ensure minimum danger. Soldiers ~~s~~hould

- Use all the protective equipment that will stop chemical or biological agents from getting on or into their bodies.

- Travel upwind of the contamination.

- Avoid low places where chemical or biological agents may collect.

- Avoid contact with debris, buildings, woods, shrubbery, tall grass, and puddles, which tend to retain contamination.

- Cross as fast as they can. The less time they stay in the area, the less effect the contamination will have on them.

- Shield their vehicles from contamination. Place sandbags on the floors. Go as fast as they can safely go.

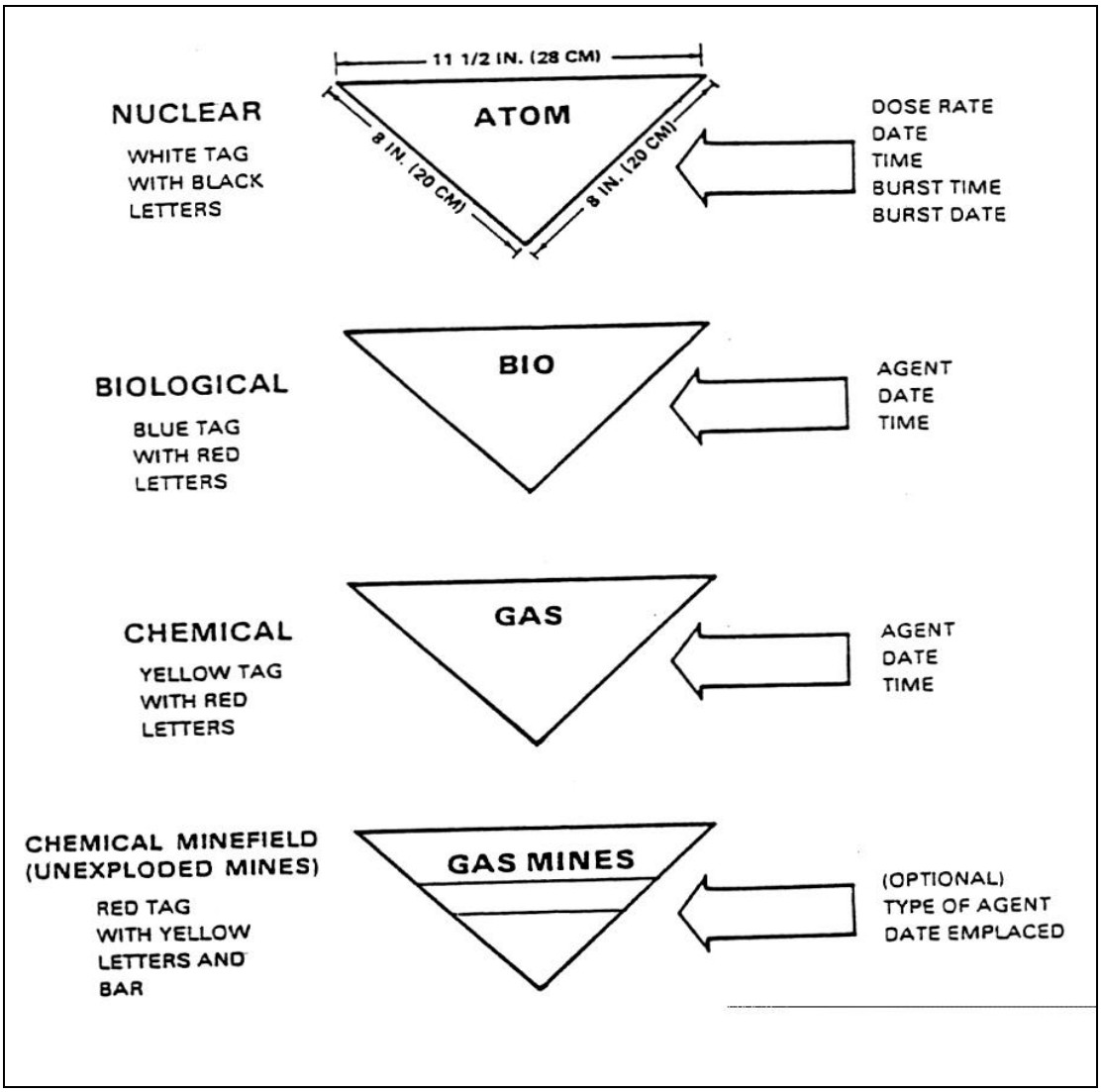

Figure 6-4. Marking of contaminated land areas

Chapter 7
TRAINING

APPLICABILITY

This chapter provides an overview of current and future training trends, concepts, and policies applicable to the Total Army.

MANAGEMENT

The purpose of the Army is to fight and win the nation's wars. Soldiers and units train to fight or support the fighting. Each soldier is trained to perform a job. The unit is trained to accomplish its mission. The commander uses limited resources efficiently to train soldiers to perform their peacetime and wartime missions and also to train them in environmental protection, worker safety, and health issues. The Army's challenge as it enters the twenty-first century is to prepare for both war and stability and support operations. Training is a never ending task. Soldiers must be constantly challenged to do their best in peacetime as well as in combat.

Leader Responsibilities

All leaders must require their subordinates to understand and perform their roles in training. The commander assigns primary responsibility to officers for collective training and to NCOs for soldier training. NCOs also have the responsibility to train sections, squads, teams, and crews. The commander is responsible for integrating leader and soldier training requirements into collective training events using multiechelon techniques.

Types of Training

Different types of training are defined below.

- Individual. Individual training is the training soldiers receive, either in institutions or units, that prepares them to do specified duties and tasks related to their assigned MOS and duty position.

- Collective. Collective training is the training of a group of soldiers (crew, team, squad, platoon) to do tasks required of the group as a whole.

- Institutional. Institutional training is conducted in schools (Army service school, USAR school, NCO academy, unit school) or Army training centers. This training may be individual or collective.

- Unit. Unit training is training conducted in the unit. It may be individual or collective.

- On-the-Job. OJT is given during working hours under the supervision of designated members of the company. Trainees are expected to follow a training schedule that covers all aspects of their assigned duties.

- Distance. Distance learning is the delivery of standardized individual, collective, and self-development training to soldiers and units through the application of multiple delivery means and technologies. It may involve student-instructor interaction in real time, or it may involve self-paced student instruction without the benefit of instructor access.

Principles of Training

Leaders must know and understand the principles of training to effectively train their units. These principles provide direction but are sufficiently flexible to accommodate local conditions and the judgment of commanders and

other leaders. The nine principles of training ~~are~~

- Train as a combined arms and service team.
- Train as you fight.
- Use appropriate doctrine.
- Use performance-oriented training.
- Train to challenge.
- Train to sustain proficiency.
- Train usingmultiechelon techniques.
- Train to maintain.
- Make commanders the primary trainers.

MISSION ESSENTIAL TASK LIST (METL)

Since constraints are placed on training, not all tasks can be allocated the same amount of training time. Therefore, battalion and company commanders must compile the collective mission-essential tasks that must be successfully performed for the organization to accomplish its wartime mission. This compilation is referred to as the unit's METL. The METL is developed and revised periodically. When the unit receives a new wartime mission, it will need to adjust the METL or develop a new one. Procedures for METL development are described in FM 25-101.

INDIVIDUAL TRAINING

Individual training is the training of individual soldiers in institutions or units to prepare them to accomplish their missions. Unit commanders select and train the individual tasks that support the collective tasks of their unit METL. Individual training should be task-based, as realistic as possible, and performance-oriented, that is, it should concentrate on the actual performance of a specified task. Some of the products and materials available to leaders to train soldiers are correspondence courses, soldier training publications (STPs), graphic training aids (GTAs), resident training, interactive courseware (ICW), videoteletraining, audiovisual training products, and on-the-job training (OJT).

Correspondence Courses

The Institute for Professional Development, Army Training Support Center, administers the Army Correspondence Course Program. Certain individual proponents administer their own programs. Correspondence courses and subcourses are self-contained, self-paced, and portable. They are distributed worldwide through the US Postal Service. They help bridge the training gap between resident courses, make soldiers more proficient, and prepare them for additional duties or assignments. Correspondence courses currently earn promotion points for specialists (E4) and sergeants (E5). The courses, phases, subcourses, and enrollment instructions are described in DA Pam 351-20. Soldiers enroll by completing DA Form 145.

Soldier Training Publications

STPs include soldier's manuals, training guides, and officer foundation standards manuals. STPs contain critical tasks and other training information used to train soldiers and standardize individual training. They provide information and guidance on conducting individual training in the unit. These publications aid the trainer, trainee, and commander.

Graphic Training Aids

GTAs include printed texts, job aids, recognition cards, simulations, instructional charts, simple devices, and battlefield simulation games. An index of graphic training aids is in DA Pam 25-37.

Resident Training

Resident training includes the courses conducted at fully accredited and integrated active component (AC), Army National Guard (ARNG), and US Army Reserve (USAR) schools that provide standard institutional training and education to the Total Army. This training through the Total Army School System (TASS) is costly and takes the soldier away from the unit. At times, it is the only way to teach complicated tasks. DA Pam 351-4 lists and describes courses offered by TASS.

Interactive Courseware

ICW is the term used to describe any form of instruction in which a computer is used to enhance, deliver, or develop instruction. This is aninterservice term synonymous with computer based instruction (CBI). The Army Training Support Center will develop the distribution plan for ICW products. Examples of ICW are

- Computer-assisted instruction (CAI), which is used to actually present the instruction. It involves interaction between the student and the computer. Text, graphics, and some low-level computer audio are primarily used. CAI may be delivered on a videodisk, floppy disk, hard disk, or CD-ROM.

- Computer-managed instruction (CMI), which manages instruction by computer, including registration, pretesting, diagnostic counseling, progress testing, post test, anddisenrollment.

- Multimedia, which uses text, graphics, digital audio, animation, and full-motion digital video. It is delivered on a multimedia workstation or personal computer by hard disk, floppy disk, or CD-ROM.

Video-Teletraining (VTT)

Video-teletraining is delivered via communications links such as satellite or cable. VTT is a user-funded capability for all Army trainers. It takes the training to the students, expands the training base, and connects with other service, federal, and state networks for joint andmultiservice training. VTT capability requires the installation of equipment. When the capability exists, a course begins with a unit's request to receive training. Virtually any course that can be taught in a classroom can be taught over VTT.

Audiovisual Training Products

The Training and Audiovisual Support Center (TASC) provides centralized audiovisual support to all authorized users within a geographical area. Trainers can find a listing of audiovisual training products and worldwide support center locations in DA Pam 350-100.

On-the-Job Training

OJT is conducted in the unit while the soldier performs the duties that are being trained, under supervision of unit personnel.

COLLECTIVE TRAINING

Collective training prepares cohesive teams and units to accomplish their mission on the battlefield and in SASO. Collective tasks are derived from unit missions, and they require group participation for their accomplishment. Collective tasks describe the exact performance a unit must perform in the field under actual operational conditions. A unit's critical collective tasks are the essence of the unit's METL. Mission training plans (MTPs), drills, exercises,

training support packages (TSPs), and combat training centers (CTCs) are available to assist the commander and leaders to train collective tasks.

Mission Training Plans

MTPs are training documents that provide a clear description of "what and how" to train critical collective tasks. They are designed to identify and elaborate on critical wartime missions in the form of training and evaluation outlines (T&EOs). They are part of the Armywide Doctrinal and Training Literature Program (ADTLP). The MTP for the petroleum supply battalion is ARTEP 10-426-MTP; for the HHD of the petroleum supply battalion, ARTEP 10-426-30 MTP; for the petroleum supply company, ARTEP 10-427-30 MTP. MTPs consist of the following chapters:

- 1. Unit Training.
- 2. Training Matrixes.
- 3. Mission Outline.
- 4. Training Exercises.
- 5. Training and Evaluation Outlines.
- 6. External Evaluation.

Drills

Drills are disciplined, repetitious exercises that teach and perfect a skill or procedure. They are linked to MTPs as a method for executing a collective task or task step. There are two types of drills that are standard throughout the Army, both of which require minimal leader's orders.

- Battle. Battle drills are collective actions executed by a platoon or smaller element. The action is vital to success in combat or critical to preserving life. The drill is executed on a cue, such as an enemy action or a leader's order, and is a trained response.

- Crew. Crew drills are collective actions that the crew of a weapon or piece of equipment must perform. The action is a trained response to a leader's order or to the status of the weapon or equipment.

Exercises

Exercises are collective task training designed to develop proficiency and crew teamwork in performing the task to standard. They also provide practice for performing supporting individual critical tasks. Following are types of exercises.

- Command Field Exercise. A CFX is a field training exercise with reduced troop and vehicle density, but with full command and control and combat service support elements.

- Command Post Exercise. A CPX is an exercise in which the forces are simulated. It may be conducted from garrison locations or between participating headquarters in the unit.

- Field Training Exercise. An FTX is a scenario-driven tactical exercise used to train and evaluate critical collective and supporting individual tasks in a collective environment, which simulates the stress and sounds of wartime conditions. It is conducted in an austere field environment through all weather conditions during both night and day. An FTX should guide soldiers through a series of events exposing them to the rigors of duty performance during wartime operations.

- Live-Fire Exercise. An LFX is an exercise designed to allow a unit or team to engage targets with its organic weapons and support.

- Situational Training Exercise. An STX is a short, scenario-driven, mission-oriented, tactical exercise that trains closely related collective tasks and drills together. Situational training exercises provide sustainment training for tactical mission proficiency.

Training Support Packages

TSPs are complete, exportable packages integrating training products, materials, and the information necessary to train one or more critical tasks. A TSP can be very simple or very complex. A TSP for collective training is a package that is used to train critical collective tasks in the unit.

Combat Training Centers

The Army combat training center program provides realistic joint service and combined arms training in accordance with Army doctrine. It is designed to provide training units with opportunities to increase their collective proficiency on the most realistic battlefield available in peacetime. The four components of the CTC are

- The National Training Center.

- The Combat Maneuver Training Center.

- The Joint Readiness Training Center.

- The Battle Command Training Program.

TRAINING THE TRAINERS

Soldiers who assist in training the company must also be trained themselves. Training the trainers is one of the most important aspects of training. An untrained or ill prepared trainer will destroy the best training plan.

APPENDIX A

EQUIPMENT REGISTER

Table A-1. Equipment Register for the Petroleum Supply Battalion

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
A03210	ACCESSORY OUTFIT GASOLINE FIELD RANGE: ACCOM 50 MEN	SC 7360-90-N03 TM 10-7360-204-13&P		X
A32060	ALARM CHEMICAL AGENT AUTOMATIC: PORTABLE MANPACK	TM 3-6665-225-12 TM 43-001-26-1 TM 43-002-31	X	X
A32355	ALARM CHEMICAL AGENT AUTOMATIC: PORTABLE MANPACK MB3A1	TM 3-252-BD TM 3-6665-225-12 TM 3-6665-312-12&P TM 3-6665-312-30&P TM 43-001-26-1		X
A56243	ANALYZER SET ENGINE: PORTABLE SOLID STATE (STE/ICEPM)	MWO 9-4910-571-35 TB 9-4910-555-35 TM 9-4910-571-12&P TM 9-4910-571-34&P		X
A72260	ANTENNA: RC-292	TM 11-5820-348-15 TM 11-5820-348-24P	X	X
A79381	ANTENNA GROUP: OE-254 ()/GRC	MWO 11-5985-357-30-1 TM 11-5985-357-13 TM 11-5985-357-23P		X
B07126	AXLE CABLE REEL: RL-27	TM 11-3895-201-13P	X	X
C08565	TRANSIT CASE LOGIC MODULE GROUP:	No DA Publications		X
C32887	CLEANER STEAM PRESSURE JET TRAILER MOUNTED:	No DA Publications		X
C38422	BURNER UNIT GASOLINE FIELD RANGE OUTFIT: W/COMPONENTS	TM 10-7360-204-13&P		X
C62375	BATTERY CASE: Z-AIJ-E1	No DA Publications		X
C68719	CABLE TELEPHONE: WD-1/TT DR-8 1/2 KM	No DA Publications	X	X
C68856	CABLE TELEPHONE: WD-1/TT RL-159/U 2 KM	No DA Publications	X	X
C72376	CASE TRANSIT MONITOR KEYBOARD GROUP: OA-9252/TYQP-33(V)	No DA Publications		X
C72626	CASE TRANSIT PRINTER UNIT GROUP: OA-9251/TYQ-33(V)	No DA Publications		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED	BY TOE
			10426L	10427L
C89070	CAMOUFLAGE SCREEN SUPPORT SYSTEM: WOODLAND/DESERT	TM 5-1080-200-10-HR TM 5-1080-200-13&P	X	X
C89145	CAMOUFLAGE SCREEN SYSTEM: WOODLAND LT WT RADAR SCAT WV SPT SYS	TM 5-1080-200-10-HR TM 5-1080-200-13&P	X	X
D99573	CHARGER BATTERY: PP-34/MSM	TM 11-965 TM 11-6130-219-35P TM 750-5-6		X
E00533	CHARGER RADIAC DETECTOR: PP-1578/PD	TB SIG 226-8 TM 750-5-4	X	X
E03028	ELECT KEY GEN DEDICATED LOOP ENCRYPTION DEVICE: TSEC/KG-84	SEE DA PAM 25-35		X
E03826	ELECTRONIC TEST SET: TS-4348/UV	TB 9-6625-2282-35 TM 11-5855-299-12&P		X
E10835	CHEST HYMNBOOK: W/HANDLES	No DA publications	X	
E32535	CLEANER STEM PRESSURE JET: WITH STEAM GEN VASE MTD 100 PSI	TM 9-4940-342-14&P TM 9-4930-474-10 TM 9-4930-557-14&P		X
E70064	COMP UNIT RCP: TRK 2 WHL PNEU TIRES GAS DRVN 5 CFM 175 PSI	TM 5-4310-241-15*		X
E72804	COMP UNIT RTY: AIR TRLR MTD DSL DRVN 250FM 100PSI	TB 5-4310-452-15 TM 5-4310-452-14 TM 5-4310-452-24P		X
E92641	PRESSURE ASSEMBLY CONTROL: W/MULTIPLE COMPONENTS	No DA publications		X
E98103	ELEC TRANSFER KEYING DEVICE ETKD: KYW-13/TSEC	SEE DA PAM 25-35		X
F39378	CRANE WHEEL MTD: 20 TON W/BOOM CRANE 30 FT W/BLK TKLE 20 TON	TM 5-3810-295-12 TM 5-3810-295-20P TM 5-3810-295-34 TM 5-3810-295-34P TM 43-0001-32		X
F55553	DISTRIBUTION SYSTEM ELEC: 120V 1PH 60AMP	TB 9-6150-226-23 TM 9-6150-226-13 TM 9-6150-226-23P		X
F79334	FLOODLIGHT SET TRAILER MOUNTED: 3 FLOODLIGHTS 1000 WATT	TM 5-6230-210-13&P		X
G11966	GEN SET: DED SKID MTD 5KW 60HZ	TB 9-6115-641-24 TM 9-6115-641-10 TM 9-6115-641-24 TM 9-6115-641-24P		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
G18358	GEN SET: DED SKID MTD 3KW 60HZ	No DA publications		X
G21472	DISPENSING PUMP: HAND DRIVEN HOSE-NOZZLE DISCHARGE ADJUST RANGE	No DA publications		X
G35226	DOLLY TRAILER CONVERTER: 8 TON 2 WHEEL W/E	TM 9-2330-203-14&P TM 43-0001-31	X	
G44569	DRAFTING EQUIPMENT SET BATTALION: CHARTS SKETCHES AND OVERLAYS	SC 6675-90-CL-N04 SC 6675-90-CL-N04-HR	X	
G54041	GEN ST DSL ENG: SKID MTD 3KW 60HZ AC 120/208V MEP-0168	TM 5-6115-615-12 TM 5-6115-615-24P TM 5-6115-615-34		X
G68966	DRUM FABRIC COLLAPSIBLE: LIQUID FUEL 500 GAL CAPACITY	TM 10-8110-201-10-HR TM 10-8110-201-14&P TM 55-8110-201-12-1		X
G68998	DRUM FABRIC COLLAPSIBLE: POTABLE WATER	No DA publications	X	
G74711	GEN SET: DED SKID MTD 10KW 60HZ	TB 9-6115-642-24 TM 9-6115-642-10 TM 9-6115-642-24 TM 9-6115-642-24P		X
G84859	DUPLICATION MACHINE SPIRIT PROCESS: TABLE MTD ELEC/HAND FED IN	No DA publications	X	
H00586	HEATER: DUCT TYPE PORTABLE 120,000 BTU	No DA publications		X
H31136	FACSIMILE SET: AN/TX-1	TM 11-2258 TM 11-5815-246-20P TM 11-5815-246-34P	X	
H51915	FILTER-SEPARATOR LIQUID FUEL: 50GPM 75PSI 1.5 IN INLT 1.5 IN OUT	TM 5-4330-232-12-HR TM 10-4330-232-12&P		X
H52087	FILTER-SEPARATOR LIQUID FUEL: 350GPM 150PSI 4IN INLET 4IN OUTLET	TM 5-4330-211-12		X
H79221	FLOODLIGHT ST ELEC: PTBL 6 LIGHTS MST MTD 5KW 120/208V (ARMY)	SC 6230-97-CL-E03 SC 6230-97-CL-E03-HR		X
H94824	FORWARD AREA REFUELING EQUIPMENT: (FARE)	TM 10-4930-229-12&P TM 10-4930-238-12&P		X
J04717	FUEL SYSTEM SUPPLY POINT: 6000 GAL LESS FLTR PUMP AND TANK	SC 4930-97-CL-E01 SC 4930-97-CL-E01-HR TM 10-4930-232-12&P		X
J31297	INST KIT: MK-2195/VRC FOR AN/VRC-87/88/90 IN 2 1/2 AND 5 TON TRK	SB 11-131-2		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
		TB 11-5820-890-20-7		
J31569	INST KIT: MK-2325/VRC FOR AN/VRC-87/88/90 IN HMMWV	SB 11-131-2 TB 11-5820-890-20-27		X
J31622	INSTL KIT: MK-1967/VRC F/KY-57/W AUXILIARY RECEIVER R442	SB 11-700 TM 11-5810-312-1 TM 11-5810-312-2 TM 11-5810-312-3 TM 11-5810-312-4 TM 11-5810-312-34&P TM 11-5810-343-12&P-1 TM 11-5810-343-12&P-2 TM 11-5810-343-12&P-3 TM 11-5810-343-12&P-4 TM 11-5810-343-34&P		X
J35629	GEN ST DSL ENG TM: 60KW 60HZ MTD ON M-200A1 UP-650	TM 5-6115-365-15 TM 9-6115-648-14&P	X	
J35813	GEN ST DSL ENG: 5KW 60HZ 1-3PH AC 120/208 120/240V TAC UTIL	TM 5-6115-584-12 TM 5-6115-584-12-HR TM 5-6115-584-24P TM 5-6115-584-34		X
J35825	GEN ST DSL ENG: 10KW 60HZ 1-3PH AC 120/208 120/240V TAC UTIL	TB 5-6115-584-23 TM 5-6115-584-12 TM 5-6115-584-24P TM 5-6115-584-34	X	X
J45699	GEN ST GAS ENG: 3KW 60HZ 1-3PH 120/240 120/208V SKD TAC UTILITY	TM 5-6115-271-14 TM 5-6115-271-24P		X
J47457	INST KIT: MK-2326/VRC FOR AN/VRC-89/91/92 IN HMMWV	SB 11-131-2 TB 11-5820-890-20-28		X
J48402	INSTALLATION KIT: MK-2502/VRC F/AN/VRC-46/64 OR AN/GRC-160	SB 11-131-1	X	X
J48470	INSTALLATION KIT: MK-2503/VRC F/AN/VRC-47/VRC-12	SB 11-131-1	X	X
J71543	INSTL KIT: MK-2147/VRC F/KY-57 W//AN/VRC-43 OR AN/VRC-46	SB 11-700 TM 11-5810-312-34&P TM 11-5810-343-12&P-2		X
J71679	INSTL KIT: MK-2149/VRC F/KY-57 W/AN/VRC-64 OR AN/GRC-160	SB 11-700 TM 11-5810-312-34&P TM 11-5810-343-12&P-2		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
J87848	INST KIT: MK-2499/VRC FOR TSEC/KY-57 WITH SINCGAR	SB 11-131-2		X
K24862	HEATER DUCT TYPE PTBL: GAS 250000 BTU WHL MTD	TM 5-4520-224-14 TM 5-4520-224-24P TM 5-4520-201-14 TM 5-4520-201-24P		X
K25342	HEATER IMMERSION LIQUID FUEL FIRED: 34-3/4 IN LG OF HEATER	TM 5-4540-202-12&P TM 10-4500-200-13		X
K53748	HOSE ASSEMBLEY: NONMETALLIC FUEL/OIL HYDROCARBON USE BRASS FITTING	No DA publications		X
K54707	HOSELINE OUTFIT FUEL HANDLING: 4 IN DIA HOSE	SC 3835-97-CL-E03 TM 10-3835-219-14 TM 10-3835-219-24P		X
K87328	INSTL KIT: MK-1443/VRC-46 F/VRC-46 INSTL NOT COVERED BY SPEC KIT	SB 11-131-1		X
K87330	INSTL KIT: MK-1445/VRC-47 F/VRC-47 INSTL NOT COVERED BY SPEC KIT	SB 11-131-1		X
L08724	JACK DOLLY TYPE HYDRAULIC: 10 TON CAPACITY	TM 9-4910-261-14P TM 9-4910-261-14 TM 9-4910-733-14&P		X
L28351	KITCHEN FIELD TRAILER MOUNTED: MTD ON M103A3 TRAILER	TM 10-7360-206-13 TM 10-7360-206-23P		X
L33800	LABORATORY PETROLEUM SEMITRAILER MOUNTED:	SC 6640-97-CL-E02 TM 5-6640-212-14 TM 5-6640-212-14-HR TM 10-6640-215-10-HR TM 10-6640-215-13 TM 10-6640-215-23P	X	
L44595	LAUNCHER GRENADE 40 MM: SINGLE SHOT RIFLE MTD DTCHBLE W/E	TM 9-1010-221-10 TM 9-1010-221-23&P	X	X
L63994	LIGHT SET GENERAL ILLUMINATION: 25 OUTLET (ARMY)	SC 6230-97-CL-E01 SC 6230-97-CL-E01-HR	X	X
L85283	LUBRICAT-SERV UNIT PWR OPER: TRLR MTD 15 CFM AIR COMP GAS DRVN	TM 5-4930-207-12 TM 5-4930-207-20P TM 5-4930-207-34 TM 5-4930-207-34P TM 5-4930-218-14 TM 5-4930-218-24P TM 5-4930-206-12		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
		TM 5-4930-206-15 TM 5-4930-206-20P TM 5-4930-206-35P TM 5-4930-217-12 TM 5-4930-217-14 TM 5-4930-217-20P TM 5-4930-217-34P		
L91975	MACHINE GUN CALIBER .50: HB FLEXIBLE (GROUND AND VEHICLE) W/E	FT 50AA-T-1 TM 9-1005-213-10 TM 9-1005-213-23 TM 9-1005-213-23P TM 9-1005-213-25	X	X
L92386	MACHINE GUN 7.62 MM: LIGHT FLEXIBLE	FT 7.62-A-2 TM 9-1005-224-10 TM 9-1005-224-24 TM 9-1005-224-24P	X	X
M09009	MACHINE GUN 5.56 MM: M249	MWO 9-1005-201-30-1 MWO 9-1005-201-30-2 TM 9-1005-201-10 TM 9-1005-201-23&P		X
M11895	MASK CBR: PROTECTIVE FIELD	TM 3-251-BD TM 3-4240-279-10 TM 3-4240-279-20&P TM 43-0001-26-1 TM 43-0002-31	X	X
M12418	MASK CHEMICAL BIOLIGICAL: M40	TM 3-4240-300-20&P		X
M60449	MULTIMETER DIGITAL: AN/PSM-45	TB 9-6625-2147-35 TM 11-6625-3052-14 TM 11-6625-3052-24P TB 9-6625-2190-35 TM 11-6625-3199-14 TM 11-6625-3199-24P-1		X
M74364	MOUNT GUN: RING CAL .50	TM 9-1005-245-14		X
M75577	MOUNT TRIPOD MACHINE GUN: HEAVY CALIBER 50	TM 9-1005-213-10 TM 9-1005-213-25	X	X
M75714	MOUNT TRIPOD MACHINE GUN: 7.62 MM	TM 9-1005-224-10	X	X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
		TM 9-1005-224-24 TM 9-1005-224-24P		
M92362	MACHINE GUN GRENADE 40MM: MK 19 MOD III	TM 9-1010-230-10 TM 9-1010-230-23&P		X
N02758	NET CONTROL DEVICE NCD: KYX-15/TSEC	SEE DA PAM 25-35		X
N04456	NIGHT VISION GOGGLES: AN/PVS-5	TB 11-5855-298-35 TM 11-5855-238-10 TM 11-5855-238-10-HR TM 11-5855-238-23&P		X
N04596	NIGHT VISION SIGHT CREW SERVED WEAPON: AN/TVS-5	TB 11-5855-298-35 TM 11-5855-214-10 TM 11-5855-214-10-HR TM 11-5855-214-23&P		X
N04732	NIGHT VISION SIGHT INDIVIDUAL SERVED WEAPON: AN/PVS-4	TB 11-5855-298-35 TM 11-5855-213-10 TM 11-5855-213-23&P		X
N05482	NIGHT VISION GOGGLE: AN/PVS-7B	TB 11-5855-298-35 TM 11-5855-262-10-2 TM 11-5855-262-23&P-2		X
N96741	PISTOL CALIBER .45 AUTOMATIC:	TM 9-1005-211-12 TM 9-1005-211-35	X	X
P40750	POWER SUPPLY: PP-6224/U	TM 11-6130-266-15 TM 11-6130-266-24P-2 TM 11-6130-458-14 TM 11-6130-458-24P	X	X
P96640	PUMPING ASSEMBLY FLAMMABLE LIQUID BULK TRANSFER:	TM 10-4320-202-15 TM 10-4320-202-25P TM 10-4320-237-15 TM 10-4320-237-25P*		X
P97051	PUMPING ASSY FLAMBLE LIQ ENG DRVN WHL: 4 IN OUT 350 GPM 275 FT HD	TM 5-4320-218-15 TM 5-4320-218-20P TM 5-4320-218-35P TM 5-4320-272-12 TM 5-4320-272-20P TM 5-4320-272--34 TM 5-4320-272-34P		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
		TM 5-4320-273-12 TM 5-4320-273-24P TM 10-4320-343-14 TM 10-4320-343-24P*		
P97119	PUMPING ASSY FLAML LIQ DRVN WHL: 4 IN 350 GPM 275 FT HD W/REG	TM 10-4320-343-14 TM 10-4320-343-24P		X
P98152	PISTOL 9MM AUTOMATIC: M9	TB 9-1005-317-23 TM 9-1005-317-10 TM 9-1005-317-23&P		X
Q19339	RADIAC SET: AN/PDR-27	TM 11-6665-209-10 TM 11-6665-209-10-HR TM 11-6665-209-20 TM 11-6665-209-40 TM 11-5543 TM 750-5-4 TM 11-6665-228-15 TM 11-6665-228-20P TM 11-6665-228-40P TM 11-6665-230-12 TM 11-6665-230-12-HR TM 11-6665-230-20P TM 11-6665-230-34 TM 11-6665-230-40 TM 11-6665-224-15 TM 11-6665-224-20P TM 11-6665-224-40P TM 11-6665-249-14 TM 11-6665-249-20P TM 11-6665-249-34P*	X	X
Q20935	RADIACMETER: IM-93/UD	TB SIG 226-9 TM 11-6665-214-10 TM 750-5-4	X	X
Q21483	RADIACMETER: IM-174/PD	TM 11-6665-232-12 TM 11-6665-232-20P TM 11-6665-232-40 TM 11-6665-232-40P	X	X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
Q34308	RADIO SET: AN/GRC-160	TM 11-5820-498-12 TM 11-5820-498-12-HR TM 11-5820-498-20P TM 11-5820-498-34P TM 11-5820-498-35		X
Q38299	RADIO SET: AN/PRC-77	SB 11-660 TM 11-5820-398-12 TM 11-5820-398-20P TM 11-5820-398-34P TM 11-5820-398-35 TM 11-5820-667-12 TM 11-5820-667-12-HR TM 11-5820-667-20P TM 11-5820-667-34P TM 11-5820-667-35		X
Q53001	RADIO SET: AN/VRC-46	TM 11-5820-401-10-1 TM 11-5820-401-10-1-HR TM 11-5820-401-10-2 TM 11-5820-401-10-2-HR TM 11-5820-401-20-1 TM 11-5820-401-20-2 TM 11-5820-401-20P TM 11-5820-401-34-2-1 TM 11-5820-401-34-2-2	X	X
Q54174	RADIO SET: AN/VRC-47	TM 11-5820-401-10-1 TM 11-5820-401-10-1-HR TM 11-5820-401-10-2 TM 11-5820-401-10-2-HR TM 11-5820-401-20-1 TM 11-5820-401-20-2 TM 11-5820-401-20P TM 11-5820-401-34-2-1 TM 11-5820-401-34-2-2	X	X
Q56783	RADIO SET: AN-VRC-64	TM 11-5820-498-12 TM 11-5820-498-12-HR TM 11-5820-498-20P	X	

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
		TM 11-5820-498-34P TM 11-5820-498-35		
Q78282	RADIO SET CONTROL GROUP: AN/GRA-39	TM 11-5820-477-12	X	
R14154	RANGE OUTFIT FIELD GASOLINE:	SC 7360-90-CL-N02 SC 7360-90-CL-N02-HR TM 10-7360-204-13&P		X
R20684	RADIAC SET: AN/VDR-2	TM 11-6665-251-10 TM 11-6665-251-20 TM 11-6665-251-40 TM 11-6665-251-40P		X
R30925	RADIAC SET: AN/PDR-75	TM 9-6665-286-35 TM 11-6665-236-10-HR TM 11-6665-236-20P TM 11-6665-236-40 TM 11-6665-236-40P		X
R44727	RADIO SET: AN/VRC-88	TB 11-5820-890-10-3 TM 11-6625-3094-24P TM 11-5820-890-10-2 TM 11-5820-890-10-3 TM 11-5820-890-10-4 TM 11-5820-890-10-5 TM 11-5820-890-10-7 TM 11-5820-890-10-HR TM 11-5820-890-20-1 TM 11-5820-890-20-2 TM 11-5820-890-20P TM 11-5820-890-30 TM 11-5820-890-30P-1 TM 11-5820-914-40 TM 11-5820-914-40P		X
R44795	RADIO SET: AN/VRC-89	SEE R44727		X
R44863	RADIO SET: AN/VRC-89A	TM 11-5820-890-10-1 TM 11-5820-890-10-2 TM 11-5820-890-10-5 TM 11-5820-890-10-7 TM 11-5820-890-10-HR		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
		TM 11-5820-890-20-1 TM 11-5820-890-20P TM 11-5820-890-30P-1 TM 11-5820-914-40 TM 11-5820-914-40P		
R45203	RADIO SET: AN/VRC-90	SEE R44727		X
R55268	RADIO SET: AN/PRC-119	SEE R44727		X
R59023	REELING MACHINE CABLE HAND: RL-31	TM 11-3895-202-13 TM 11-3895-202-24P	X	X
R59160	REELING MACHINE CABLE HAND: RL-39	No DA publications	X	X
R67194	RADIO SET: AN/VRC-88A	SEE R44867		X
R67908	RADIO SET: AN/VRC-90A	SEE R44867		X
R73791	REPAIR KIT COLLAPSIBLE FABRIC TANK: TYPE II REPAIRS UP TO 6 IN	No DA publications		X
R83005	RADIO SET: AN/PRC-119C	SEE R44727		X
R94977	RIFLE 5.56 MM: M16A1	TM 9-1005-319-10 TM 9-1005-319-23&P	X	X
R95035	RIFLE 5.56 MM: M16A2	SEE R94977		X
S01373	SPEECH SECURITY EQUIPMENT: TSEC/KY-57	TB 10-5411-200-24 TM 10-5411-200-14 TM 10-5411-200-24&P		X
S33399	SANITATION CENTER: FOOD	TM 10-7360-211-13&P		X
S70027	SEMITRAILER FLAT BED: BREAK BULK/CONT TRANSPORTER 22-1/2 TON	TM 9-2330-358-14&P TM 43-0001-31		X
S70517	SEMITRAILER LOW BED: 25 TON 4 WHEEL W/E	TM 9-2330-211-14&P TM 43-0001-31 TM 55-2330-200-15-1		X
S70594	SEMITRAILER LOW BED: 40 TON 6 WHEEL W/E	TM 5-2330-360-14&P TM 43-0001-31 TM 5-2330-378-14 TM 5-2330-378-14&P		X
S72983	SEMITRAILER TANK: FUEL SERVICING 5000 GALLON 12 TON 4 WHEEL W/E	TM 9-2330-272-14 TM 9-2330-272-14-HR TM 9-2330-272-14&P TM 43-0001-31 TM 55-2330-200-15-1		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
S73372	SEMITRAILER TANK: 5000 GAL FUEL DISPENSING AUTOMOTIVE W/E	TB 9-2330-356-14 TM 9-2330-356-14 TM 9-2330-356-24P TM 43-0001-31		X
T05741	TESTING KIT PETROLEUM: AVIATION FUEL CONTAMINATION	TM 5-6630-218-10	X	X
T12620	TANK ASSEMBLY FABRIC COLLAPSIBLE: 20000 GAL PETROLEUM	TM 5-5430-210-12 TM 5-5430-210-13 TM 5-5430-210-23P		X
T19408	TANK ASSEMBLY: FABRIC	TM 5-5430-228-12&P		X
T25726	TONE-SIGNALING ADAPTER: TA-977 ( ) /PT	TM 11-5805-262-12 TM 11-5805-262-34	X	X
T31872	TELEPHONE WIRE WITH REEL: MX-10891/G	No DA publications		X
T33786	TRACTOR WHEELED IND: DED 4X4 W/FORKLIFT AND CRANE ATT (HMMH)	TM 5-2420-224-10 TM 5-2420-224-10-HR TM 5-2420-224-20-1 TM 5-2420-224-20-2 TM 5-2420-224-24P TM 55-2420-224-14		X
T34437	TRACTOR WHEELED: DSL 4X4 W/EXCAVATOR AND FRONT LOADER	TM 5-2420-224-12 TM 5-2420-224-10 TM 5-2420-224-10-HR TM 5-2420-224-20-1 TM 5-2420-224-20-2 TM 5-2420-224-24P TM 5-2420-224-34P TM 55-2420-224-14		X
T40405	TAPE READER GENERAL PURPOSE: K01-18/TSEC	SEE DA Pam 25-35		X
T45408	TELEPHONE DIGITAL NON-SECURE VOICE: TA-1035/U	TB 11-2300-481-35 TB 11-5800-216-15 TM 11-5800-216-10-1 TM 11-5800-216-10-2 TM 11-5800-216-10-3 TM 11-5800-216-10-4 TM 11-5800-216-L TM 11-5805-761-12&P		X
T49119	TRUCK LIFT FORK: DSL DRVN 10000 LB CAP 48 IN LD CTR ROUGH	TM 10-3930-643-10		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
	TERRAIN	TM 10-3930-643-12-HR TM 10-3930-643-20 TM 10-3930-643-24P TM 10-3930-643-34 TM 43-0001-32		
T61171	TRUCK TRACTOR: MET 8X6 75000 GVW W/ C/S	MWO 9-2320-273-20-1 TB 9-2300-295-15-17 TB 43-0213 TM 9-2320-273-10 TM 9-2320-273-12-HR TM 9-2320-273-20 TM 9-2320-273-20P TM 9-2320-273-34 TM 9-2320-356-BD TM 43-0001-31 TM 55-2320-273-14		X
T61494	TRUCK UTILITY: CARGO/TROOP CARRIER 1-1/4 TON 4X4 W/E (HMMWV)	MWO 9-2320-280-20-1 MWO 9-2320-280-35-1 TB 11-2300-478-30-1 TM 9-2320-280-10 TM 9-2320-280-10-HR TM 9-2320-280-20-1 TM 9-2320-280-20-2 TM 9-2320-280-20-3 TM 9-2320-280-20P TM 9-2320-280-34 TM 9-2320-280-34P TM 9-2320-356-BD TM 43-0001-31	X	X
T62350	TEST KIT MASK PROTECTIVE: M41	No DA publications		X
T63093	TRUCK WRECKER: TACTICAL 8X8 HEAVY EXPANDED MOBILITY W/WINCH	MWO 9-2320-279-20-3 MWO 9-2320-279-35-1 TB 9-2300-295-15 TB 9-2300-295-19 TM 9-2320-279-10-1 TM 9-2320-279-10-2		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED	BY TOE
			10426L	10427L
		TM 9-2320-279-10-HR TM 9-2320-279-20-1 TM 9-2320-279-20-2 TM 9-2320-279-20-3 TM 9-2320-279-20P TM 9-2320-279-34-1 TM 9-2320-279-34-2 TM 9-2320-279-34-3 TM 9-2320-354-10 TM 9-2320-354-10-HR TM 9-2320-354-24&P TM 9-2320-356-BD TM 43-0001-31 TM 55-2320-279-14		
T77499	TEST SET ELECTRONIC SYSTEMS: AN/PSM-80 (V) 2	No DA publications		X
T96883	TRAILER FLATBED: 5 TON 4 WHEEL GENERAL PURPOSE	TB 9-2330-376-14 TM 9-2330-376-14&P		X
U05008	SPLICING KIT TELEPHONE CABLE: MK-356/G	SC 5975-91-CL-D01 SC 5975-91-CL-D01-HR	X	X
U81707	SWITCHBOARD TELEPHONE MANUAL: SB-22/PT	TM 11-5805-262-12 TM 11-5805-262-20P TM 11-5805-262-34 TM 11-5805-262-34P	X	X
U82529	SWITCHBOARD TELEPHONE MANUAL: SB-993/GT	TM 11-5805-294-12 TM 11-5805-294-14P		X
U89185	UTILITY RECEPTACLE:	TB 9-6150-226-23 TM 9-6150-226-13 TM 9-6150-226-23P		X
V12141	TANK AND PUMP UNIT LIQUID DISPENSING TRUCK MOUNTING:	TM 5-4930-228-14 TM 5-4930-228-24P TM 5-4930-230-13 TM 5-4930-230-23P TM 5-4930-227-14 TM 5-4930-227-24P TM 5-4930-204-13 TM 5-4930-204-23P*		X

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			10426L	10427L
V12552	TANK ASSEMBLY FABRIC COLLAPSIBLE: 10000 GAL PETRO	SC 5430-97-CL-E01 SC 5430-97-CL-E01-HR TM 5-5430-210-12 TM 5-5430-219-23P		X
V15325	TANK FABRIC COLLAPSIBLE: PETROLEUM 50000 GAL	TM 5-5430-210-12 TM 5-5430-219-13 TM 5-5430-219-23P		X
V19950	TANK UNIT LIQUID DISPENSING TRAILER MOUNTING:	TM 10-4930-220-13&P		X
V30252	TELEPHONE SET: TA-1/PT	TM 11-5805-243-13 TM 11-5805-243-23P		X
V31211	TELEPHONE SET: TA-312/PT	TM 11-5805-256-13 TM 11-5805-256-23P TM 11-5805-201-12 TM 11-5805-201-23P TM 11-5805-201-35*	X	X
V36146	COMMUNICATIONS TERMINAL: AN/UGC-74A (V) 3	TM 11-5805-602-10 TM 11-5805-602-10-HR TM 11-5805-602-24 TM 11-5805-602-24P TB 11-2300-481-35 TB 11-5800-216-15 TM 11-5800-216-10-1 TM 11-5800-216-10-2 TM 11-5800-216-10-3 TM 11-5800-216-10-4 TM 11-5800-216--L TM 11-5815-602-10-1 TM 11-5815-602-24-1 TM 11-5815-602-24P		X
V41968	TELETYPEWRITER SET: AN/GGC-3	TM 11-5815-238-10 TM 11-5815-238-10-HR TM 11-5815-238-20 TM 11-5815-238-20P TM 11-5815-238-34P TM 11-5815-238-35		X
V42105	TELETYPEWRITER SET: AN/PGC-1	TM 11-5815-206-12		X

LIN	DESCRIPTION	BASIC PUBLICATIONS	PRESCRIBED BY TOE	
			10426L	10427L
		TM 11-5815-206-20P TM 11-5815-206-34 TM 11-5815-206-34P-1		
V48441	TENT: FRAME TYPE MAINTENANCE MEDIUM LIGHT METAL COTTON DUCK OD7	TM 10-8340-203-13 TM 10-8340-203-23P TM 10-8340-207-14		X
V57914	TERMINAL TELEGRAPH-TELEPHONE: AN/TCC-29	TM 11-5805-356-12		X
V98788	POWER SUPPLY VEHICLE: HYP-57/TSEC	No DA publications		X
W02115	SAMPLING AND GAGING KIT: PETROLEUM MILITARY SPEC DOCUMENTED TYPE	SC 6680-90-N01 TM 10-6630-230-13&P	X	X
W05673	TESTING KIT PETROLEUM:	TM 10-6630-00-310-8564		X
W19880	TIE-DOWN ASSEMBLY: CHAIN TYPE FOR HOLDING COLLAPSIBLE FABRIC DRUMS	TM 10-8110-201-10-HR TM 10-8110-202-10-HR TM 10-8110-202-13&P		X
W32593	SHOP EQUIPMENT AUTO MAINT AND REPAIR: OM COMMON NO 1 LESS POWER	SC 4910-95-CL-B08 SC 4910-95-CL-B08-HR		X
W32867	SHOP EQUIPMENT AUTO MAINT AND REPAIR: ORG SUPPL NO 1 LESS POWER	SC 4910-95-A73		X
W33004	TOOL KIT GENERAL MECHANICS: AUTOMOTIVE	SC 5180-90-N26	X	X
W34648	TOOL KIT CARPENTERS: ENGINEER SQUAD W/CHEST	SC 5180-90-N08	X	X
W51910	TOOL KIT SMALL ARMS REPAIRMAN: ORDNANCE	SC 5180-95-CL-A07 SC 5180-95-CL-A07-HR	X	X
W58075	TOOL KIT WELDERS:	SC 5180-90-N39		X
W65747	TOOL SET VEHICLE FULL TRACKED: ORG MAINT SUPPL NO 2 LESS POWER	SC 4940-95-CL-A08 SC 4940-95-CL-A08-HR		X
W67725	TORCH OUTFIT CUTTING AND WELDING: ORG MAINT SET NO 5	SC 4940-95-CL-B23 SC 4940-95-CL-B23-HR		X
W76816	TRACTOR FULL TRACKED LOW SPD: DSL MED DBP W/BULLDOZER W/SCARIF WINCH	TM 5-2410-233-10 TM 5-2410-233-12 TM 5-2410-233-20 TM 5-2410-233-24P TM 5-2410-233-34 TM 55-2410-237-14 TB 5-2410-237-14 TM 43-0001-32		X

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			10426L	10427L
		TM 5-2410-237-10 TM 5-2410-237-24P TM 5-2410-237-34*		
W91074	TRACTOR WHL IND: DSL W/BACKHOE W/LOADER W/HYD TOOL ATTACH (CCE)	TM 5-2420-222-10 TM 5-2420-222-20-1 TM 5-2420-222-20-2 TM 5-2420-222-20-3 TM 5-2420-222-20P TM 5-2420-222-34 TM 5-2420-222-34P TM 43-0001-32		X
W95537	TRAILER CARGO: 3/4 TON 2 WHEEL W/E	TB 43-0213 TM 9-2330-202-14&P TM 43-0001-31	X	X
W95811	TRAILER CARGO: 1-1/2 TON 2 WHEEL W/E	TB 43-0213 TM 9-2330-213-14&P TM 43-0001-31		X
W98825	TRAILER TANK: WATER 400 GALLON 1-1/2 TON 2 WHEEL W/E	TM 9-2330-213-14&P TM 9-2330-267-14&P TM 43-0001-31		X
X40009	TRUCK CARGO: 2-1/2 TON 6X6 W/E	MWO 9-2320-200-35-1 TB 9-2320-209-14 TB 9-2320-209-30/4 TB 43-0213 TM 43-0001-31 TM 9-2320-209-10-1-HR TM 9-2320-209-10-1 TM 9-2320-209-10-2 TM 9-2320-209-10-3 TM 9-2320-209-10-4 TM 9-2320-209-20P TM 9-2320-209-20-1 TM 9-2320-209-20-2 TM 9-2320-209-20-2-1 TM 9-2320-209-20-2-2 TM 9-2320-209-20-3-1	X	X

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X40146	TRUCK CARGO: 2-1/2 TON 6X6 W/WINCH W/E	MWO 9-2320-200-35-1 TB 9-2320-209-14 TB 9-2320-209-30/4 TB 43-0213 TM 9-2320-209-10-1-HR TM 9-2320-209-20P TM 9-2320-356-BD TM 9-2320-361-10 TM 9-2320-361-20 TM 9-2320-361-20P TM 9-2320-361-34 TM 9-2320-361-34P TM 43-0001-31 TM 55-2320-209-15-1*		X
X40794	TRUCK CARGO: DROP SIDE 5 TON 6X6 W/E	MWO 9-2320-272-20-2 MWO 9-2320-272-24-1 TB 9-2300-295-15/21 TM 9-2320-272-10 TM 9-2320-272-10-HR TM 9-2320-272-20-1 TM 9-2320-272-20-2 TM 9-2320-272-20P		X

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		TM 9-2320-272-34-1 TM 9-2320-272-34-2 TM 9-2320-272-34P-1 TM 9-2320-272-34P-2 TM 9-2320-356-BD TM 43-0001-31 TM 55-2320-272-14-1*		
X40831	TRUCK CARGO: 5 TON 6X6 LWB W/E	MWO 9-2320-272-20-2 TB 9-2300-295-15/21 TM 9-2320-272-10 TM 9-2320-272-10-HR TM 9-2320-272-20-1 TM 9-2320-272-20-2 TM 9-2320-272-20P TM 9-2320-272-34-1 TM 9-2320-272-34-2 TM 9-2320-272-34P-1 TM 9-2320-272-34P-2 TM 43-0001-31 TM 55-2320-272-14-1*	X	X
X49051	TRUCK LIFT FORK: DSL DRVN 10000 LB CAPACITY ROUGH TERRAIN	TM 10-3930-243-12 TM 10-3930-243-20P TM 10-3930-243-34 TM 10-3930-243-34P TM 43-0001-32 TM 55-3930-243-14*		X
X59326	TRUCK TRACTOR: 5 TON 6X6 W/E	MWO 9-2320-272-20-2 MWO 9-2320-272-24-1 TB 9-2300-295-15/21 TM 9-2320-272-10 TM 9-2320-272-10-HR TM 9-2320-272-20-1 TM 9-2320-272-20-2 TM 9-2320-272-20P TM 9-2320-272-34-1 TM 9-2320-272-34-2		X

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Y67067	WRENCH IMPACT PNEUMATIC: 3/4 IN DIA MAC RATED THD SIZE	No DA publications		X
Y75239	WRENCH SET SOCKET: SQ DRIVE 3/4 IN ACROSS FLATS HEX TYPE SOCKETS	No DA publications		X
Y96182	YOKE TOWING AND LIFTING COLLAPSIBLE FABRIC DRUM: 500 GAL CAP	TM 10-8110-201-10-HR		X

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Z31590	DATA TRANSFER DEVICE: AN/CYZ 10	SEE DA Pam 25-35		X
Z36068	TRAILER CARGO: LMTV W/DROPSIDES	No DA publications		X
Z36272	TRAILER CARGO: HIGH MOBILITY 3/4 TON	No DA publications		X
Z38366	LIGHTWEIGHT WEAPON SIGHT: (THERMAL CREW SERVED WEAPON SIGHT)	No DA publications		X
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Z40439	TRUCK CARGO: MTV W/E	No DA publications		X
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Z70236	NAVSTAR GPS PRECISION LIGHTWEIGHT GPS RECEIVER: (PLGR)	No DA publications		X
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Z79610	TENT: EXTENDIBLE MODULAR TEMPER 16L X 20W	No DA publications		X
Z85341	TRUCK TRACTOR: MTV WE	No DA publications		X
Z90712	TRAILER CARGO: MTV W/DROPSIDES	No DA publications		X
Z94047	TRUCK TANK: POL MTV W/E	No DA publications		X

Appendix B

SUGGESTED STANDING OPERATING PROCEDURE (SOP) FORMAT

HEADING

The heading should contain—

a. Designation.

b. Location or mailing address.

c. Date of issue.

d. Number.

e. Title (Standing Operating Procedure).

BODY

The body should contain brief but comprehensive instructions relating to each of the following, when applicable:

a. General.

(1) Subject.

(2) References.

(3) Purpose and scope.

(4) Definitions, when necessary.

(5) Mission.

(6) Assignment.

(7) Capabilities.

(8) Organization.

b. Command.

(1) Command post.

(2) Liaison officers.

(3) Procedure guides.

(4) Orders.

(5) Intelligence

c. Security and Defense.

(1) Plan.

(2) Conduct.

(3) Responsibilities.

(4) Measures.

(5) Weapons.

(6) Mines and boobytraps.

(7) Air and ground attack.

(8) Rear area operations.

(9) Reconnaissance.

(10) Foxholes.

(11) Patrols.

d. Movements.

(1) Order of march.

(2) Distances between vehicles.

(3) Maximum speeds day and night, depending on road conditions.

(4) Reconnaissance.

(5) Feeding.

(6) Refueling.

(7) Halts.

(8) Air and ground protection.

(9) NBC protection.

(10) Night movement.

(11) Guides.

(12) Vehicle identification.

(13) Control officer.

(14) Trail officer.

(15) Loading.

(16) Communications during march.

e. Personnel.

(1) Military justice.

(2) Strength reports.

(3) Decorations and citations.

(4) Prisoners of war.

(5) Casualties.

f. Unit Administration.

(1) Office management.

(2) Field kitchen operations.

(3) Unit supply.

(4) Unit maintenance.

(5) Safety management.

g. Training.

(1) General.

(2) Responsibilities.

(3) Objectives.

(4) Directives.

(5) Phases.

(6) Equipment.

(7) Schools.

(8) On-the job training.

(9) Records and reports.

ENDING

The ending of a typical SOP should contain—

a. Unit commander's signature.

b. List of enclosures or annexes.

c. Distribution.

d. Authentication, if applicable.

Appendix C

PREPARATION FOR OVERSEAS MOVEMENT

Preparation for overseas movement (POM) is more than an exercise in moving from one place to another; it is also a test of how much attention has been given to readiness in the past. The unit may be alerted to overseas displacement from CONUS, from an overseas command to another overseas command, or to CONUS. When alerted, the unit must become POM-qualified. It must be prepared to displace and perform assigned missions in the programmed employment area. (The commander may wish to appoint a unit movement officer to assist him.) The alert will be initiated by a warning order that a movement directive will be issued. Following the procedures in AR 22O-10 will ensure that the unit is POM-qualified. (See Table C-1 for additional guidance.) Procedures may be condensed or modified to permit rapid deployment if the unit is moving in support of operation plans, urgent operational requirements, exercises, or maneuvers.

Warning Order

After receiving a warning order, the commander must—

- Conduct a showdown inspection to determine the status of organizational equipment taken from the home station.
- Ensure that adjustment entries to property book and equipment status reports are made to show corrected data resulting from the showdown inspection.
- Conduct inspections to determine quantities of personnel and organizational clothing on hand and POM-qualified.
- Initiate requests for replacement of shortages of clothing, equipment, and publications.
- Review the basic load authorization document for accuracy and compatibility with equipment authorized by the TOE or MTOE.

Table C-1. Movement Guidance

TRANSPORTATION MODE	CHECK
SURFACE	FM 55-65 for information on— • Movement plan. • Personnel processing. • Final disposition. • Security safeguards and clearances. • Packing and marking. • Movement documentation.
AIR	FMs 55-9 and 55-12 for information on— • Duties of the unit movement officer. • Air movement planning and documentation. • Aircraft load planning. • Pallet profiles. • Preparation of supplies and equipment. • Departure and arrival airfield operations.

Movement Directive

A movement directive gives the commander authority to take further action to prepare the unit for overseas movement and to execute the move. Also, it prescribes authorized displacement strength. Upon receiving a movement directive, the commander will—

- Take action to bring the unit to displacement strength. Refer to AR 220-10 for personnel screening and administrative procedures.

- Conduct a final showdown inspection to determine that all personal and organizational equipment is on hand and in serviceable condition.

- Continue inspection of organization equipment. Ensure repair or replacement of unserviceable items.

- Issue requests to fill shortages established by the showdown inspection or as changed by inspections cited in the movement directive.

- Ensure processing and reporting of communications security materiel held by the unit. (Additional details are in AR 380-40.)

- Report all excesses promptly for disposition.

- Maintain a detailed movement requirement listing and summary for both air and surface transportation.

Movement Order

The movement order will confirm instructions and guidance contained in the movement directive, adding necessary details to prepare for the move. See FM 55-312 if the unit is in CONUS and has been directed to proceed to port by motor convoy.

Appendix D

CLASSES OF SUPPLY

Table D-1. Classes of Supply

CLASS	SUPPLIES
Class I	Subsistence and gratuitous health and welfare items.
Class II	Clothing, individual equipment, tentage, organizational tool sets and kits, hand tools, administrative and housekeeping supplies and equipment.
Class III	POL: petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquids and gases, bulk chemical products, coolants, deicer and antifreeze compounds, components and additives of petroleum and chemical products, and coal.
Class IV	Construction materials, including installed equipment, and all fortification and barrier materials.
Class V	Ammunition of all types (including chemical, radiological, and special weapons), bombs, explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items.
Class VI	Personal-demand items such as candy, cigarettes, soap, and cameras (nonmilitary sales items).
Class VII	Major end items such as launchers, tanks, mobile machine shops, and vehicles.
Class VIII	Medical materiel, including repair parts peculiar to medical equipment.
Class IX	Repair parts and components required for maintenance, including kits, assemblies, and subassemblies—reparable or nonreparable.
Class X	Material to support nonmilitary programs such as agriculture and economic development (not included in Classes I through IX).
Miscellaneous	Water, maps, salvage, and captured material.

GLOSSARY

AAR after action report
ABFDS aerial bulk fuel delivery system
AC active component
accom accommodating
ACCP Army Correspondence Course Program
ACE armored combat earthmover
ADCON administrative control
admin administrative
ADTLP Armywide Doctrinal and Training Literature Program
AMDF Army Master Data File
amp ampere
AMSS Army Material Status System
AMTP Army mission training plan
API air position indicator
AR Army regulation
ARNG Army National Guard
ARTEP Army training and evaluation program
ASCC Army service component commander
BDAR battle damage assessment and repair
bio biological
BMO battalion maintenance office(r)
bn battalion
br branch
Btu British thermal unit
C-E communications-electronics
CAI computer-assisted instruction
cal caliber
CBI computer-based instruction
cfm cubic feet per minute
CFX command field exercise
chem chemical
CINC Commander in Chief
CJCS Chairman, Joint Chiefs of Staff
CK containerized kitchen
cm centimeter
cmd command
CMI computer-managed instruction
co company
COCOM combatant command
comm communications
COMMZ communications zone
COMSEC communications security
con control
cont continued
CONUS continental United States
COSCOM corps support command
CPT captain
CPX command post exercise
CSB corps support battalion
CSG corps support group
CSS combat service support
CTA common table of allowances
CTC combat training center
CZ combat zone
DA Department of the Army
DED diesel-engine-driven
det detachment
dia diameter
DIRLAUTH direct liaison authorized
DISCOM division support command
DOD Department of Defense
DS direct support
dsl diesel
DSU direct support unit
ea each
EAC echelons above corps
ECAS Environmental Compliance Assessment System
EEFI essential elements of friendly information
elec electrical; electronic
envir environment(al)
EOP emergency off-take point
EPW enemy prisoner of war
FARE forward area refueling equipment
FLOT forward line of own troops
FM field manual
FRAGO fragmentary order
FSSP fuel system supply point
FTX field training exercise
fwd forward
gen generator
GPM gallons per minute
GPS gallons per second
GS general support
GTA graphic training aid
HAZCOM hazardous communication
HHD headquarters and headquarters detachment
HM hazardous material
HMMWV high-mobility multiwheeled vehicle
HQ headquarters
HW hazardous waste
Hz Hertz
IAR inventory adjustment report
IAW in accordance with
ICW interactive courseware
in inch
inst instruction
JCS Joint Chiefs of Staff
JPO Joint Petroleum Office

JTTP joint tactics, techniques, and procedures
km kilometer
kw kilowatt
lab laboratory
lb pound
LFX live-fire exercise
LIN line item number
LOGMARS logistics application of automated marking and reading symbols
LP listening post
Lt lieutenant
lt light
LTC lieutenant colonel
maint maintenance
MAJ major
MARKS modern Army record-keeping system
max maximum
MCSR material condition status report
med medium
METL mission-essential task list
MHE materials-handling equipment
MKT mobile kitchen trailer
mm millimeter
MMC Materiel Management Center
mogas motor gasoline
MOPP mission-oriented protective posture
MOS military occupational specialty
MP military police
MPL mandatory parts list
MRE meal ready to eat
MTOE modification table(s) of organization and equipment
MTP mission training plan
NBC nuclear, biological, and chemical
NCA National Command Authorities
NCO noncommissioned officer
NCS net control station
NEPA National Environmental Policy Act
NMC not mission-capable
NSN national stock number
OCONUS outside continental United States
OJT on-the-job training
OP observation post
op operation(s)
OPCON operational control
OPDS offshore petroleum discharge system
OPLAN operations plan
OPORD operations order
OPSEC operations security
org organization
OSC objective supply capability
PAC personnel administration center
pam pamphlet
PBO property book officer
PDC personnel data card
pet petroleum
ph phase
PLL prescribed load list
plt platoon
POC point of contact
POL petroleum, oils, and lubricants
POM preparation for overseas movement
psi pounds per square inch
QM quartermaster
QMS quartermaster supply
QTB quarterly training brief
RAOC rear area operations center
RAP rear area protection
RAWL red amber warning light
rec reciprocating
reg regulator
S1 Adjutant
S2 Intelligence Officer
S3 Operations and Training Officer
S4 Supply Officer
SAARS Standard Army Retail Supply System
SAPO subarea petroleum office
SASO stability and support operations
SB supply bulletin
SC specialty code
sec section
SIDPERS Standard Installation/Division Personnel System
SLCR shower, laundry, and clothing repair
SOI signal operation instructions
SOP standing operating procedures
spt support
sq square
sqd squad
SSA supply support activity
SSL shop stock list
STP soldier training publication
STX situational training exercises
sup supply
svc service
sys system
T&EO training and evaluation outline
TA theater army
TAACOM theater army area command
TACON tactical control
TAMMS The Army Maintenance Management System
TASC Training and Audiovisual Support Center
TASS Total Army School System
TC training circular
TDA tables of distribution and allowances
tng training
TOE table(s) of organization and equipment

trans	transportation
trckd	tracked
trk	truck
TSP	training support package
UCMJ	Uniformed Code of Military Justice
UCP	unified command plan
ULLS-G	Unit Level Logistics System—Ground
UMR	unit manning roster
UMT	unit ministry team
USAF	United States Air Force
USAR	United States Army Reserve
USR	unit strength report
UW	unconventional warfare
v	volt
VTT	video teletraining
w/	with
w/e	with equipment
wdlnd	woodland
wt	weight

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AR 25-50. Preparing and Managing Correspondence. 21 Nov 88.
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12 JUNE 1997

By Order of the Secretary of the Army:

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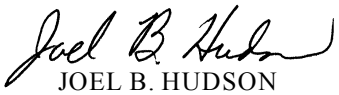

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Administrative Assistant to the
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