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BASIC DOCTRINE FOR ARMY FIELD FEEDING AND CLASS I OPERATIONS MANAGEMENT

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PREFACE

PURPOSE

This FM establishes Army field feeding and Class I distribution doctrine and provides the "how to" as defined in FM 100-10. This edition incorporates changes resulting from the "AFFS-F" study and field trials. It also contains Class I distribution initiatives resulting from the Army's "Total Distribution Study." This includes ongoing developmental efforts to automate Class I request and issue functions in the field. It provides guidance for commanders, FSOs, Class I officers, food advisors, senior/chief food operations management NCOs, FOSs, supply specialists performing a subsistence mission and cooks. Guidance from other manuals has been incorporated to provide comprehensive information in one document. Units may operate effectively with older equipment or that shown herein. The AFFS is already fielded. AFFS-F begins fielding in FY 1995. Class I automation is expected to begin in FY 1996. Fielding of modularly configured theater distribution activities will begin once concept development has been completed.

ORGANIZATION AND COVERAGE

This manual is divided into six parts. Part One covers the general responsibilities of food service and Class I personnel and the rations and menus used in Army field feeding. Part Two deals with operations planning and Part Three deals with AFFS equipment. Part Four discusses safety and sanitation. Part Five covers NBC operations and Part Six covers training.

USER INFORMATION

The commander must be actively involved in the Class I/food service program to benefit from it. An involved and supportive commander soon realizes that this seemingly small portion of his responsibilities plays a major role in the daily morale and productivity of his soldiers.

In this manual, KCLFF and KCLFF-E are considered synonymous. The KCLFF-E will be fielded throughout the Army.

The proponent of this publication is HQ TRADOC. Submit recommended changes on DA Form 2028. Key each comment to the specific page and paragraph to which the comment applies. Provide the reason for each comment. Forward the completed form to–

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

PART ONE
ARMY FIELD FEEDING SYSTEM, RESPONSIBILITIES, AND PERSONNEL

CHAPTER 1
ARMY FIELD FEEDING SYSTEM

PURPOSE

The AFFS is a total system which supports battle doctrine through flexibility in feeding methods. It is designed to meet the tactical commander's needs as determined by the METT-T. It furnishes commanders the capability to provide soldiers the right meal at the right place at the right time. The feeding methods, rations, and equipment described herein give commanders feeding options to perform sustained tactical feeding.

CLASS I SUPPLY CONCEPT

Modularly configured theater subsistence distribution activities and subsistence platoons will provide the required personnel and equipment to support the level of subsistence supply required by the AFFS within an operational theater. These units will support all subsistence requirements once the theater has matured sufficiently to accommodate A-Rations forward and the increased B-Ration or H&S-Ration cycle of the AFFS. Subsistence platoons will work under the operational control of GS companies at TA and corps levels. Platoons are organized to provide refrigerated storage and transportation assets to support the A-Ration, B-Ration, or H&S-Ration cycle at GS and DS levels. Teams from the subsistence platoons will operate at the DS RBPs. Direct support teams will be under the operational control of the supported DS unit commander while operating in the DS unit's area of operation. This concept will be supported by an automated management information system that facilitates responsiveness to the requisitioning and flow of Class I supplies throughout the theater.

OPERATIONS

Class I and food operations personnel will be required to support soldiers in areas engaged in operations ranging from humanitarian assistance to full scale war. Due to mission and employment tactics, there are differences in feeding operations between light and heavy divisions, the EAD and EAC, and separate brigades. The AFFS diminishes those differences by providing identical equipment to each type of division. The primary emphasis is on the commander's ability to seize tactical opportunities as they occur. To support these operations, the AFFS provides a variety of equipment to enable commanders to determine the optimal feeding method based on their METT-T. First is the MKT, which is the primary field kitchen authorized to highly mobile units. (The M1948 kitchen tent maybe used by those units without the MKT). Second is the KCLFF, which provides limited capability to prepare hot meals at company or battery levels. An additional variation, referred to as a KCLFF-Enhanced, has a HMWWV and HMT which will be fielded to infantry, armor, and selected field artillery units to provide greater movement capability. The sanitation center will replace the immersion heaters.

Increased Authorizations

The AFFS provides commanders the capability to distribute and prepare one A- or B-Ration meal every day. Each divisional brigade-size unit is authorized a food service technician to manage and oversee the brigade food service program. Additional cooks have been added to the manning of infantry, field artillery, and armor maneuver battalions, separate infantry brigades, and regiments. Modularly configured theater subsistence distribution activities will handle subsistence from port areas to GS units.

Army Policy Changes

Army doctrine or policy places increased reliance on the RCs to provide combat, CS, and CSS capabilities. The key to success is adequate coordination between battalion and brigade S4s, division G4s, and the supporting Class I elements. Commanders must also rely on the managerial and technical expertise of food service warrant officers and senior NCOs to maximize the productivity of personnel and equipment resources provided.

Threat, Vulnerability, and Limitations

Adequate force structure must be available in the theater to operate the subsistence supply system and to prepare the types of meals requested. Equipment and personnel required to provide Class I and food service support to the theater may be targets of opportunity for threat forces and are vulnerable to the entire spectrum of threat attack means. The effects of nuclear, biological, and chemical contamination would seriously impede subsistence distribution and food service operations. Distribution vehicles will be subject to all levels of threat as they traverse the lines of communication from the POD to the forward areas of the division, and possibly brigade support areas. GSUs and DSUs in the corps rear and in the BSAs are key targets of threat operations. DSUs in forward areas (maneuver brigades) have to maintain mobility while resupplying combat forces. Logistics commanders must be flexible. They must react to demands and maximize the use of throughput distribution to combat trains and combat companies to provide essential supplies continually to units on the battlefield.

Deployment Plans

The RSOP and/or OPORD will provide Class I and food operations personnel with the guidelines on the ration mix for the exercise and/or deployment based on the commander's or units' METT-T. Deployment plans should call for using MREs initially and, as the theater stabilizes, progressing to meal selection from a family of rations that includes the MRE, T-Rations, and the UGR. UGRs provide for cook prepared or heat and serve meals using T-, B-, or A-Ration components. Medical units deployment plans must include the medical B-Ration.

Ration Availability

It must be noted that all types of rations may not be available in each theater at the onset of hostilities. The theater Class I manager (with guidance from the theater commander) must determine the rations to be moved forward using the Push System. When logistics personnel, rations, transportation, and equipment are in place, a Pull System will be implemented. Using the Pull System, the unit places a demand (ration request) and theater support elements react to meet those demands.

MAIN ELEMENTS

As a total system, the AFFS has three main elements. They are a family of rations; equipment to support storage, distribution, and preparation of rations; and personnel to operate the system. This system recognizes the uniqueness of medical units and special considerations required for the health care of soldiers.

FEEDING STANDARD

The field feeding standard is three quality meals each day, with the capability to distribute,

prepare, and serve at least one A- or B-Ration meal per day (METT-T dependent). The family of rations used to support this standard consists of individual meals (MRE, RCW, RLW30) and group meals (UGR B-Rations, UGR H&S-Rations, UGR A-Rations), plus enhancements and supplements. Supplements of bread and milk are required to ensure nutritional adequacy of the T-Ration and UGRs. Enhancements, as detailed in Chapter 3, are issued when authorized to improve variety and acceptability of all rations. The inclusion of one A- or B-Ration meal in the standard of three quality meals per day is based on units having the required personnel and equipment necessary for implementation. Commanders should not attempt to feed the A- or B-Ration meal daily if sufficient personnel and equipment are not available.

Individual Meals

The individual meal is best used when the levels of combat are intense or unit activity precludes the use of a prepared group ration. The individual meal is considered a hot meal when heated using the canteen cup stand, the mounted ration heating device, or the flameless ration heater. Soldiers conducting combat operations (attack, raids, ambushes) in fighting positions or widely dispersed at remote sites represent examples of the right time and place for using the individual meal.

Group Meals

The group meals (H&S, A, B, and UGR) are best used when units are located in more stable or uncontested regions on the battlefield or area of operations. Group meals can be prepared by the heat and serve method (T-Rations) to full scale raw food preparation using a combination of B- and A-Ration components. These meals require more time and resources to prepare and serve and depend upon the logistical capability to deliver all components.

Meal Combination

Combining individual meals and group meals allows the commander to support different battlefield situations. A combination of these two types of meals may be used on a daily basis.

Hospital Patient Feeding

Patients in field hospitals will receive three hot medical B-Ration or A-Ration meals daily. MREs are authorized for patients only in emergency situations when other rations are not available. Perishable supplies will be added to the menu as they become available.

Hospital Staff

The hospital staff follows the theater ration policy unless the capability exists to feed those personnel at an improved standard. When supplies and other resources permit, hospital staff will be fed using the patient standard of three hot medical B-Ration or A-Ration meals per day.

AREA FEEDING

Area feeding is food service support provided by a feeding unit to soldiers of other units in or passing through the vicinity. Feeding responsibility is based on dependency or through task organization. Area feeding is flexible because tasks are organized in planning documents for required cooking resources. Unit commanders, team leaders, and first sergeants coordinate directly with each other. Technical assistance should be obtained from the supporting food service technician during the planning phase. Timely coordination is critical to ensure that adequate subsistence is on hand at the designated feeding unit. The feeding plan and dependency associations should be in the Administration Annex or the Logistics Annex of the operations orders and plans.

Dependency Associations

The AFFS recognizes traditional dependency associations. For example, the division HHC retains

responsibility for feeding the division band and other elements normally in the division headquarters area. Other divisional separate companies, such as the military police and chemical companies, whose missions disperse their elements throughout the division area, will be fed by the division HHC or by the unit to which they are OPCON, in direct support of, or to which they are attached.

Task Organization

The AFFS can also be used during task-organized operations and deployments. Commanders ensure that soldiers are subsisted at the established standard through the use of area feeding, battalion-level feeding, and remote feeding. The food advisor plays a critical role in task-organized or area feeding situations. He must be called on during the earliest possible phases of planning for an operation. Through proper coordination the food advisor can help ensure successful feeding operations during deployments and field operations.

CAPABILITY AND OPPORTUNITY

The system is designed to provide the capability to provide one A- or B-Ration meal per day when tactical and logistical conditions permit. Authorized personnel and equipment within the AFFS are not adequate to provide unlimited A-Ration preparation over a long period of time. Ration availability and METT-T will dictate when the unit can prepare the various types of rations.

Division Feeding

Under the AFFS, divisions have cooks and equipment assigned at battalion level. By assigning resources to the battalions, commanders have the capability to respond to changing tactical situations. One option available is for food to be prepared in the BSA or at the battalion field trains and sent forward to be served. A second option is to send two cooks (equipped with a KCLFF and a HMMWV) forward to support each maneuver company or forward task force's feeding requirements (METT-T dependent). This option provides a choice of cooking some of the food at the battalion field kitchen and completing the meal with limited food preparation forward in the company trains, or cooking entire meals such as H&S UGRs forward. The battalion commander should control these arrangements through an approved field feeding plan or SOP.

Echelons Above Division

EAD organizations are variable structures. Food service is provided by field feeding teams and detachments based on the strength supported. They have either company-level feeding or battalion-level feeding based upon their configuration of fixed or composite battalion structure. Such a structure aids cross attachment of companies from battalion to battalion or independent operations along with the necessary feeding assets. Fixed structure battalions (artillery, engineers, air defense, and aviation) are treated the same as their divisional counterparts. The food advisor needs to develop the feeding plan and support requests by units.

SUPPORT UNDER ADVERSE CONDITIONS

The AFFS enhances the commander's ability to support soldiers while under adverse conditions. It reduces requirements for labor, water, and fuel and, when utilizing heat and serve options of the UGR, increases kitchen mobility, effectiveness, and responsiveness. This system also reduces the administrative burden on unit commanders and food service personnel. Ration accountability and internal control procedures are in AR 30-21.

Manuals and regulations tell you how a subsistence supply or food service activity should be run, but they cannot tell you exactly what to do in every situation. As a manager, you must make day-to-day decisions on matters which may not be covered by your SOP. In such situations, you should keep the organizational mission foremost in your mind, striving to move subsistence efficiently at the least cost.

The eight principles of internal control discussed below provide a guide that you should follow to help

ensure that your operation works smoothly and eliminate many of your administrative problems.

Documentation. Make sure there is a written SOP for your area of responsibility. As new situations come up, record your actions on a memorandum for record. Then add to your SOP a section that tells what to do when such things happen. Make sure your people have access to the SOP and to the regulations and manuals they need.

Recording of transactions. Receipts, issues, inventories, and other actions having to do with the transfer or accounting for subsistence must be recorded at the time the actions are taken. Never conclude a transaction with an agreement to fill out the paperwork later. Do not postdate documents.

Execution of transactions. No one may requisition or receive supplies without a valid authorization. Keep your file of DD Forms 5977 current. Check all unfamiliar signatures on requisitions and receipts. Do not let anyone sign for the accountable or responsible officer without his consent. Get this consent in writing.

Separation of duties. Do not let one or two people exercise too much control over the paperwork. One person should be authorized to requisition and another to receive. Never let the same person do both. Spot-check documents and follow up on discrepancies aggressively.

Supervision. Know your people and check their work. Make sure they know their jobs and the limits of their authority. Insist they contact you when they do not know what to do. Keep your boss informed. Ensure that regulations are being followed and that these principles are being applied.

Access to resources. Make supplies and paperwork secure. Do not let anyone into storage areas or offices unless they are on official business.

Competent personnel. Train your people. Do not put anyone in a job that he cannot handle. Assign responsibilities based on demonstrated abilities and personal integrity.

Reasonable assurance. No organization can function in an atmosphere of mistrust. Do all that you can to ensure regulations, doctrine, and these principles are being followed. However, do not waste time on unnecessary inspections and documentation.

OPERATIONS OTHER THAN WAR

The primary mission of Class I and food service personnel is to provide food service support to deployed forces. This mission can be expanded to include civilian populations and multinational forces when required, through the deployment of additional personnel and equipment. The adaptability of the AFFS permits it to aid in OOTW, described in FM 100-5, as well as field operations and combat deployments. All methods of feeding and accountability described in this manual may be used by Army, USAR, or ARNG units to support military and any civilian population needing assistance. Class I managers and food advisors will provide assistance at the operations centers and on the ground at RBPs and food preparation areas. Class I managers and food advisors may be required to provide assistance in the development of requirements documents for the contracting of food service support. General guidance for contracting actions is contained in AR 30-1 and FM 10-23-2. METT-T will dictate methods chosen to feed military personnel and the supported civilian population.

FORCE PROVIDER

AFFS equipment and procedures are used as an integral part of the Force Provider system. Force Provider provides a stand alone, increased quality of life capability for soldiers or civilian personnel (when employed in response to requests from US civil authorities). The feeding standard for Force Provider units is three cook prepared meals per day, relying primarily on A- and B-Ration components.

Force Provider will be operated by an autonomous Force Provider company with a mission of furnishing climate controlled billeting, food service, laundry, shower, and morale support activities for up to 3,300 soldiers. The company is modular in

design, consisting of six operating platoons, each capable of independent operations in support of 550 personnel.

The mission of Force Provider is as follows:

- Provide front line soldiers with a brief respite from the rigors of combat.
- Support a task force during theater reception, reconstitution and redeployment.
- Support humanitarian, noncombatant evacuation and disaster relief operations.

See Chapter 5 of this manual for deployment and operation of the Force Provider unit.

ENVIRONMENTAL TRAINING AND INTEGRATION

The Army's environmental vision is to be a national leader in environmental and natural resource stewardship for present and future generations. Environmental stewardship must be an integral part of all deployments and operations. The AFFS will provide required levels of food service support while permitting environmental concerns to be properly addressed.

Soldiers and leaders are expected to serve as the Army's environmental stewards. Recent graduates of ANCOC, BNCOC, OBC, and OAC have received environmental awareness training. Each has a personal and professional responsibility to understand and support the Army's environmental program. Proper management of resources and protection of our environment must be integrated in all training and operations planning. Specific duties and responsibilities are detailed in TC 5-400.

Commanders must stay current with federal, state, local, and/or host-nation laws regarding environmental concerns. The most stringent requirements must be complied with during all field operations.

OBJECTIVE

The ultimate objective of the AFFS is to provide soldiers the right meal at the right place and at the right time, served hot. By achieving this objective, the AFFS will provide the field commander maximum flexibility to adjust to the METT-T and logistical support available on the battlefield. If a commander forecasts these conditions, soldiers can always have a hot meal of either individual or group rations. This enhances morale, health and welfare, and increases tactical responsiveness and flexibility.

CHAPTER 2
RESPONSIBILITIES AND PERSONNEL

ORGANIZATION IN THE COMBAT ZONE

The numbered Army acts as the intermediary between the theater commander and the corps. Normally numbered Armies are used only in large scale operations.

Corps

The corps is the largest self-contained Army organization that has combat, CS, and CSS functions. The corps commander is responsible for the organization and operation of services needed to provide subsistence support to corps units.

COSCOM

The COSCOM is a major subordinate command of the corps. It has detailed planning and operational responsibilities for CSS in the corps. These responsibilities include GS level subsistence supply support to the corps, divisions, and separate brigades. DS subsistence supply support is also provided to nondivisional units in the corps area.

COSCOM MMC

The COSCOM MMC is the functional control center for supply and maintenance for all classes of supply, except medical supplies and COMSEC. Daily operations include directing storage and distribution of subsistence, receiving and processing requests for subsistence, and evaluating and balancing work loads of subsistence supply units in the CZ. Nondivisional DSUs in the corps area work directly with the COSCOM MMC.

Support Groups

The support groups are major subordinate commands of the COSCOM. They provide DS subsistence supply service to divisions. Corps support groups are allocated on the basis of one per division and one for the corps rear. The subsistence supply units that provide GS support are usually attached to the S&S battalion of the rear corps support group.

Division

The division is the basic Army unit that combines combat, CS, and CSS capabilities. The division commander must consider the location of support units within his command at all times. The division G4 is responsible for logistical planning and supervision in the division.

DISCOM

The DISCOM commands and controls all of the CSS units organized to provide support to the organic and attached units in the division. The DISCOM commander advises the division commander on all support activities to include Class I.

DMMC

The DMMC is assigned to the DISCOM headquarters. It provides centralized and integrated materiel management for all classes of supply,

except Class VIII. Subsistence supply administration is handled by Class I personnel under the direction of the division subsistence officer.

MSB and FSB

The MSB and FSB RBP receives subsistence and issues it to field kitchens. The MSB and FSB consolidates requests from the field kitchens and sends the consolidated request directly to the Class I manager.

SUBSISTENCE SUPPLY OPERATIONS

Numerous organizations and individuals have subsistence responsibilities. They are described below.

Department of Defense

Subsistence management entails the best use of food supplies to satisfy the nutritional needs of soldiers. Two DOD organizations have subsistence management responsibilities which impact on Army programs.

Defense Logistics Agency. As a staff headquarters, DLA controls buying, inspecting, storing, and distributing food and HCPs worldwide.

Defense Personnel Support Center. The DPSC is an operating element of the DLA. The DPSC is responsible for procuring, inspecting, storing, and distributing subsistence supplies. The DPSC operates a number of storage and distribution centers. It is also responsible for areas under the WIMS. Under the WIMS, USASPTAP submits requirements for war reserve stocks, by NSN, to the DPSC. These are based on contingency plans for deployment.

Deputy Chief of Staff for Logistics

The DCSLOG is the principal staff advisor to the Secretary of the Army and Chief of Staff, Army on subsistence matters. He is responsible for reviewing, coordinating, evaluating, and justifying programs and budgets. Under contingency deployments, the DCSLOG approves the use of the HCPs and determines the initial item composition of the HCPs in a TO. The theater commander may recommend changes in items and quantities as required by theater conditions.

US Army Materiel Command

AMC directs the development and maintenance of Army materiel. It develops and maintains specifications for subsistence items. It also determines Army mobilization and contingency plans for subsistence requirements and maintains the Army's contingency stocks.

US Army Support Activity, Philadelphia

USASPTAP is an element of AMC. It forecasts Army needs for semiperishable subsistence. It computes Class I war reserve materiel requirements based on DA policy and guidance. Requisitions for operational rations go to DPSC.

US Army Quartermaster Center and School

The commander of the USAQMC&S is responsible for carrying out the Army Food Service Program established by the DA DCSLOG. The USAQMC&S provides training, doctrinal guidance, supervision and technical assistance on the acquisition, storage, issue, and accountability of subsistence items and equipment, facility design, sanitation issues, and contracted food services. It advises AMC on food items which are to be integrated into the supply system. It also works with the DPSC and USASPTAP to develop plans for the use of excess stocks and rotating WRS.

US Army Center for Health Promotion and Preventive Medicine

The USACHPPM develops food sanitation program and policy for food sanitation and preventive medicine. The field environmental health program

manager is the executive agent for sanitation and health hazard assessment.

SUBSISTENCE SUPPLY IN A THEATER OF OPERATIONS

The current concept from the total distribution study of subsistence supply in theaters of operations is radically different from the past. Consolidation of labor requirements to the theater rear to handle the volume of perishable and semiperishable subsistence is essential to success on the battlefield. This permits maximum use of personnel to support the command food program. Theater subsistence distribution activities will be located in proximity to APOD and SPOD. The companies are designed to be modular in nature. Modules will be phased in as required. Some modules might not be deployed where the host-nation can support program requirements.

Supply Source

Theater Class I requirements are sent from the TA Class I manager to the NICP or DPSC. Supplies are then shipped directly from the CONUS to a theater subsistence distribution activity. A large portion of the subsistence used in a theater is constantly in motion. It may be shipped from one area to another within the theater or sent to a different theater. The commander determines the type of rations for his troops based on the METT-T and the logistical support capability available. If the theater is in an allied, friendly, or neutral country, and available subsistence meets The Surgeon General's standards, subsistence may be purchased locally. Host-nation support is described in TRADOC Pamphlet 525-36.

Peacetime operations. The installation TISA simulates the theater subsistence distribution activity operation and will receive ration requests either by automated, voice, or handwritten means from the operational Class I Manager.

Field training operations. The TISA accounts for the rations per ARs 30-18 and 30-21.

Deployment conditions. Subsistence requests are transmitted to the MMC which will maintain automated assets visibility and accountability and transfer required information to the finance and accounting systems.

Captured Subsistence

Primarily, captured subsistence is used to feed prisoners of war. It is also used to feed the local population if there is a need. Captured subsistence must be inspected and released by the veterinary inspectors prior to its use. Captured subsistence is used to feed US military personnel only when authorized by the theater commander and after it has been thoroughly inspected by the appropriate medical authority for safety and quality.

Transportation

Most subsistence supplies for a TO are shipped in containerized pallet loads directly from the food producer or processor in CONUS to the theater subsistence distribution activity. Normally, subsistence supplies are not direct-shipped below the GS level of support except for occasional shipments of operational rations to the divisions during the conflict's earliest stages. Subsistence supplies are moved by theater transportation assets from the port to the GSU or to division, brigade, or corps support battalions. In planning transportation assets for Class I supplies the following provide guidance and references:

- MTMCTEA Reference 92-700-2, *Logistics Handbook for Strategic Mobility Planning*, Sep 92. This handbook provides mobility planning on how classes of supplies move via motor, rail, inland water, sea, air, and container transport. It provides detailed information on Class I refrigeration requirements and load capacity charts for movement of all classes of supplies. Information on unit personnel movement requirements and planning factors are also included.
- FM 100-10, *Combat Service Support*, Oct 95. This field manual provides the fundamentals of Army Combat Service Support (CSS). It provides detailed information on how rations are requested and flow from the factory to the soldier in the foxhole.

- FM 10-15, *Basic Doctrine for Supply and Storage,* Dec 91. This field manual provides information on Class I supplies in planning operations.
- DOD 4145.19-R-1, *Storage and Materials Handling,* Sep 79. This regulation provides requirements for storage space requirements, storage procedures, material handling equipment and principles, and the storage of special commodities (lumber, ammunition, explosives, HAZMAT, subsistence, petroleum products).

Modularly Configured Subsistence Distribution Activity

Active Army or RC theater subsistence distribution activities support Class I missions within an operational theater. The theater subsistence distribution activity will provide the required personnel and equipment to support the level of subsistence supply required by the theater or operation. These units receive subsistence, perform ration bulk breaks, assemble unit pallets or containers, and prepare rations for shipment to the RBPs located in division, brigade, or corps support battalion areas. The theater subsistence distribution activity maintains a prescribed number days of supply for the theater, (including all ration types). They also support the distribution of HCPs and ice on the battlefield, as required.

Equipment. Each theater subsistence distribution activity will have organic transportation, equipment, and maintenance capabilities sized to support the modular deployment concept. They will be equipped with prefabricated storage facilities, to include chill and freeze capability. This equipment will be deployed only when there is no availability of fixed facilities in the theater. This equipment will not be deployed when the host-nation can meet sanitation and ice production requirements for the theater. MHE provided each company will include RTCH for container handling and forklifts for pallet or smaller sized packaging. The Army has adopted the ISU 96, refrigerated container (Figure 2-1) for transport and storage of perishable subsistence. This item is listed in CTA50-909, Table 63, NSN 8145-01-325-2243. It is recommended for use down to battalion level.

Automation. Each theater subsistence distribution activity will have total asset visibility through automation equipment which links it to the lowest level RBP, corps support battalions, the NICP, transporters, financial, and personnel systems, and which enable the unit to drop information at MMCs and MCCs. In addition, the automation will provide links with other services which the Army supports beginning at D+60 days.

Subsistence Platoons

Subsistence platoons are attached to selected GS companies in the corps and TA areas. The subsistence platoon receives rations from the theater subsistence distribution activity, reconfigures them for issue to consuming units and forwards them to the requesting CSB, MSB, and FSB RBP. Each platoon has seven teams that provide assistance in the storage, distribution, and issue of subsistence at the RBPs throughout the theater. Each subsistence platoon will also maintain a three days supply of operational rations for the soldiers in their area of operations.

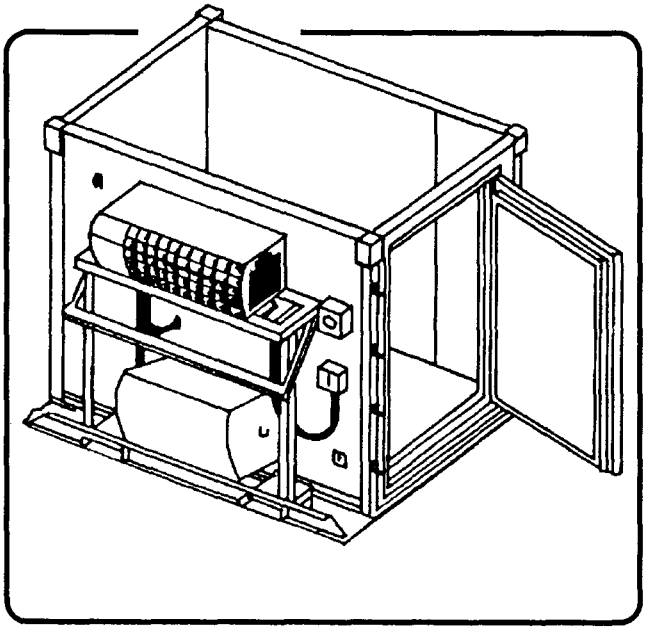


Figure 2-1. ISU-96, refrigerated container

Limitations. The platoon is dependent on the following:

- The QM Supply Company (GS) for necessary command and control, administration, food service, unit supply, and training activities support.
- The COSCOM or TAACOM MMC for integrated materiel management of Class I supplies.
- The COSCOM or TAACOM transportation assets to deliver the perishable subsistence to the platoon location.
- The supported unit having a forward Class I resupply point for rations, security, and needed laborers for the duration of the point's operations.

Platoon functions. The subsistence platoon is organized into four sections. Their functions are outlined below.

The headquarters section. This section has the platoon leader, who is in command of and supervises the operations of the platoon. The platoon leader, with the assistance of the platoon sergeant, coordinates required internal support with the supply operations office, the equipment platoon, and the Class I section of the QM Supply Company (GS). Mission support taskings come through the supply operations office of the responsible MMC.

The receipt, storage, and issue sections. The RSI section receives, inspects, stores, breaks down, and issues subsistence to supported units. The NCOIC receives taskings from the platoon leader and coordinates any support requirements that the section cannot provide. The RSI section supervises the distribution of subsistence to customers. The section outloads subsistence for distribution by the DS support teams. DS teams assist RBP personnel by issuing perishable components of the ration to RBP customers. It also delivers the subsistence to the CSB, MSB, and FSBs RBPs, using the 5-ton tractor with the refrigerated container assembly on the semitrailer flatbed.

The DS teams. The DS teams transport perishable subsistence from the GSU to customer RBPs, operating on-site at the DSU (either divisional or nondivisional).

The maintenance section. The maintenance section is responsible for maintaining the platoon's equipment. Normally, the section operates along with the maintenance section of the QM Supply Company (GS). The company is required to assist in maintaining the communications-electronic equipment. The NCOIC of the section coordinates all support requirements.

Ration Break Points

RBPs are located at DS elements (corps support and division main, forward and aviation support battalions) throughout the theater. Subsistence platoons provide storage support at these locations and assist in controlling the movement of subsistence. Each RBP will maintain a one day reserve supply of MREs for the units (divisional or nondivisional) they support. It is essential that each RBP be as mobile as the maneuver units it supports. Each RBP will prepare load plans and maintain minimal stocks on hand. Units should maintain emergency stocks on vehicles (as possible) to minimize abandoned rations. RBPs will receive ration deliveries from the subsistence platoons pre-configured into unit containers or pallets. Each RBP issues rations to supported units per the established theater ration issue schedule. Forward logistics transfer points may be used to minimize distances unit personnel must travel to pickup subsistence. The RBP will issue MREs as a substitute for rations ordered by the unit during emergencies.

PERSONNEL

Efficient subsistence supply management in a TO requires close coordination by personnel with different areas of responsibility. The primary personnel involved in subsistence supply are discussed below.

Theater Class I Manager

A total system manager for Class I is designated at the TA or corps level, when an independent corps operation exists. It is essential that a theater Class I manager be included on the theater commander's staff to manage Class I and food service operations. The Class I manager plays a key role in planning supply operations and making sure that facilities and personnel are adequate to receive, store, and issue

Class I supplies. He must ensure that there are no voids in planning at any level and that plans are timely and workable. His responsibilities may include the development of requirements documents to contract for goods and services in the theater to support the Class I mission.

Deployment. The theater Class I manager should deploy with the commander's staff. The Class I manager is normally located at the TAMMC. He is the central point of contact for all food program activities within the theater. He must coordinate requirements with the theater food advisor, DPSC, NICP, the theater contracting officer, other military services in the theater, and supported allies. He must also determine the number of days of supply required in the theater, by ration type and coordinate with the senders, movers, personnel managers, and financial managers. The theater Class I manager briefs the command staff as required. He must stay informed on the status of Class I supplies, required distribution capabilities, and personnel and equipment to perform the food service mission.

Field training. During field operations, a TISO or Class I officer must be designated to provide subsistence support and report data. For operations away from the home station, the responsible MACOM must appoint, in writing, a responsible TISO and Class I accountable officer a minimum of 90 days in advance of the operation. The Class I accountable officer is responsible for the acquisition, receipt, storage, issue and accountability of subsistence supplies. He plans subsistence activities; establishes subsistence request, issue, and turn-in schedules for field operations; and advises commanders on matters relating to subsistence operations. When the feeding plan is established, the Class I officer publishes a subsistence request, issue, and turn-in schedule. Reporting data, requesting, issuing, and receiving subsistence procedures will depend on the level of operation. Accountability procedures and flow of reports are in AR 30-21 and AR 30-5.

Veterinary Officers and Staff Personnel

A veterinary officer should be included on the theater commander's staff and assigned in the office of the theater Class I manager, Representatives of the Army Veterinary Command conduct the sanitation inspections prescribed in AR 40-657. They inspect and approve sources of both fresh and prepared subsistence within the host-nation for contract support. Veterinary personnel recommend to the Class I managers necessary changes to food items when those items need waste trimming (AR 30-18, para 9-7). They inspect food production facilities prior to contract award for such items as ice, fresh bread, rolls, and pastries. They also inspect all perishable and semiperishable subsistence as prescribed in AR 40-656. They inspect excess subsistence turned in from field kitchens before it is accepted by the TISA or Class I supply point. They also inspect damaged or deteriorated subsistence before recommending that it be force-issued or dropped from accountability and destroyed. The veterinary officer also serves as advisor to the commander on decisions related to the safety and wholesomeness of subsistence, and to the appropriate ration or menu to be provided based on environmental, sanitation, threat conditions, and captured subsistence.

Surgeon

The surgeon advises the commander on food service issues covering nutrition, sanitation, hygiene, water potability, waste management, pest management and environmental impacts. Preventive medicine sections and detachments conduct training for food service sanitation and unit field sanitation teams, and conduct predeployment medical threat briefings.

Theater Army Food Advisor

The TA food advisor is an essential member of the commander's staff. He provides technical supervision over theater food service activities. He advises the commander on food preparation and service

capability within the theater. The food advisor coordinates establishment of the theater menu, and works with the Class I, veterinary, and contracting officers to acquire required menu components. He helps the theater Class I manager determine requirements, schedule pick-up and turn-in times, and decide the best methods of ration breakdown and distribution.

Subsistence Platoon Leaders

Subsistence platoon leaders are responsible for directing and controlling platoon operations related to receipt, storage, subsistence configuration (for unit piles), issuing, shipping, and accounting for subsistence supplies. Their specific duties vary depending on the location of the unit and the quantity and type of Class I supplies.

Ration Distribution Sergeant

Ration distribution sergeants are responsible for operation of Class I units at all levels, to include operation of the tactical Class I system (manual or automated). They are responsible for acquisition, receipt, storage, ration configuration, shipments, and accountability for subsistence and HCPs. They supervise inventories and recommend resupply levels. Also, they supervise the transshipment of rations throughout the theater. Ration distribution sergeants are also responsible for computing tonnage requirements and loading plans for subsistence managers.

Troop Issue Subsistence Officer

The TISO is the military, DA civilian, or contractor responsible for the operation of the TISA on an installation. During peacetime training operations or domestic emergency deployments, the TISA will frequently serve as the theater level Class I activity, providing support to participating units. In some theaters, it may be possible for OCONUS TISAs to continue to operate during hostilities. Depending on the level of hostilities, personnel assigned may be military, civilian, or contractor employees.

Staff Officers

Table 2-1, page 2-8, shows the duties and staff coordination from the TA level down to the units that receive subsistence requirements from users. For more specific information on specific staff officer duties, see the appropriate manual or AR.

FOOD SERVICE OPERATIONS

The commander is responsible for the field food service operation of his unit. His duties and those of other food service personnel are described below.

Commander

The commander must–

- Ensure the unit has all authorized field kitchen equipment listed in the MTOE, TOE, AR 71-13, the DA equipment and authorization and usage program, and applicable CTAs.
- Ensure that authorized administrative, medical, field sanitation teams, and supply personnel are available and trained.
- Ensure that the unit basic load, as prescribed in AR and MACOM policy, (a minimum of three days supply of operational rations) is on hand.
- Ensure that adequate transportation support capabilities are available to move personnel, equipment, subsistence, ice, water, fuel, trash, and residual rations.
- Ensure that sufficient KP support is available for field kitchens preparing A- or B-Ration meals.
- Request that food service technical support to assist FOS be available before, throughout, and after the field mission.
- Ensure that personnel data (present-for-duty by service component, remote site feeding, and personnel paying by cash) is provided to the FOS in a timely manner.

Table 2-1. Staff duties and coordination

TITLE	DUTIES	COORDINATION
Theater Class I Manager	Plans policies and procedures for Class I operations.	Food Advisor, Menu Board, G4/S4
Chief Subsistence Branch, MMC	Manages subsistence supply. Sees that supplies are procured, stored, and sent to users as needed.	Food Advisor, Menu Board, Chief of MMC, Subsistence Officer
Veterinarian	Inspects food for quality and condition. Determines suitability for issue or further storage. Recommends when to force issue subsistence items.	Subsistence Supply Personnel; Food Advisor; Surgeon; Chief, Subsistence Branch, MMC
Surgeon	Advises menu board on nutrition. Supervises sanitary standards used in food storage. Insect and rodent control, environmental pollution, field sanitation, field food service, and inspection of field water supplies.	Subsistence Supply Officer, Food Advisor
Subsistence Supply Officer	Advises on and supervises distribution and storage of Class I supplies.	Food Advisor, G4/S4, Surgeon, Engineer, Subsistence Officer (ACofS, Materiel)
TISO	Requisitions, inspects, stores, issues, sells, and accounts for subsistence.	Food Advisor, MACOM, QMC&S
G1/S1	Acts as personnel officer. Coordinates staffing of subsistence supply activities.	Food Advisor, Subsistence Supply Officer
G2/S2	Acts as security officer. Gives security clearance to foreign nationals.	Food Advisor, G1/S1
G3/S3	Acts as plans, training, and operations officer. Coordinates training programs and school assignments. Arranges for special subsistence requirements for planned operations.	Food Advisor, Subsistence Supply Officer
G4/S4	Acts as logistics expert. Supervises food program and food advisor.	Food Advisor, Chief Subsistence Branch, MMC, Subsistence Supply Officer
G5/Civil Affairs	Advises on local nationals and foreign personnel in a theater. Coordinates with procurement officials for the ordering of local subsistence.	Food Advisor, Subsistence Supply Officer

Food Service Officer

The FSO acts as a liaison between the commander and the FOS in all matters pertaining to the food service operation. He is designated by the commander and coordinates with the local food advisor.

Food Advisor, Food Service Technician, and Senior or Chief Food Operations Management NCO

The food advisor may be a commissioned officer, a warrant officer, an NCO, or a DA civilian, depending on the level of operation. The food advisor's main responsibilities are to advise commanders, assist the FOS, and assist in resolving food service-related problems. The food advisor must be familiar with all areas of the AFFS. He must provide assistance in field operations from as early as possible in the planning phase until the mission is complete. Detailed guidance pertaining to performance of specific duties will be discussed throughout this manual.

Senior Food Operations Sergeant and Food Operations Sergeant

The FOS is charged with providing the best possible food service support to the soldiers on the battlefield. The FOS must know all aspects of field operations. He must make the most efficient use of assigned personnel, equipment, facilities, and supplies. The FOS must coordinate closely with the commander, FSO, first sergeant, and the food advisor. He must be involved as early as possible in the operation planning phase. He must continually improve his food service team's proficiency, by ensuring that all assigned personnel are properly trained to work as part of the team.

Food Service Personnel

The AFFS provides food service personnel (cooks) to prepare all meals in the family of rations. Staffing is based on the feeding standard as established in Chapter 1, and gives commanders the capability to serve one A- or B-Ration meal every day, METT-T dependent.

Divisions, separate brigades, and armored cavalry regiments. Cooks are consolidated or assigned at battalion level for fixed structure organizations (Fixed structure organizations refer to battalions with a fixed number of subordinate units). There are some exceptions to the basic concept of consolidating cooks at battalion level. These exceptions are necessary to take into account how units are deployed and operate on the battlefield. These exceptions include the following:

- Forward support medical companies feed patients being held for treatment and return to duty or awaiting evacuation.
- In the light infantry divisions, the DIVARTY HHB, the 155mm howitzer battery, and the MSB aviation maintenance company are assigned their own food service teams.

Echelons above division and nondivisional units. EAD separate companies with a strength of 100 or more are provided cooks at company level. Fixed structure battalions in EAD (artillery, engineers, air defense, and aviation battalions) are treated the same as their divisional counterparts and are authorized cook spaces accordingly. Nondivisional separate units with required strengths from 30 to 99 will receive one cook to augment the staffing of the unit providing food service support. Nondivisional separate units with a required strength of less than 30 soldiers are not resourced with food service personnel. These units will coordinate with nearby feeding units for support under the area feeding concept.

KP Support

When the commander determines at which meals A-, B-, and T-Rations will be served, the unit must provide KP support to the food service team. The use of A- and B-Rations increases the sanitation work load. Staffing of cook personnel was not designed to handle this increase without unit supplementation. The number of personnel required depends on the unit feeding strength, mission, and remote site feeding versus the consolidated feeding

requirement. Consult with the food advisor when determining required KP staffing. (AR 30-1 gives data on figuring the number of KPs required for food service operation).

INFORMATION FLOW WITHIN A THEATER OF OPERATIONS

The flow of Class I information (Figure 2-2, page 2-11) within the theater begins at the organization requesting and preparing food for its soldiers. It may be a stand alone company, a battalion, or an entire brigade consolidated at one location.

Unit Requirements

The unit commander consults the approved feeding plan, menu cycle or issue schedule for the theater or exercise, and the METT-T to determine the rations which will be required to support his unit. The commander then notifies the unit FOS of the type or types of rations required to support the unit feeding mission. The FOS identifies the ration amounts needed and using S4 communications transmits a ration request to the supporting RBP. Units may not specify the menu desired, only the ration type required. Rations will be issued in accordance with an approved standard Army field menu and the theater or operation feeding plan. Requests must provide unit designation, unit DODAAC, meal consumption date, meal delivery date, and number of meals by meal type.

RBP Action

RBP personnel enter each unit's request in the automated ordering system and transmit them through the MMC to the theater subsistence distribution activity.

MMC Action

The theater subsistence distribution activity operates the automated system which converts the ration request into a Pull System list, subtracts the items from the inventory, prepares the MROs, and provides the theater Class I manager and food advisor with an inventory status list. The MMC, based on guidance from the Class I manager and the food advisor, generates automated Class I requisitions to the NICP for subsistence resupply. Information copies of unit ration requests are also furnished to the supporting subsistence platoon, support battalions, MMCs and MCCs.

Subsistence Tracking

LOGMARS and global positioning system capabilities will provide tracking of rations from the sender to the consuming unit. The rations will be tracked from the time they are shipped by the depot until they arrive in the theater and then from the theater subsistence distribution activity to the using unit. This will be accomplished by Total Asset Visibility.

Future Developments

When the Class I automation has been added to an existing STAMIS, it will include links with the personnel strength reporting and financial reporting system. In addition, plans include an automated link with other military services to permit transmission of ration requests from their units to the theater subsistence distribution activity. Details of the concept for support to other services are currently under development.

RATION FLOW IN THE THEATER OF OPERATIONS

Both perishable and semiperishable subsistence arrive in the theater at the POD. The theater subsistence distribution activity prepares and forwards the rations to the subsistence platoons. The flow of rations in the theater of operations is depicted in Figure 2-3, page 2-12.

Subsistence platoons receive rations from the theater subsistence distribution activity. The rations are forwarded to the RBPs configured to provide for a minimum of handling and accountability at forward sites.

RBPs receive the preconfigured rations from the subsistence platoons, complete the issue break, and issue the rations to the consuming unit. Subsistence teams (detached from the subsistence platoon) provide refrigerated storage support at these locations and assist in controlling the movement of subsistence.

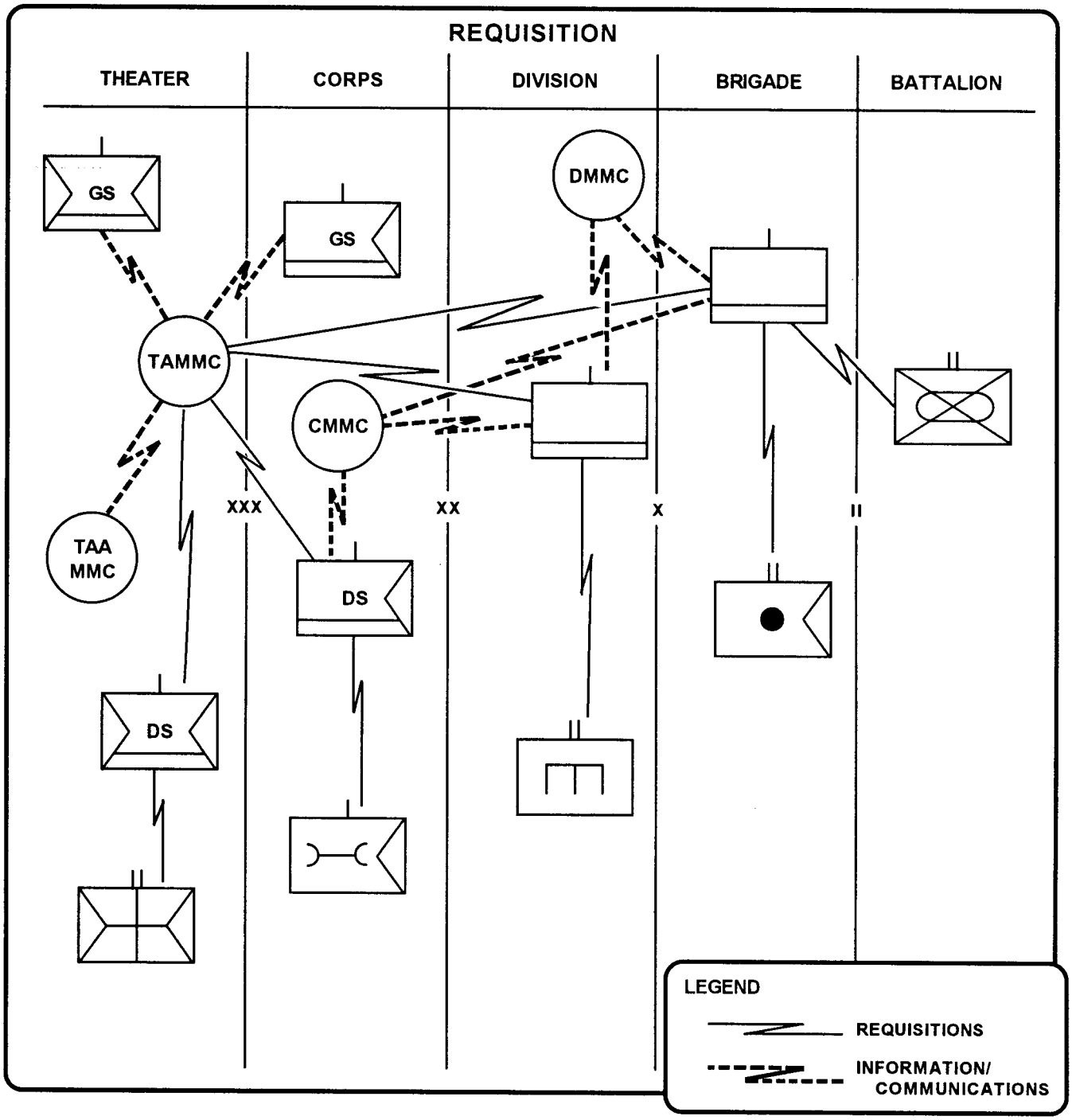


Figure 2-2. Information flow in the theater of operations

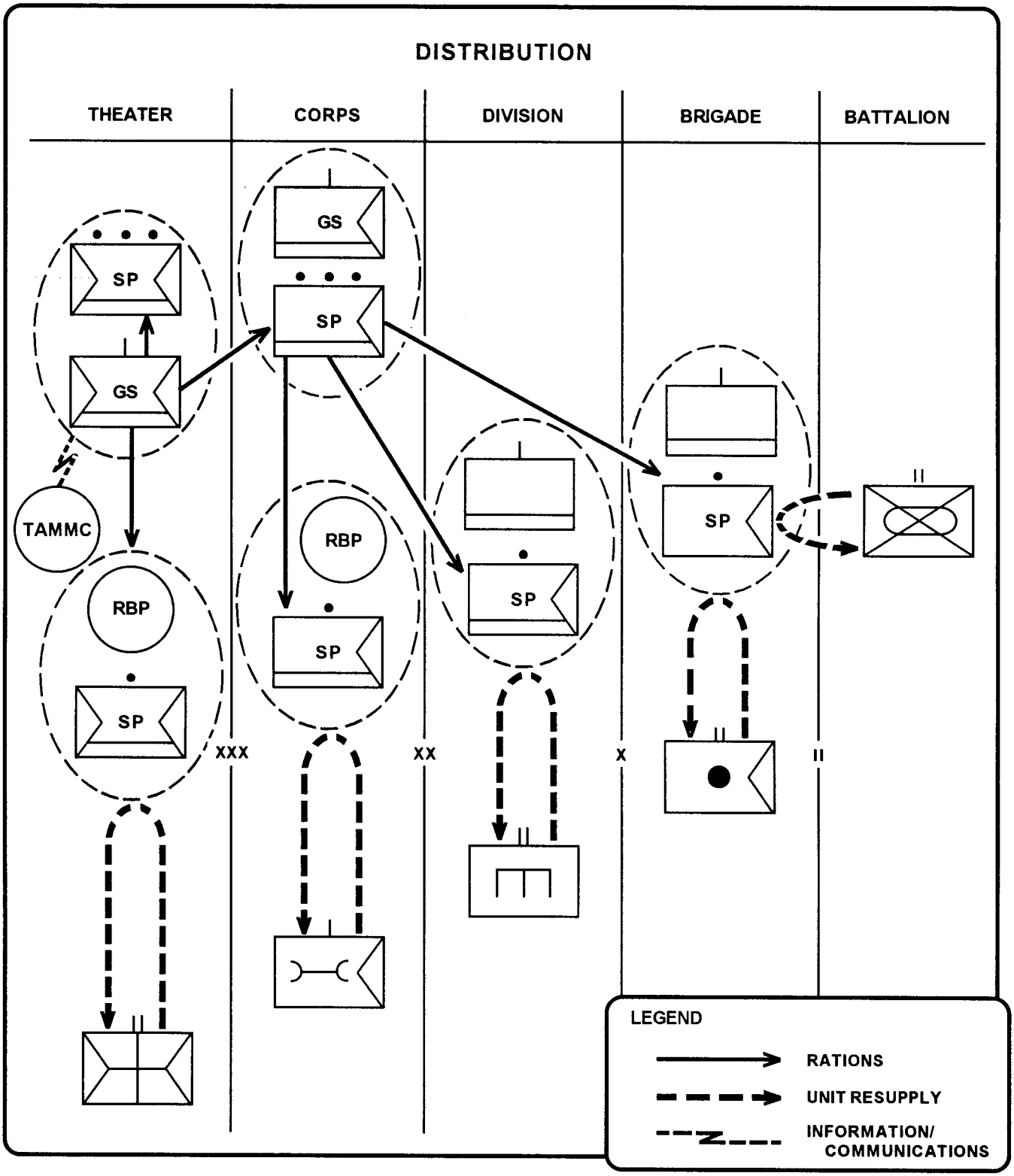


Figure 2-3. Flow of rations in the theater of operations

CHAPTER 3
RATIONS AND MENUS

RATIONS

A ration is an amount of food which is nutritionally adequate to subsist one person for one day. The Army has fielded a family of rations, and commanders must choose the appropriate ration mix according to their tactical and logistical situations. The UGR rations, Figure 3-1, and the packaged individual operational rations constitute the primary rations used in the field. The MRE is the primary packaged individual operational ration. When fully fielded, the UGR will replace the modularized B-Rations, T-Rations, and loose A-Ration meals.

UNITIZED GROUP RATIONS

- *A-Ration* - refrigeration, food preparation, and cooking.
- *B-Ration* - food preparation and cooking.
- *Heat and Serve (H&S)* - heat or add water and serve.

Figure 3-1. Types of UGR Rations

UNITIZED GROUP RATION

The UGR is a depot packed, modularized ration that reduces the number of line items handled by Class I activities and significantly reduces the occurrence of not-in-stock status. The only separate line items to be handled are the entree components of the A-Ration meal, authorized enhancements, and supplements. Milk and bread must be issued with all UGRs as they are not in the modules.

The UGR utilizes name-brand items and develops a standard product throughout the battlefield. The use of off-the-shelf products like instant gravies and sauces permits easier food preparation.

The UGR provides commanders the flexibility to serve either an A-Ration, B-Ration, H&S-Ration, or an MRE, based on the METT-T.

UGRs are palletized by meal, breakfast 1-5, lunch/dinner 1-10, and by ration option A, B, or H&S. Each UGR is then palletized in groups of four 100- man increments for specific meals (A, B, or H&S). For example, a pallet would contain 400 UGR B-Ration dinner meals, menu 1.

A-RATIONS

A-Rations include perishable and semiperishable items. Perishable items require refrigeration and increased transportation, fuel, equipment, and water requirements. The work load, liquid and solid waste disposal, and sanitation problems for food service personnel are also increased. Concurrent with the introduction of perishable rations into the TO, refrigerated transportation and storage assets are required from the receiving theater subsistence distribution activity to the using field kitchen. Peacetime requirements for refrigeration continue to be satisfied by civilian direct hire and contractors operating TISAs. Other possible sources of refrigeration include existing TOE assets, ISU 96 refrigerated containers, host-nation support, or local purchase from commercial sources.

B-RATIONS

The B-Ration consists of semiperishable items. There are approximately 100 semiperishable foods used in the 10-day menu. The ration provides breakfast,

lunch, and dinner menus. The components are primarily canned and dehydrated foods and are packaged in bulk containers of various sizes and types. Table 4-3, page 4-6, gives weight and planning factors for B-Rations. The shelf life varies depending on the item. The food is susceptible to damage from freezing, heating, insects, rodents, humidity, puncture, and breakage.

Use

The standard B-Ration is used for feeding in areas where kitchen facilities, without refrigeration, are available. It is also used in situations that do not permit resupply of perishable foods. It is designed to aid substitution of perishable items on a line-item basis. Unitized B-Rations are currently available from the wholesale supply system only when special coordination is made with HQDA DCSLOG or DPSC. Unitized B-Rations are composite stocks palletized in quantities sufficient to feed a group of 100 personnel two breakfast and two lunch/dinner meals. Presently there is a 10-day menu cycle published in SB 10-495. Menus for hospital regular and special diets are contained in SB 10-495-1.

Preparation Requirements

Cooks must be trained to prepare B-Rations. The B-Ration must be reconstituted according to the procedures printed on or included in each container.

Water. To prepare food for 100 persons for one day, you need 64 to 86 (75 average) gallons of water. This includes water for beverages on the menu, but not for refilling canteens or for personal sanitation.

Time. Two cooks need approximately two to three hours to prepare a meal for 100 personnel; additional personnel are required for serving and sanitation.

Special handling. All dehydrated meat items and certain other food items must be carefully handled during preparation to prevent the product from breaking apart. Fish must be prepared as close as possible to serving times. It is essential to follow the instructions on the can for dehydrated egg mix to ensure proper product consistency and quality. Cheese, applesauce, and cabbage must be handled carefully also.

Nutritional Data

The ration provides approximately 4300 kilocalories per day (13 percent protein, 33 percent fat, and 54 percent carbohydrate).

STANDARD MEDICAL B-RATIONS

The standard medical B-Ration is used to subsist staff and patients in Army medical treatment facilities during organized food service operations when semiperishable rations are required. For planning purposes, it is assumed that 100 percent of the staff and 77 percent of the total patient strength will subsist on the medical B-Ration when semiperishables are required. The remaining 23 percent of hospitalized patient strength will require modified diets of liquid medical B-Rations.

Medical B-Ration Menus

The standard B-Ration menus, with added food items to satisfy nutritional and dietary requirements, are the basic medical B-Ration menus. Additional medical B-Ration unique items are required for patient feeding. Special subsistence requirements to support the medical B-Ration menus are identified in SB 10-495-1 and are required for medical feeding immediately when hospital units are set up in a TO. Tables in SB 10-495-1 have been written to provide separate requirements for 100 patients or staff rations per day.

Medical B-Rations

Medical B-Rations must be planned for all patient feeding requirements. They will be supplied in a TO when hospital units are deployed until a medical UGR module is developed and approved for patient feeding.

DENTAL LIQUID RATION

The dental liquid ration is designed for military personnel who are unable to eat solid foods due to broken jaws or other maxillofacial injuries. The components are easy to prepare and require no refrigeration prior to reconstitution. The consistency of the mixture can be varied by adjusting the amount of water added.

Characteristics

The components in the five-day cycle menu consist of dehydrated food powders. The products, when reconstituted with water, taste like their solid counterparts, but are in a liquid form. Each one is easily sipped through a straw. Milk shakes have also been developed and are used as between meal nourishments. The products are available in single-serving packages or 10-patient meal modules. The shelf life of each product is a minimum of three years at 80 degrees Fahrenheit.

Nutritional Data

Each menu, including three milk shake nourishments, provides an average of 3500 kilocalories (15 percent protein, 35 percent fat, and 50 percent carbohydrate). Each milk shake provides approximately 400 kilocalories.

Preparation Requirements

Products are dehydrated with water and mixed in a blender. They can also be dehydrated by whisking them into solution if a blender is not available.

T-RATIONS

T-Rations are heat and serve operational rations consisting of semiperishable items. T-Rations are designed to sustain the Army in highly mobile field situations with good quality, nutritionally adequate, heat and serve meals. This ration includes a variety of fully cooked tray pack entrees, vegetables, desserts, and starches. The tray pack, which is the main component of the T-Ration, is packaged in a heat processed, low-profile, rectangular, half-sized serving line steel pan. This container serves as a package, heating pan, and serving tray.

Packaging

Unitized T-Rations are palletized according to the menu. A separate T-Ration menu is on each pallet. Pallets consist of 432 T-Ration meals in twenty-four 18-meal modules. The T-Ration is packaged in modules by DLA depots. Table 4-3, page 4-6, gives weight and planning factors for T-Rations. The ration is designed to have a shelf life of 12 months at 100 degrees Fahrenheit and 36 months at 80 degrees Fahrenheit.

Supplements

Bread and milk must be available with each T-Ration meal. Bread may be canned, pouched, or fresh. Milk may be fresh, powdered whole milk, or WIT. Two half-pint containers of milk are served for breakfast with cereal and one half-pint container is served for lunch and/or dinner.

Nutritional Data

The breakfast menus, including milk and bread supplements, provide an average of 1400 kilocalories (16 percent protein, 31 percent fat, and 53 percent carbohydrates). The lunch or dinner menus, including bread and milk supplements, provide an average of 1500 kilocalories (17 percent protein, 29 percent fat, and 54 percent carbohydrates). The cold weather supplement provides an additional 1200 kilocalories.

SPECIAL OPERATIONAL RATIONS

Special operational rations are prepackaged, precooked foods. They are used under special operational conditions when general operational rations cannot be issued.

General Purpose Food Packet, Survival

This food packet contains four food bars and accessory foods that provide the required calories

and nutrients to feed a soldier for one day. It is designed for use in case of disaster.

Meal, Ready-To-Eat

MREs are packaged meals designed for consumption either as individual units for a meal or in multiples of three as a complete day's ration. This ration is used to sustain individuals during operations that preclude organized food service facilities but where resupply is established or planned.

NOTE: *On 21 June 95, The Surgeon General released a revised policy on the use of the MRE as the sole source of subsistence. This revised policy allows MREs to be consumed as the sole source of subsistence for up to 21 days. When available, bread, fruit, and milk as enhancements to the MRE are recommended.*

There are currently 12 different menus in each box. The Army plans to increase the total number of menus to 18. The MRE also comes with the FRH included in each pouch. The ration has a shelf-life of three years at 80 degrees Fahrenheit and six months at 100 degrees Fahrenheit.

Each meal provides an average of 1300 kilocalories (15 percent protein, 36 percent fat, and 49 percent carbohydrates). When supplemented with pouch bread, an additional 1200 kilocalories are provided.

Beginning in FY 97, two multifaith/vegetarian meals will be packaged in each box of MREs. In the interim, separate boxes containing 12 meals (6 of each menu) may be ordered.

Ration Cold Weather

The RCW is a lightweight, compact, high caloric, packaged (same as MRE) ration. It is used to sustain individuals during operations occurring under frigid conditions. The components are dehydrated and compressed and contain low-moisture items designed for use in extreme-cold environments. The ration contains approximately 4,500 calories and is designed to feed one person for one day. The ration has a shelf-life of three years at 80 degrees Fahrenheit.

Meal Module, Tray Pack, Arctic

The MTPA is specifically configured for use in extreme cold. It consists of two shipping containers strapped together. One box contains supplemental warming beverages, clam-shell type serving trays, and cups. The second box contains an 18-meal module similar to the standard T-Ration.

MENUS

The field feeding A-Ration menu is now being developed by each installation. A standard Army field menu, employing the UGR concept, is being developed for publication. When this menu is approved and distributed, it will supersede all group field menus, except the medical B-Ration menu.

ENHANCEMENTS

Enhancements are additional item components added to the meal to provide increased soldier acceptability. Enhancements are authorized for MREs when they are the sole daily diet. Enhancements are limited to hot or cold beverages, soups, hardy fruits, vegetables, bread, and UHT milk. The cost for the enhancements is not to exceed eight percent of the cost of one MRE per soldier. Enhancements (Table 3-1, page 3-5) are authorized for optional use with T-Ration and all UGR menus. In addition to individual cereal, fresh fruits and salads, enhancements for T-Rations include bulk condiments for cooks to enhance T-Ration meals and for special preparations such as soups prepared from excess T-Rations. TB MED-53 O requires that individual condiments served in the field be individually packaged. Unopened condiments in acceptable condition (no crushed boxes or cans) will be returned to the supporting Class I activity.

SUPPLEMENTS

Supplements are additions to the menu to provide the total nutritional adequacy of the meal. Bread and milk must be available with each T-Ration and UGR meal. Bread may be canned, pouched, or commercially produced. Milk may be fresh, powdered whole milk, or UHT. Two half-pint containers of milk are served for breakfast with cereal, and one half pint container is served for lunch and/or dinner.

MENU BOARD OPTIONS

Local menu boards may adjust the issue factors for enhancements and may vary the recipes for green salad. Menu boards are not authorized to add additional condiments to the authorized list, but they may adjust the unit size for large group feeding.

ADDITIONAL BEVERAGES

The installation forecasts cooling and warming beverage requirements as special food allowances through command channels as part of their command operating budget according to AR 30-21. Subsistence items considered warming beverages are coffee, hot tea, hot chocolate, and dehydrated canned soup mix. Cooling beverage is cool water with or without a flavored beverage base.

Table 3-1. Authorized enhancement items and maximum issue quantities

FRUIT

The following fruits and their issue factors are authorized to be issued with the T-Ration meal.

ITEM	ISSUE FACTOR
Apples	35 lb/100
Oranges	35 lb/100
Pears	35 lb/100
Plums	35 lb/100
Bananas	35 lb/100

DRY CEREAL

The following dry cereal bowl packs may be used with the T-Ration (an additional 1/2 pint of UHT or pasteurized milk per person is required).

ITEM	NSN
Bran Flakes with raisins	8920-01-082-2311
Corn, Puffed, sugar coated	8920-00-924-7627
Corn, Flakes, sugar coated	8920-00-940-7142
Wheat, Puffed, sugar coated	8920-00-924-7630

Table 3-1. Authorized enhancement items and maximum issue quantities (continued)

SALADS

The following is a suggested list of salad items, recipes, and their issue factors. Some produce vendors may offer packaged salads in 5- and 10-pound bags. Use factor of 10 pounds when using packaged salads.

ITEM	ISSUE FACTOR (AP WEIGHT)
Garden Vegetable Salad	
Iceberg lettuce	7 lb/100
Carrots	2 lb/100
Celery	3 lb/100
Green pepper	2 lb/100
Tossed Green Salad	
Iceberg lettuce	6 lb/100
Romaine or spinach lettuce	3 lb/100
Endive or escarole lettuce	2 lb/100

CONDIMENTS

ITEM	SIZE	* MAXIMUM QUANTITY (100 soldiers/7 days)
Cheese, grated, Parmesan	3-oz can	6
Garlic powder	2-oz can	1
Ketchup	Individual	600
Mustard	Individual	600
Soy sauce	10-oz bottle or	2
	Individual	600
Worchestershire sauce	10-oz bottle or	1
	Individual	600
Salad dressing	Assorted, Individual	1,200
Onions dry	Pound	12
Margarine	No 10 can or	1
	Individual (Hermetically sealed)	1,400
Salt	Individual	500
Pepper	Individual	1,000

* It is recommended that condiments be issued on a weekly basis.

HEALTH AND COMFORT PACKS

HCPs are pre-configured health and comfort items to support 10 individuals for 30 days. They are requisitioned and issued through supporting Class I supply activities according to SOPs and current regulations. One HCP will provide the items listed in Pack I or II for what 10 soldiers would need for 30 days. HCPs may be authorized on a case by case basis for OCONUS exercises in excess of 15 days to austere, bare-base environments where exchange support is not available or cannot be readily established. MACOMs may authorize and requisition the HCP for units or soldiers who meet this criteria. There are two types of packs. The HCP Type I, NSN 8970-01-368-9154, contains generic items to support male and female personnel when post exchange facilities are not available. The HCP Type II, NSN 8970-01-368-9155, contains female unique items. The list of items to be included in the HCP Type I and Type II will be established and maintained by a joint working group chaired by the Army. Table 3-2 lists HCP items currently issued to one soldier.

EXCEPTIONS TO POLICY

During peacetime operations, requests for any exceptions to the enhancements in Table 3-1, page 3-5, or requests for use and funding of HCPs for OCONUS exercises, are to be addressed to HQDA DCSLOG.

Table 3-2. Health and Comfort Packs

PACK NUMBER	ITEM DISCRIPTION	UNIT OF ISSUE	NUMBER	COMMENTS
PACK I Package dimensions are approximately 23 3/4 inches long, 13 1/4 inches wide, 17 3/8 inches deep (3.1 cubic feet). Pack weight is approximately 58 pounds. 1. Issue one (1) each prepack to each soldier. Each soldier therefore receives a designated quantity of the first 14 items on the listing. Order by unit strength divided by 10 and rounded up to the nearest whole number.	1. Toothbrush, soft bristle 2. Toothpaste, anti-tartar 3. Floss, dental, waxed 4. Razor, shaving, double 5. Shave Foam, 6-oz 6. Soap, bar, 5-oz 7. Foot Powder, 2.5-oz 8. Towelette, moist 9. Tissues, 30 per pkg 10. Shampoo w/conditioner 11. Deodorant Stick 12. Pen, ball point 13. Bag, plastic, self seal 14. Petroleum Jelly	EA EA EA EA EA EA EA EA PKG EA EA EA EA EA	1 1 1 10 1 1 1 20 2 1 1 1 1 1	

Table 3-2. Health and Comfort Packs. (continued)

PACK NUMBER	ITEM DISCRIPTION	UNIT OF ISSUE	NUMBER	COMMENTS
2. The remaining items (Numbers 15-37) should be for replacement or issue as needed.	**Replacement or Supplemental Items**			
	15. Lip balm, .15 oz SPF 15	EA	4	
	16. Detergent, laundry	EA	10	
	17. Towelette, moist	EA	700	
	18. Lotion, sunscreen, 3-oz	EA	5	
	19. Comb, flexible rubber	EA	3	
	20. Sunglasses, dark	EA	1	
	21. Shave Gel, approx 7 oz	EA	2	Sensitive skin
	22. Styptic Pencil, two pack	PKG	1	
	23. Boot Laces, black, 60-in	Pair	4	
	24. Sewing Kit, military	EA	1	
	25. Tablet, writing	EA	5	
	26. Envelope, letter, 50 count	Box	3	
	27. Fingernail Clippers	EA	1	
	28. Tweezers, flat tip	EA	1	
	29. Brush, hair, grooming	EA	1	
	30. Band Aids, variety size	PKG	1	
	31. Shoe Brush	EA	1	
	32. Mirror, stainless steel	EA	1	
	33. Electric Shave Lotion	EA	2	
	34. Hair Dressing, 2-oz jar	EA	2	
	35. Hand Lotion, 3-6 oz	EA	5	
	36. Petroleum Jelly	EA	5	
	37. Boot/Shoe Polish, 2-oz	EA	6	
	38. Instructions On Use of Pack	EA	10	
PACK II Package dimensions are 19 5/8 inches long, 16 inches wide, 9 3/4 inches deep (1.9 cubic feet). Pack weight is approximately 20 pounds.				
1. Each female is to be issued an opaque bag (Item #9) and be allowed to select a mix of items 1-8 for their individual use.	1. Napkin, sanitary, regular	EA	48	
	2. Napkin, sanitary, super	EA	72	
	3. Tampon, regular	EA	60	
	4. Tampon,super	EA	84	
	5. Panty Shield	EA	250	
	6. Towelette, moist, water based	EA	200	
	7. Bag, plastic, self seal, 1 gal	EA	20	
	8. Disposal Bag/Pouch, plastic, lined	EA	200	
	9. Bag, plastic, 10 - 15 gal	EA	10	
	Replacement or Supplemental Items			
2. The remaining items (Numbers 10 - 13) should be general supply for replacement or issue as needed.	10. Ponytail Holders, 10 per pkg	PKG	1	
	11. Brush, hair, grooming	EA	1	
	12. Comb, plastic	EA	3	
	13. Bobby Pins, black or dark brown	PKG	1	
	14. Instructions On Use of Pack	EA	10	

PART TWO
OPERATIONS PLANNING

CHAPTER 4
PREDEPLOYMENT PLANNING

PREDEPLOYMENT PLANNING

Predeployment planning is a critical element for success of the subsistence mission. This process begins with forecasting requirements and the possible pre-positioning of equipment and subsistence in a theater or on-board ships. Shortages or excesses may result if this phase is not accurate.

Theater Activation

Commanders, tactical operations planners, logisticians, and food advisors must determine Class I requirements which will satisfy tactical needs in the predeployment planning process. Mission-specific requirements must be identified early in the process. Remember, when a theater is initially activated or if hostilities break out, all components of the Class I distribution system may not be in place. Units may not have the luxury of choosing which ration they will consume. The operations plan and the approved feeding plan will identify when distribution units and equipment will become operational and when the full family of rations will be available for issue. Establishing Class I support within a theater would normally be sequenced as follows:

- Units deploy with basic load of MREs.
- Class I units arrive, receive, and distribute MREs, the T-Ration and the UGR H&S-Ration.
- Class I units receive and distribute the medical B-Ration and the UGR B-Ration.
- Class I units receive and distribute the UGR A-Ration and perishable components.

Factors

Factors affecting predeployment planning include:

- Environmental stewardship concerns.
- Approved feeding plan for the theater or operation.
- Required subsistence supply levels.
- Supplemental and enhancement items.
- Warming and cooling beverages.
- Substitutions and deletions.
- Class I distribution system.
- Availability of subsistence items in the theater (host-nation support).
- Class I airdrop operations (see Appendix C for development of SOP).

Transportation to and in the theater, fuel, water, ice, waste disposal, and residuals handling must also be considered during this phase. Conditions will range from stable to very mobile, high intensity, and austere. Transportation assets will be severely strained moving personnel and equipment to the theater. Food operations and Class I personnel and subsistence will require priority movement if they are to fulfill their mission. Refrigeration, water, and ice may be limited or not available.

Coordination

Distribution is more than just moving rations through the supply system. Logistical support must be coordinated prior to deployment. Equipment must be mission ready and repair parts must be available. Also, personnel must be properly trained and prepared to fulfill their mission. Coordination should include the availability of personnel, supplies, equipment, and required support such as fuel, water, ice, waste disposal, and disposition of residuals.

UNIT PREPARATION

Units should maintain a current reference library for field operations. FMs and ARs are essential references for establishing and implementing correct operational procedures. Each unit should order required manuals and forms using DA Form 17 (see AR 25-30 for completion and submission instructions). SOPs control the use of field expedients, and provide the "how to" in the absence of precedents.

Required Manuals for Deployments

Each Class I and food service section should maintain a minimum essential reference library that should be on hand when the unit deploys to any field operation. This manual and AR 30-21 should form the core of the library. Recipe cards or printouts which give issue factors must be a part of the deployment package for both Class I and food service personnel.

SOPs

Basic SOPs are required to ensure continuity of operations. Figure 4-1, page 4-3, lists SOPs that will be maintained.

Support Plans

Support plans should describe sources and procedures for ordering required manuals, regulations, and forms.

Security

Procedures for securing subsistence, supplies, funds, and equipment must be established in advance. Include requirements for special items such as concertina wire or locks. Discuss duties of guard personnel patrolling subsistence and supply stocks.

Records and Logs

Class I and food operations personnel should maintain records and logs that reflect unit activities which may impact future missions. Records of training, equipment (maintenance and replacement), ration accounting, personnel supported (feeder unit versus one being subsisted by another), and problems encountered and solutions used should be recorded.

Equipment Status

Do not wait until notified of an operation or deployment to determine the status of your equipment. Order all required replacement parts and equipment as the need is identified. When funds are not available, prepare a list of requirements and maintain completed requisitions ready for immediate submission when the unit is notified of fund availability or impending deployment.

Training

Personnel must be trained to operate effectively within the AFFS. Training should be aimed at the individual's job requirements, level of responsibility, and team building. Training should include a working knowledge of the operation and maintenance of TOE equipment, subsistence requisitioning, receipt and storage of subsistence, accountability, issue and distribution procedures, safe food handling, preparation and serving, environmental stewardship responsibilities, sanitation procedures, and retrograde operations.

Medical Threat

All deployable personnel, including staff, senior officers, and commanders will receive medical threat briefings prior to deployment. Medical threat

briefings will include insect and rodent hazards and required chlorine residual for potable water. Unit field sanitation teams will coordinate with the FOS to ensure sanitation and hygiene is maintained by unit personnel.

SUPPLY LEVELS

Each Army overseas command has a contingency plan for the WRS under its control. When hostilities begin in a new theater, initial supplies of rations are provided through preplanned supply using the contingency plan and the authorized strength at the appropriate time. The theater commander establishes the requirement for days of subsistence in a theater operation. The Class I manager advises the theater commander on these levels and the ration mix based on theater capability to receive, store, process, and distribute subsistence and information received from senders and movers. These levels are continually reevaluated to prevent excesses or shortages of Class I supplies anywhere in the theater. Factors that influence the supply levels are shown in Figure 4-2, page 4-4. Commanders must be kept informed of anything that affects subsistence operations. Personnel strength data is used to compute requirements. Under WIMS, each overseas area has been divided into defense subsistence regions with specific contingency plans for converting operations from peacetime to wartime conditions. Overseas elements of DLA and theater commands have worked out wartime procedures for implementing these plans. Different types of strength data and their use are discussed in the following paragraphs.

1. Procedures for establishing and disestablishing field kitchen or Class I sites.
   - Diagram of field kitchen or Class I site.
   - Layout of inside of kitchen shelter and sanitation center.
   - Camouflage procedures.
   - Job responsibilities and schedules for personnel.
   - Operations during blackouts.
   - Operations under NBC conditions (include procedures for decontamination and reclamation of contaminated foods).
   - Headcount, cash collection, and cash turn-in procedures (include samples of completed forms).
   - Strength estimates and strength reporting (include sample of completed forms).
   - Box lunch and operational ration procedures.
   - Night meal procedures.
2. Procedures for requesting, receiving, storing, issuing, and accounting for subsistence (include samples and instructions on completing forms).
3. Sanitation procedures for Class I site or field kitchen, dining areas, storage areas, wash line and mess kit laundry lines, sanitation centers, water trailers.
4. Safety and Security procedures for Class I sites, kitchen, dining area, supplies, subsistence, vehicles, equipment, and cash.
5. Equipment maintenance (include vehicles).
6. Vehicle loading plans and procedures (list necessary equipment needed for mobilization).
7. Contents of basic load for subsistence.
8. Environmental protection requirements for handling of fuels and liquid and solid wastes.
9. Procedures for coordination for inspection and assistance from supporting veterinary and preventive medicine (PVNTMED) units.

Figure 4-1. SOPs that will be maintained

- Order and shipping time from CONUS
- SPOD or APOD space and facilities
- Availability or arrival of theater subsistence distribution activities and equipment in the theater
- Availability of transportation and refrigeration assets
- Location of subordinate commands
- Order and ship time between organizations
- Characteristics of the tactical units
- Type of unit and its mission
- Vulnerability of supply routes
- Susceptibility of facilities to enemy action
- Availability of host nation support and local purchase
- Mobility requirements
- Capability of support units to resupply

Figure 4-2. Factors that influence levels of supply

Authorized Strength

The total strength authorized for the command or theater by the MTOEs and TDAs is the authorized strength which should be used to determine the quantities and types of subsistence that should be available at the start of hostilities. It is also used to determine the quantities and types that should be stocked as WRS or for projects under contingency plans. These figures should be used to compute gross requirements only. Using authorized strength as the sole basis for subsistence supply creates an excess at the level least able to handle it.

Actual Strength

Actual strength gives the number of personnel in the theater, as reflected by SIDPERS. It is used to plan wholesale subsistence supply operations after the theater becomes active. The strength data is used to develop basic requirements for the theater menu, ration mix, operational rations, and medical food service items.

Supported Strength

Supported strength is reported through subsistence channels to report the number of meals fed and the types of rations used. Under the AFFS, FOS report the number of personnel supported on DA Form 5913 to their supporting RBP every third day. Use of these figures aids in cutting the buildup of excess stocks, especially at the lower levels in the distribution chain.

Stockage Strength

Stockage strength is not a reported strength. It is used as a basis for computing what the stockage should be at any given supply point. This figure is developed using actual strength and subsisted strength and will normally fall between the two figures. Computing stockage on this developed strength allows the supply point to respond rapidly to changing requirements.

Tonnage and Cube

Tonnage and cube figures are important in planning transportation and storage requirements. These figures are high because of the constant demand for three meals a day. The tonnage and cube figures for the MRE can be computed with a high degree of accuracy since the weight and volume of the case is always the same. When the T-ration, B-ration, or the UGR is employed, tonnage and cube figures will vary depending on the food items used. Data is also affected by the use of enhancements. Class I managers should be aware that tonnage and cube figures will be greatly affected based on the total ration mix selected for the theater menu. Table 4-1, page 4-5, shows UGR A-Ration planning factors and Table 4-2, page 4-5, shows the UGR A-Ration refrigeration requirements for perishable storage.

Field Operations

Subsistence forecasts for field operations are based on projected strengths, ration mix, supporting TISA stockage, and the TISA order and ship time. Class I

managers, accountable Class I officers, food advisors, and logistical planners must continue to work the menu cycle, SOP, and CSS overlays with in-process reviews. These reviews cover any problems units or supply activities may be experiencing from their support of the operation.

Scheduling

Units must deploy with no less than three days of rations as a unit basic load. After arrival in theater, the request to delivery time is a minimum of 36-48 hours. The theater subsistence distribution activity and the RBPs must establish delivery schedules, based on tactical requirements (for example, transfer under conditions of darkness). In addition, the RBPs must establish delivery or pickup schedules for each unit supported. The schedules must be flexible and adaptable to terrain and changes in tactical situations within the theater.

Table 4-1. UGR A-Ration Planning Factors

COMPOSITION OF A-RATION	PERCENT OF TOTAL WEIGHT	POUNDS			
		PER MAN	PER 100 MEN	PER 1,000 MEN	PER 8,000 MEN
Average weight including packing	100	3.27	327.0	3,270	26,160
Nonperishable	67	2.19	219.0	2,190	17,527
Perishable	33	1.08	108.0	1,080	8,633
Chill	70	.76	75.6	756	6,043
Freeze	15	.16	16.2	162	1,295
Ventilated	15	.16	16.2	162	1,295

NOTE: These figures do not include ice.

Table 4-2. UGR A-Ration Refrigerated Storage Requirements

TYPE	PERCENT BY TYPE	GROSS CUBIC FEET			
		PER MAN	PER 100 MEN	PER 1,000 MEN	PER 8,000 MEN
Chill	75	.135	13.5	135	1,080
Freeze	25	.045	4.5	45	360
TOTAL	100	.180	18.0	180	1,440

NOTE: Gross cube figured at 50 percent over Net weight.

FIELD MENU

Completion of a Standard Army Field Menu and implementation of the UGR will establish a single required menu for all operations and theaters. Currently a theater level menu for each ration type must be established as soon as the rations arrive in the theater. Units do not order specific menus for delivery on any given day. The menu must support the tactical and logistical requirements of the operation. Supplemental, enhancement, and warming and cooling beverage items must be included in the feeding plan and subsequent menus.

Daily Ration Mix

The daily ration mix is the type of ration to be served for each meal (breakfast, lunch, and dinner). This mix must be considered when conducting predeployment Class I and food service planning. The use of this mix must be flexible enough to permit the commander to make necessary changes to meet the METT-T. The type of ration used will determine the weight and space used to transport the subsistence. The most accurate estimates of tonnage and cube figures for A-, B-, and T-Rations or MREs are in FSC C8900-SL. Estimated weight, size, and cube figures for T-Rations, MREs, UGR A-, B-, and H&S-Rations are shown in Table 4-3.

Forecasts

FOSs must know how many soldiers are going to subsist with their units. When FOSs prepare for a field mission involving units from other installations, commanders must ensure that the letter of instruction requires participating units to inform operation planners of troop strength and arrival and departure dates. This information is used to forecast requirements to the TISA, the MMC, and the Class I supply points. It is also used to establish contracts for items to be supplied by venders.

Table 4-3. Weight, size, and cube figures for T-Rations, MREs, UGR A-, B-, and H&S-Rations

T-RATIONS	Module Size = 18 servings	23.75" long 13.00" wide 8.75" high
	Module Weight	35 lb (average)
	Pallet Size 24 modules per pallet (432 servings)	Each pallet measures 40" by 48" by 39" Each empty pallet weighs 30 lb T-Ration weight per pallet = 840 lb Total weight per pallet = 870 lb (840 + 30) Each pallet equals 28 cu ft Weight per cu ft is 16.07 lb
MREs	Box size = 12 servings	19.01" long 12.8" wide 5.9" high
	Box Weight	21 lb
	Pallet Size 48 boxes per pallet (576 servings)	Each pallet measures 40" by 48" by 40" and weighs 30 lb empty MRE weight per pallet = 1,008 lb Total weight per pallet = 1,038 lb (1008 + 30) Each pallet equals 46.61 cu ft Weight per cu ft is 22.27 lb

Table 4-3. Weight, size, and cube figures for T-Rations, MREs, UGR A-, B-, and H&S-Rations (continued)

UGRs		
A-Ration Breakfast		Pounds
	Pallet range	430-790
	Approx average weight of pallet	545
	Approx average weight of box	21.3
	Estimated max weight of pallet	790
	Approx max weight of box	31.5
A-Ration Lunch/Dinner		Pounds
	Pallet range	730-1010
	Approx average weight of pallet	855
	Approx average weight of box	34.2
	Estimated max weight of pallet	1010
	Approx max weight of box	40.6
B-Ration Breakfast		Pounds
	Pallet range	470-785
	Approx average weight of pallet	603
	Approx average weight of box	32.7
	Estimated max weight of pallet	785
	Approx max weight of box	31.3
B-Ration Lunch/Dinner		Pounds
	Pallet range	780-1160
	Approx average weight of pallet	809
	Approx average weight of box	32.3
	Estimated max weight of pallet	1160
	Approx max weight of box	46.9
H&S Breakfast		Pounds
	Pallet range	645-980
	Approx average weight of pallet	763
	Approx average weight of box	30.3
	Estimated max weight of pallet	980
	Approx max weight of box	39.4
H&S Lunch/Dinner		Pounds
	Pallet range	930-1260
	Approx average weight of pallet	1138
	Approx average weight of box	46.0
	Estimated max weight of pallet	1280
	Approx max weight of box	51.9

NOTE: Data is based on field test data.

Basis of Issue

Present-for-duty strength and remote feeding site requirements are the basis for meal requests. Using these figures, the FOS computes the amount of each type of meal, supplements, enhancements, warming and cooling beverages, and condiments required to subsist the soldiers. Complete guidance for medical field feeding is in FM 8-505. Other factors must be used when planning a field mission. These include–

- Experience from past exercises.
- Additional requirements due to the area feeding concept or task organization.
- Tactical posture of the unit.
- Duration of the exercise.
- Weather conditions.
- Availability of field kitchen equipment.

CLASS I DISTRIBUTION AND ACCOUNTING SYSTEM

When organizations participate in operations that exceed battalion size, several levels of supply activities may be established to support unit field kitchens with Class I supplies. They are the RBP FSB, MSB, DMMC, SMO, DS and GS supply units, COSCOM and TA theater subsistence distribution activity.

Field Operations

For operations supported by a MACOM-designated TISA that does not provide direct support to the operation, the designated accountable Class I officer must provide the TISA with subsistence requirements, the field menu, and required delivery dates. Also, he must have supplies shipped to the requestor's address, if other than the TISA. The designated exercise Class I officer at the highest level of supply is also responsible for submitting the required personnel data (present-for-duty strength by service component and meals sold for cash) to the supporting TISA.

Accountability

Ration accountability is the same for both wartime and peacetime. Specific procedures are in AR 30-21. The Class I officer, food advisor, and FOS have equally critical roles. They must ensure that the right amount of the right types of rations are ordered for the operation. Exercise planners must coordinate correct nomenclatures and units of issue (if applicable) with the TISA before using a preprinted DA Form 3294-R. The DA Form 3294-R will be prepared in a minimum of three copies. Originators will retain copy number 3 and forward copies 1 and 2 to the next level of supply. Planners also determine if manual or automated systems will be used to request rations from the field kitchen level through the COSCOM or TAMMC.

NOTE: *The following is the billing methodology for charging other service components when they obtain bulk subsistence from a TISA and when they take part in Army training exercises. (Other service components are US Marine Corps, US Navy, US Air Force, US Marine Corps Reserves, US Navy Reserves, and Air National Guard). When other service components obtain bulk subsistence from a TISA, they will be supported on a charge sale basis and not reported on DA Form 2969-R. Other service component unit(s) participating in an Army exercise and operating a field kitchen requiring bulk issues from a TISA will provide a fund cite prior to training for charge sale purposes. When bulk items are drawn from a Class I point, a copy of the receipt/issue documents for other service components will be forwarded to the supporting TISA for costing and billing directly to other service component. The TISA will not report their issues nor their present-for-duty strength on the DA Form 2969-R. In those instances when other service components take part in Army joint training exercises as individuals or as a unit that will not operate a field kitchen but are supported by an Army field kitchen, the members will be reported on a DA Form 5913-R. Their present for duty strength will be reported on the DA Form 2969-R to determine the average field ration cost. The above members will be fed on a common service basis. Exceptions to policy must be approved on a case-by-case basis by HQDA (DALO-TST).*

Push System

A Push System is used to initially fill the supply pipeline during conflict. During limited duration or high-intensity conflict, the Push System may be used exclusively without conversion to the Pull System. Under a Push System, the MMC and/or the planning cell determine the type and quantities of rations to be shipped to each Class I supply point. Types and quantities of rations ordered and shipped under the Push System are based on anticipated troop strength, unit locations, type of operation, and feeding capabilities. A Push System ensures that rations are available in the operations area. However, a sufficient quantity of the type rations desired may not be in the right supply point to support units and units have limited control over the type of rations sent to them.

Pull System

AFFS policies and procedures are based on a Pull System. A Pull System has the lowest user element (field kitchen) placing a demand on the Class I supply system which is processed through the supply system. Then subsistence is sent forward to satisfy the request from the field kitchen. A Pull System provides tighter control of available subsistence, while being responsive to the user. The Pull System, however, may require longer lead times for ordering.

Distribution Variances

The actual Class I distribution system may differ from one unit's mission or deployment to another. Other factors to consider include Class I supply point locations, issue schedules, method of distribution (unit or item pile), and Class I issue times (day or night). Specifics of the Class I distribution system for predeployment planning are also available from various unit documents. These include the–

- CSS annex of the operations order or operations plan.
- CSS overlay prepared by logistics planners from the G4, S4 and DISCOM or COSCOM, and TAACOM.
- Operations letter of instruction or directive.
- External support plans prepared by the DISCOM or COSCOM.
- Unit SOPs.

OTHER PLANNING REQUIREMENTS

Additional factors to be included in operations planning are environmental protection, water, fuel, ice, waste disposal, subsistence inspections and residuals (leftover usable food items). The following are areas requiring specific attention.

Location

Site selection and grid coordinates for the water, fuel, ice, trash, and RBPs points require attention. Fuel, water, and ice should be located near the Class I point to expedite resupply of supported units.

Disposal

Disposition of residuals also must be an integral part of the deployment planning process. Knowing the disposition instructions of unissued usable food items is especially crucial in overseas deployments. Residuals which can or cannot be turned in to the supply point must be identified and specific disposition plans established. In addition, guidance for trash disposal must be provided to participants. See Chapter 7 for residual handling and reporting instructions. Chapter 12 provides trash management details.

Ice

The planning factor for potable ice is based on six pounds per soldier per day in a temperate climate and 11 pounds per soldier per day in an arid climate. Food advisors can adjust figures to suit the exercise or deployment based on actual unit demands.

Bottled Water

Bottled water must be funded for by the requesting unit. Class I units may distribute bottled water.

PREDEPLOYMENT PLANNING CHECKLIST

All of the planning information discussed in this chapter is available in most units. Often it does not get into the hands of the operator who needs it. Figure 4-3 provides deployment guidelines to ensure that all areas have been considered during predeployment activities.

MISSION

- ☐ Obtain or determine your unit's mission.
- ☐ Obtain or determine geographical location of unit and climatic/environmental factors impacting on mission accomplishment.
- ☐ Determine projected length of mission.
- ☐ Evaluate logistic support plan and CSS annex to the OPLAN or OPORD.
  - _ What headquarters is directing the deployment?
  - _ Are supporting units specified?
  - _ When does the external support begin?
  - _ What support will the unit receive?
  - _ Is there a deployment contingency plan?
  - _ Are food operations personnel and equipment included in the deployment plan? Do they travel with the unit? Who supports if food operations personnel and equipment are not included in the initial deployment?
  - _ Is there an internal logistical support plan or Class I portion of the combat support annex?
  - _ Should the basic load of days of supply (DOS) of Class I be issued to the individual soldier prior to deployment?
  - _ Will the basic load be consumed during the operation?
  - _ Have the supply source and operational dates for Class I been identified?
  - _ Are lead times for ration/supply requests established?
  - _ Have the locations of the RBPs been provided to the user?
  - _ Has the method of Class I distribution been established?
  - _ Has the flow of requisitions and Class I been described to using units?
  - _ Have Class I requirements been supplied to the supporting organization?
  - _ Have supply and service locations (Class I, water, fuel and landfill) been identified and provided to the user?
  - _ Is a trash removal plan established?
  - _ Are units trained in trash removal/disposition procedures?
  - _ Is a subsistence retrograde plan established?
  - _ Are veterinary personnel available for subsistence support requirements?
  - _ If there are host nation support facilities, do they meet United States sanitation guidelines? Refer to TB MED 530.
  - _ If a project code or fund cite is required for the host-nation support, has it been established?

Figure 4-3. Deployment guidelines for Class I and food service

PERSONNEL

- ☐ Evaluate mission requirements to determine personnel needs.
- ☐ Determine status of personnel, experience, training, capabilities.
- ☐ Evaluate projected work load to determine KP and detail support requirements.
- ☐ Determine tours of duty for food operations and Class I personnel.
- ☐ Determine training requirements, to include familiarization with unit/local SOPs, environmental standards in the area of operations.
- ☐ Are personnel trained in accountability procedures?
- ☐ Have cash meal payment and/or field meal reimbursement procedures been implemented?
- ☐ Review medical threat briefing with particular attention to potable water supply, chlorine residual. Foodborne illnesses of local populations and sanitary quality of local food supply.

EQUIPMENT

- ☐ Review TOE and hand receipts for equipment to determine shortages.
- ☐ Evaluate status of equipment on hand to determine maintenance requirements.
- ☐ Evaluate workload and mission to determine supplemental equipment and storage needs.
- ☐ Evaluate on-hand spare parts and order shortages.
- ☐ Evaluate projected ration mix to determine refrigeration and ice requirements.
- ☐ Evaluate type and number of vehicles to determine packing and loading plans.
- ☐ Evaluate maintenance support to determine resupply of equipment and spare parts in the field.
- ☐ Review load plans for accuracy.

SUPPLIES

- ☐ Evaluate projected workload and mission to determine requirements for all disposable and expendable supplies. Determine required stock levels. Prepare load list for required items.
- ☐ Evaluate serving procedures (permanent versus disposable) to determine supply needs.
- ☐ Project fuel consumption to determine needs.
- ☐ Forecast daily potable water consumption to determine water needs.
- ☐ Evaluate mission support to determine resupply procedures for fuel, water and disposables.

SUBSISTENCE

- ☐ Determine ration accounting methods. Procure appropriate forms and establish procedures.
- ☐ Evaluate categories of diners to determine correct accounting procedures, particularly foreign national (if applicable).
- ☐ Evaluate procedure required to establish an account with the supporting TISA/RBP.
- ☐ Determine feeding plan, ration mix/ theater menu/ type of rations needed.
  - __ Is the menu and ration cycle established?
  - __ Has the menu been published and distributed?

Figure 4-3. Deployment guidelines for Class I and food service (continued)

- ___ Have enhancements (fresh fruit, salad and cereal) and mandatory issues of milk and bread been requested and programmed?
- ___ Have warming and cooling beverages been considered, ordered and funded?

- ☐ Determine number of personnel to subsist. Establish amounts of rations to request.
- ☐ Evaluate issue and request cycle from supply activity to determine timely submission of ration requests, reports and forms.
- ☐ Determine daily need for ice to be requested. Is there a need for potable ice? Who, when, where and how?
- ☐ Evaluate food storage procedures to determine security needs.
- ☐ Review inventory management procedures to reduce/control waste, loss and excessive residuals.
- ☐ Are all participants aware of the importance of reporting accurate present-for-duty strength data so that reimbursement can be affected in a timely manner?

MISCELLANEOUS

- ☐ Check publications (book set and references) and forms needed for deployment.
- ☐ Determine local waste disposal procedures and locations.
- ☐ Coordinate plans for site selection and layout of field kitchen.
- ☐ Coordinate with supported units. Determine feeding level requirements, and the need for remote site feeding.
- ☐ Determine field kitchen meal serving periods.
- ☐ Establish deployment teams for sending the KCLFF forward to deployed units.
- ☐ Review equipment operations, safety and sanitation requirements with your team.
- ☐ Identify any site-specific environmental issues.

Figure 4-3. Deployment guidelines for Class I and food service (continued)

CHAPTER 5
DEPLOYMENT

TECHNIQUES

Food service and Class I operations are essential parts of any unit deployment. Commanders must ensure that deployment plans specify the earliest possible movement of personnel, equipment, and basic loads of rations. The deployment of the theater subsistence distribution activities and subsistence platoons must begin at the onset of theater operations. These personnel, their equipment and transportation assets must be in place to receive and forward the subsistence required to sustain the force. Their locations should be planned and coordinated for compatibility with the overall layout of the theater distribution system. The Class I manager, food advisor, and FOS should advise commanders (at each level) of any special requirements during initial planning phases. The AFFS permits food service operations in a variety of tactical situations, yet they must be curtailed in NBC environments. Specific deployment procedures discussed in this chapter are–

- Unit movement to the deployment site.
- Site selection (Class I and field kitchen) and layouts.
- Field feeding procedures including feeding doctrine.
- Remote site feeding.
- The LOGPAC subsistence distribution system.
- Accountability for rations in the field.
- Requesting rations.
- Receipts and issues.
- Cold weather feeding.
- Subsistence storage at field kitchens.
- Strength reporting.
- Force Provider.
- Camouflage.
- Records maintenance.
- Evaluating operations.

UNIT MOVEMENT

Movement information from the home station to the deployment location is vital. Food operations personnel may be required to serve meals or warming and cooling beverages for convoy rest halts, rail heads, and alert holding areas. The unit movement control officer and the division or corps transportation officer prepare the unit movement plan. They will provide detailed information on when units will deploy, how they will deploy (air or ground), unit movement timetables, and convoy routes. The commander must ensure that appropriate food service assets accompany the unit and are on hand at the reception site.

CLASS I SITE SELECTION

Each Class I point must be accessible to its supply sources and customer units. Depending on METT-T factors, division and brigade Class I distribution points may be co-located with water points. Select an area with good drainage and cover near the main supply route. Make use of any permanent buildings. Roads should be able to handle heavy traffic and be wide enough for the supply vehicles. They must also be able to support the weight of the vehicles in any weather. Ground where rations are to be positioned must be able to support the weight of the rations. Post directional signs inside Class I points to avoid traffic congestion and accidents.

Size

The site should be large enough to handle the estimated volume of Class I supplies and equipment. A GSU Class I supply point requires more storage space than a DSU. It also needs an area for greater vehicle traffic picking up and delivering Class I

supplies, as well as local MHE moving supplies. A parking area is needed for vehicles stopping at the checkpoint, loading and unloading supplies, bringing in and taking out refrigerated trailers, and MHE working the stacks. Class I sites in the TO must be large enough to afford some dispersion of supplies to lessen the chance of enemy destruction. Use dunnage to keep the supplies off the ground and tents and tarpaulins to provide protection when sufficient permanent buildings are not available. Make sure lighting is adequate for safety and security. Fence the perimeter and establish checkpoints at each exit and entrance, Figure 5-1, page 5-3 shows the suggested layout for a main Class I supply point (GSU). Figure 5-2, page 5-4, shows the suggested layout for a forward Class I supply point. When operating in TOs where TISAs exist, maximum use will be made of TISA facilities, equipment and personnel when the tactical scenario permits.

Theater storage. The area needed to store supplies can be determined by figuring the cubic feet needed per man per day for the menu being served and multiplying that figure by the number of troops supported. The A-Ration menu or UGR-A requires refrigerated space and more cubic feet than other rations. The B-Ration, UGR-B, or UGR-H&S does not normally require refrigerated space. Operational rations require less space than any others. Remember any perishable enhancements or components of the UGR will need refrigeration and increase storage requirements. You can compute the space required to support any menu using the issue factors from the menu and container dimensions in C 8900-SL.

Office. You will need space near the entrance and exit for an office. This may also be used for your checkpoint. When you are issuing commercial bread, store it here along with any open cases of condiments.

Concealment and Cover

Because of the large amounts of supplies stored at a Class I point, it is extremely difficult to camouflage or conceal all of the subsistence. If trees are available, place the palletized rations under them. All trucks and MHE should be camouflaged with authorized netting. When possible, terrain features should be used to protect the Class I point from direct enemy fire.

Defense

When feasible, use three-strand concertina wire to define the site's perimeter. Interlace the concertina wire with sensors, trip flares, and antipersonnel mines to provide early warning of the enemy's approach. Have security patrols check the condition of the perimeter daily to ensure that no one tampered with or penetrated the concertina wire. Include fighting positions as part of the unit's overall defensive plan. Enforce light and noise discipline as required by METT-T. Coordinate your security plan with the MP battalion responsible for security in your sector.

FIELD KITCHEN SITE SELECTION

The unit commander or FSO specifies the general location of the field kitchen site. However, the FOS must consider the characteristics of a good field site, as shown in Table 5-1, page 5-5. The following should also be considered in selecting and setting up the field kitchen:

- Tactical or non-tactical operation.
- Extent of time area will be occupied.
- Use of individual mess kits or single service disposable eating flatware.
- Method of solid waste disposal (burn, bury, backhaul).
- Resupply operations. Availability and accessibility of roads (water for water trailer and sanitation centers; fuel; subsistence; nonfood supplies).
- Use of MKTs, KCLFFs, tents, buildings.
- Location of unit billeting area.
- Available equipment and space for proper arrangement.
- Natural cover to shield from the enemy and protect from the elements.

- High, dry ground near a protected slope for better drainage and protection from the wind.
- Convenient water source for purification when needed.
- Sandy loam or graveled soil to allow excess water to seep into ground to enable soakage pits and trenches to work correctly.
- Location away from latrines or any source of contaminants.

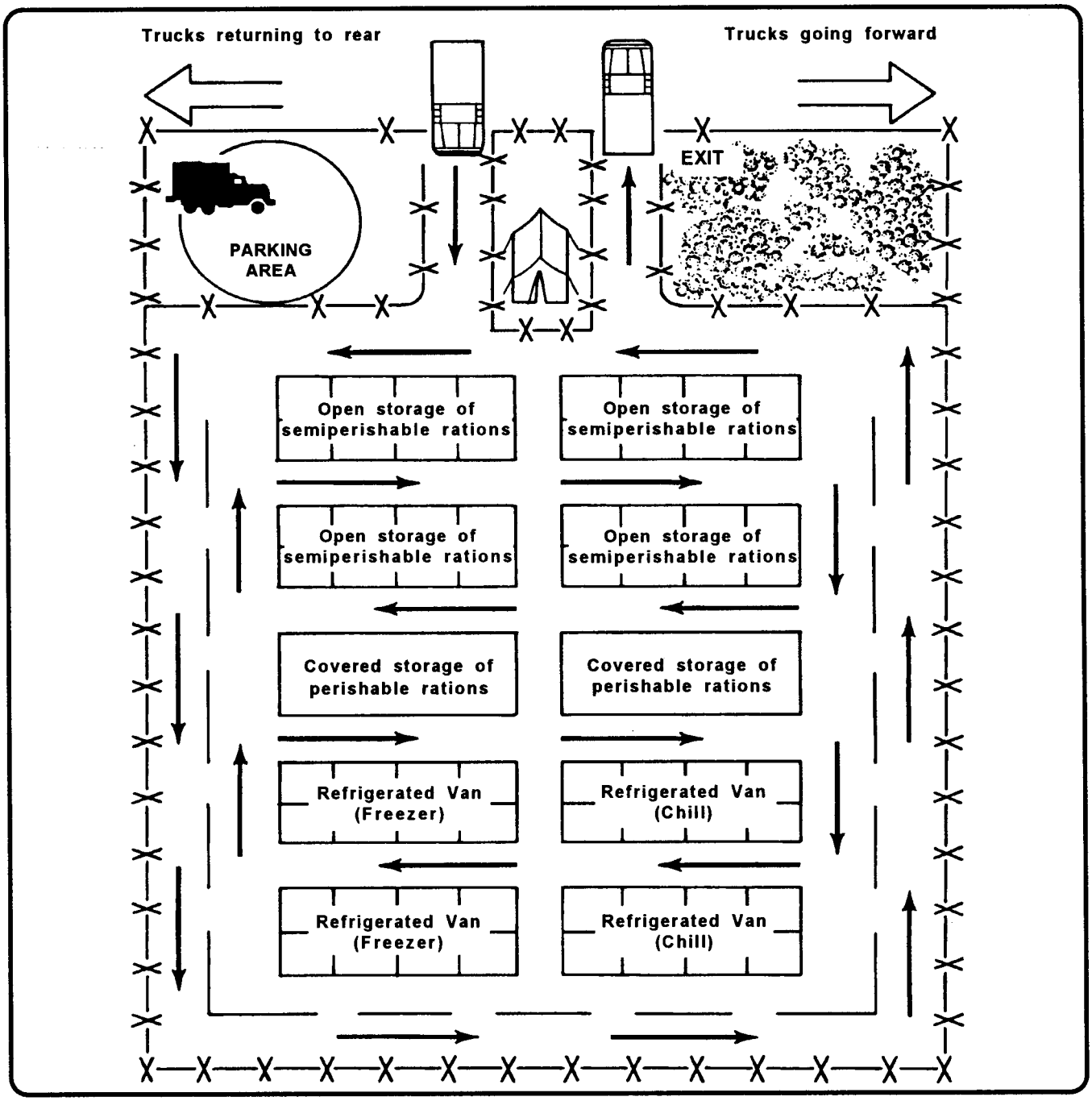


Figure 5-1. Suggested layout for a main Class I supply point

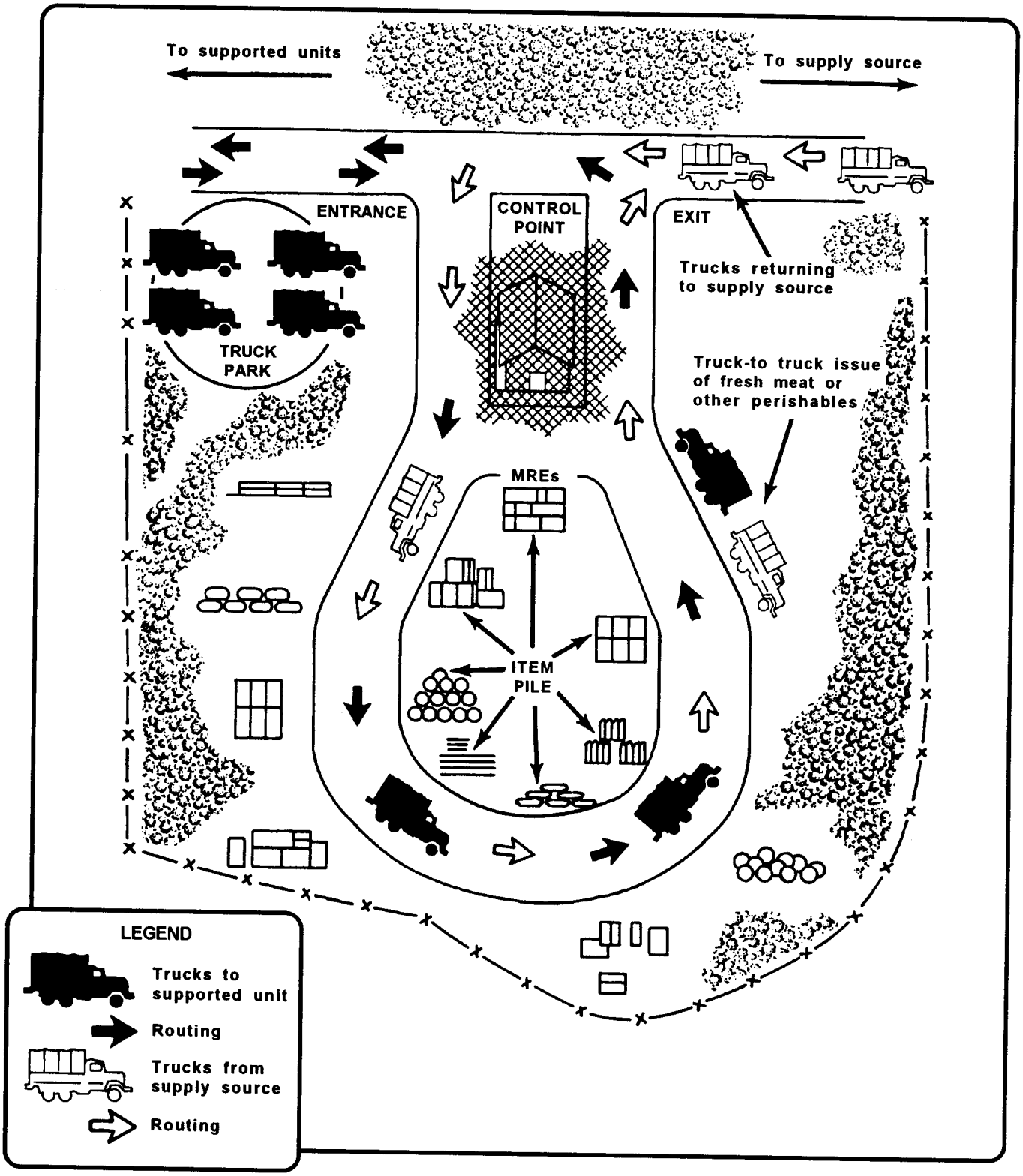


Figure 5-2. Suggested layout for a forward Class I supply point

Table 5-1. Characteristics of a good field kitchen site

CHARACTERISTIC	IMPORTANCE
Good natural cover	Shields troops from the enemy and protects them from sun, heat, and cold winds.
Good access roads	Lets supply trucks move freely.
High and dry ground near a protected slope	Ensures good drainage and protection from the wind.
Enough space	Eliminates crowding of the troops and facilitates spreading out the equipment so that personnel can work efficiently.
Near source of potable water	Used in preparation of foods and beverages.
Sandy loam or gravelly soil	Lets excess water seep away and helps soakage pits and trenches work well.

FIELD KITCHEN SITE LAYOUT (REAR AREA)

Figure 5-3, page 5-6, and Figure 5-4, page 5-7, show where to place the different facilities required to operate a rear area field kitchen. The field kitchen area should be camouflaged to hinder detection by enemy aircraft, ground forces, or infrared sensors. Passive measures should include dispersion, camouflage, cover and concealment, light and noise discipline survivability moves, covering vehicle tracks into the field kitchen site, and staggering ration distribution to eliminate congestion of the site.

FIELD FEEDING PROCEDURES

Field feeding procedures are determined by the availability of equipment and personnel, capability of the logistics system, level of commitment, availability of rations, and total sanitation requirements. Other considerations include the number of soldiers to be fed, the feeding times, unit mission, and location. The AFFS can be tailored to meet the requirements of divisional and nondivisional units. For example, some nondivisional units in the corps or EAC may not require rapid mobility. Therefore, the commander may consolidate the MKTs or field kitchen operations near troop concentrations. Divisional and nondivisional units which require a high degree of mobility and move often on short notice can distribute MKTs to operate in several locations. The AFFS provides the capability for commanders to assign cooks and the KCLFF forward to receive, prepare, and serve limited hot meals to company size or smaller units deployed forward in the combat zone.

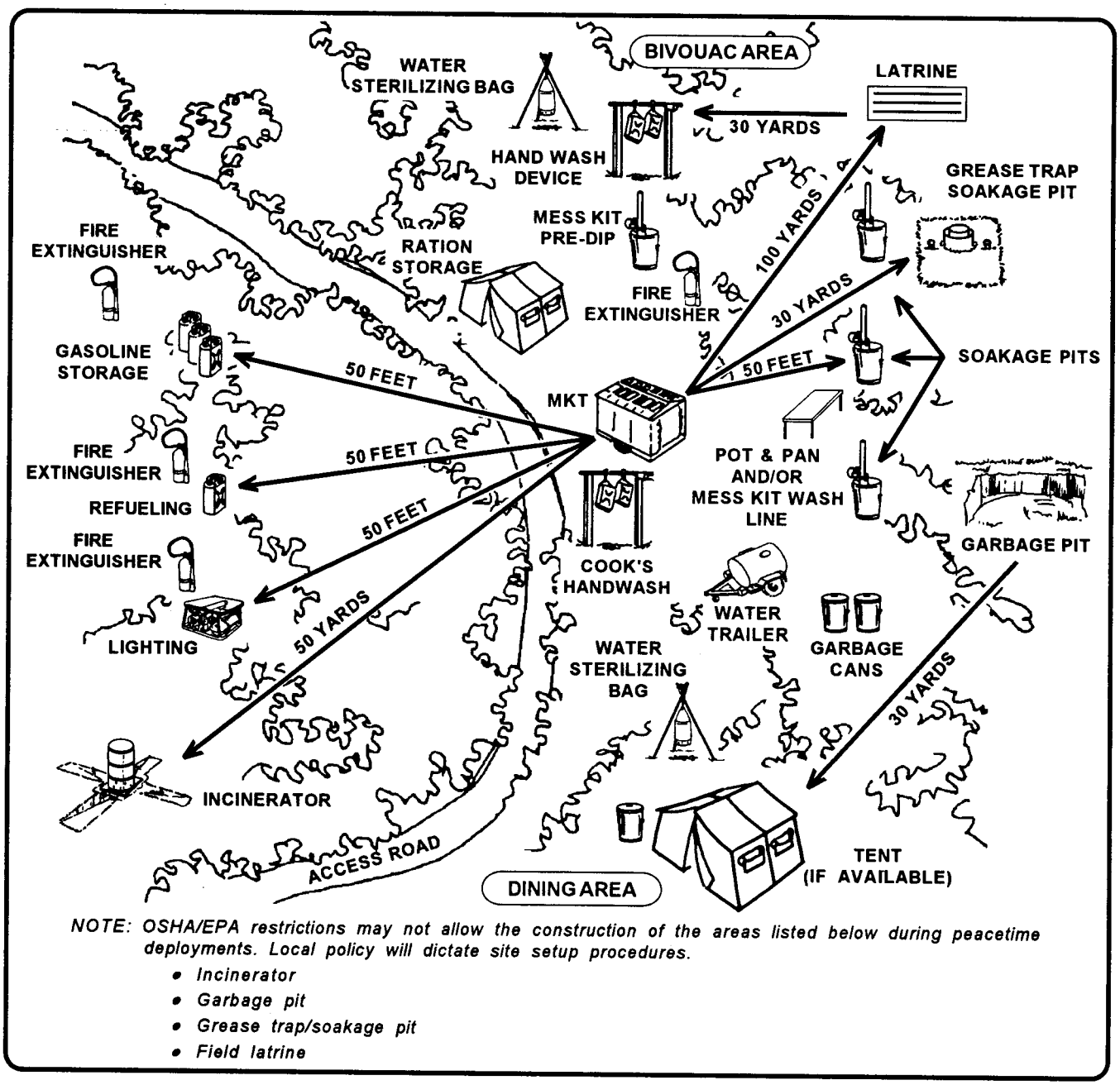
Consolidated (Area) Feeding

Feeder units provide support to units in or passing through their area. Units with no authorized food operations personnel are attached to a feeder unit for subsistence support. These supporting units also prepare and ship meals to remote sites when required.

Delivery of Meals (KCLFF)

The AFFS provides the capability for limited food preparation at company level in the forward areas (METT-T dependent). In most cases, the majority of the food items will be prepared or cooked and packaged at the field kitchen and transported forward with the LOGPAC. Raw or

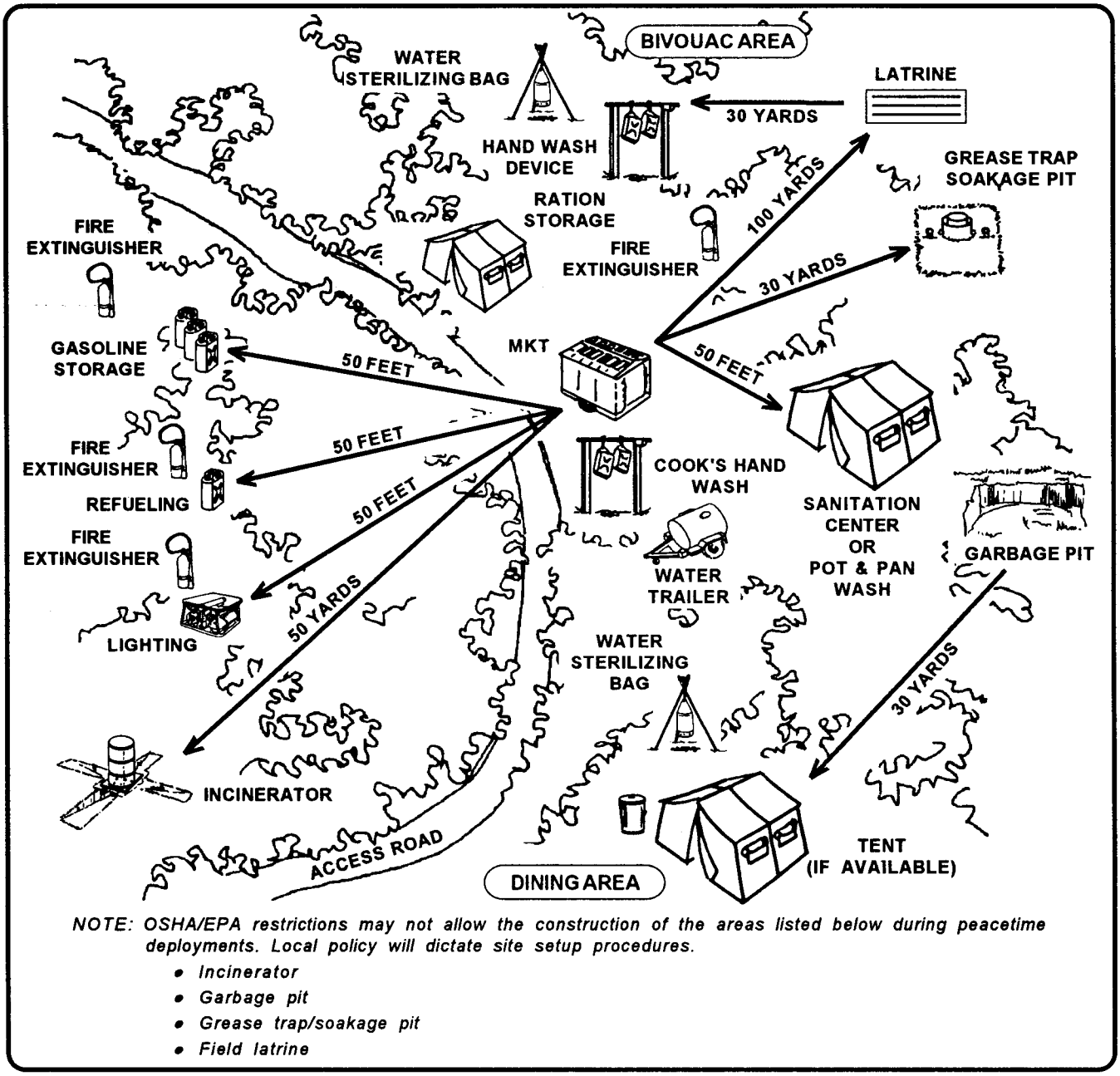
unprepared foods will be sent forward on the LOGPAC, page 5-8, for preparation or cooking by company food service teams to complete the meal. Examples of foods that could be prepared or cooked at forward locations include all heat and serve ration components, coffee or beverages, soups, fresh or dehydrated eggs, pancakes, french toast, grilled meats, sauces, and gravies. The FOS must check to ensure that correct quantities of food and equipment are being packed or shipped or carried forward to support unit feeding requirements.



NOTE: OSHA/EPA restrictions may not allow the construction of the areas listed below during peacetime deployments. Local policy will dictate site setup procedures.

- *Incinerator*
- *Garbage pit*
- *Grease trap/soakage pit*
- *Field latrine*

Figure 5-3. Recommended field kitchen site layout with the pot and pan and mess kit laundry line (rear area)



NOTE: OSHA/EPA restrictions may not allow the construction of the areas listed below during peacetime deployments. Local policy will dictate site setup procedures.

- *Incinerator*
- *Garbage pit*
- *Grease trap/soakage pit*
- *Field latrine*

Figure 5-4. Recommended field kitchen site layout with the sanitation center (rear area)

Remote Feeding

Providing hot food to soldiers at remote sites (radar sites and small signal sites) requires intensive management by commanders and food service personnel. Remote feeding may be accomplished by various methods. Battalions may send hot meals forward to remote units using insulated food containers. When feasible, the battalion may attach two cooks with HMMWV and the KCLFF to the remote unit for hot meal preparation. Figure 5-5, page 5-8, shows the load plan for the KCLFF-E on the HMMWV and

HMT. Depending on its strength, location, the duration of the mission, and other tactical, administrative, and logistical considerations, the remote unit may be administratively attached for rations to the nearest unit that is capable of preparing rations.

LOGPAC Subsistence Distribution to Forward Task Force

The LOGPAC method is when resupply elements are organized in the battalion field trains and moved forward daily for routine resupply. Figure 5-6, page 5-9, shows the LOGPAC method of feeding soldiers at forward locations. The LOGPAC moves along the MSR to the LRP. From the LRP, the company first sergeant controls the LOGPAC and conducts resupply. The unit supply truck normally contains the prepared meals and MREs. However, special procedures may be required for resupply. For example, a scout platoon may have each truck individually pull off line and move to the pre-positioned LOGPAC or it may be resupplied as the platoon repositions between missions. Commanders must be aware of the feeding plan and know their equipment, time, and personnel limitations. The FOS must be included in all LOGPAC planning. Equipment and ration mix must be able to complete the cycle for resupply of the LOGPAC. If equipment cannot be returned in time for cleaning and to send the next meal out, the LOGPAC ration mix must be looked at critically. It is essential that prepared food placed in insulated food containers not be served after the annotated time limit (4 hours after preparation) to preclude foodborne illness outbreaks.

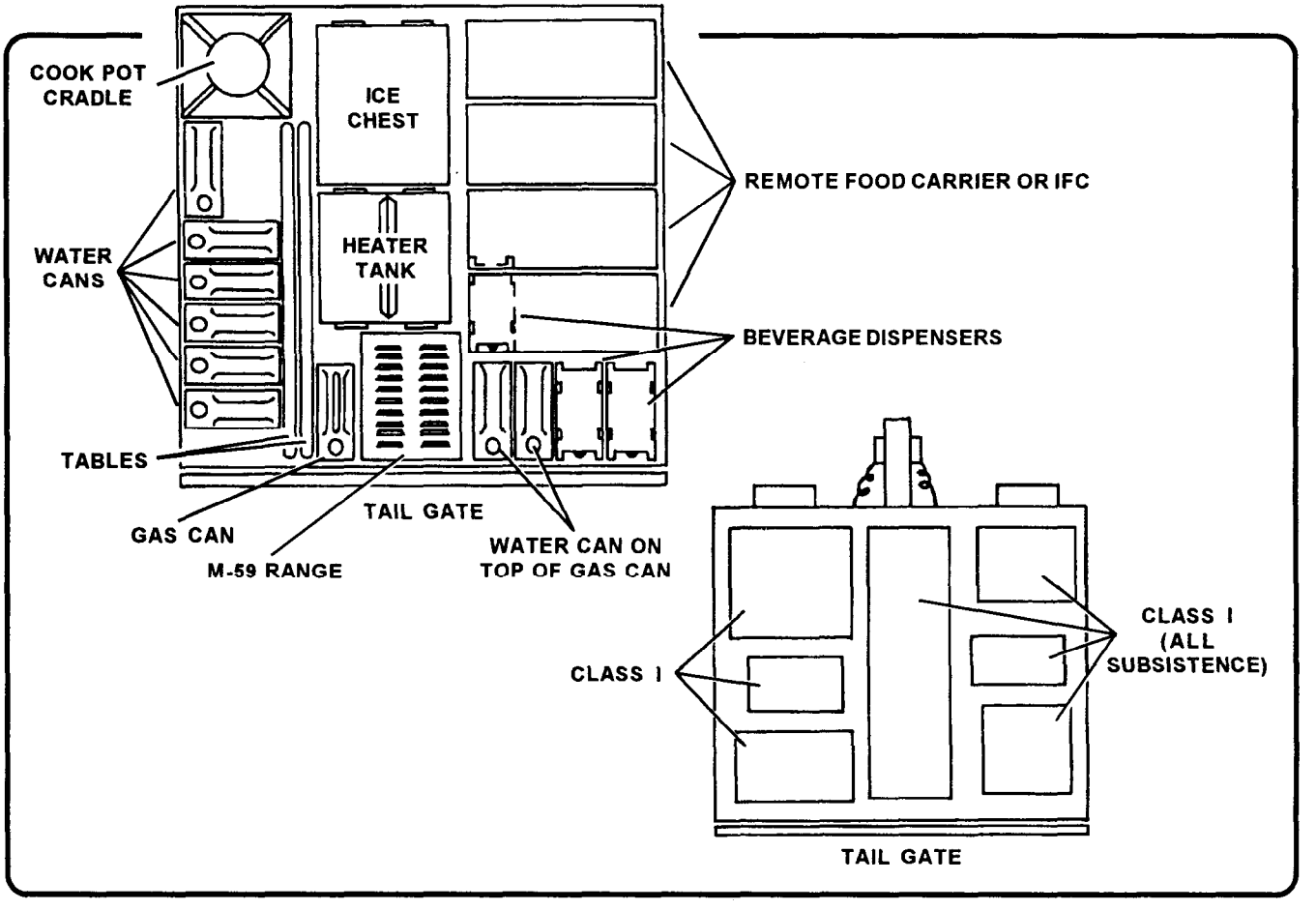


Figure 5-5. Load plans for the HMMWV and HMT

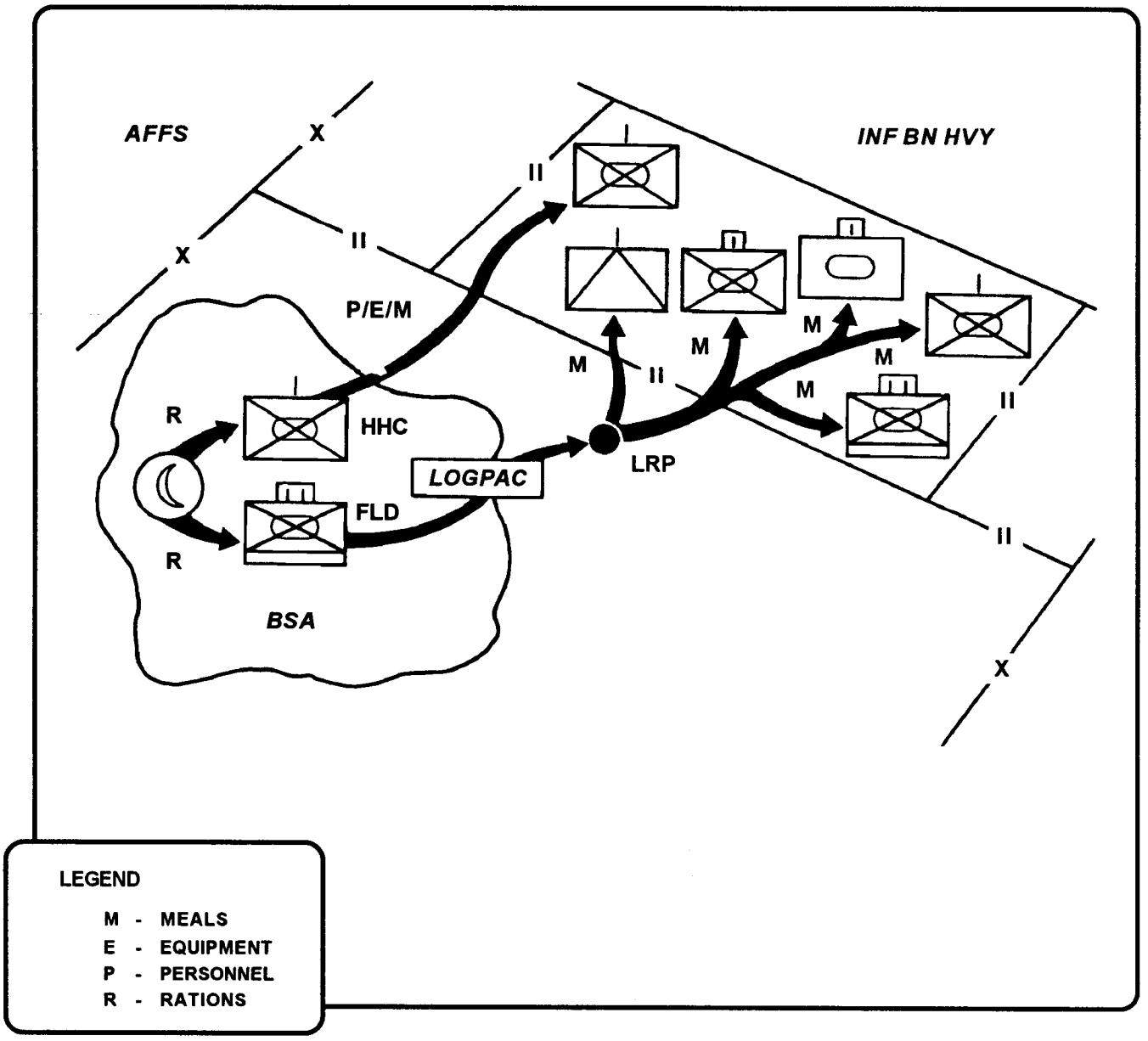


Figure 5-6. LOGPAC subsistence to forward forces

Serving Lines

You may establish a serving line as shown in Figure 5-7, page 5-10. When you are using an MKT, set up the serving line inside. You may serve cold foods on one side of the trailer and hot foods on the other side. Soldiers may enter the trailer from either end, but all soldiers should move through the serving line in the same direction. Use a U-shaped serving line as shown in Figure 5-8, page 5-10 or set up two serving lines, one on each side of the trailer, as shown in Figure 5-9, page 5-11. Troops pass through at 5-meter (17-foot) intervals. Once the troops are served, they spread out to reduce the chance of casualties in case of enemy attack.

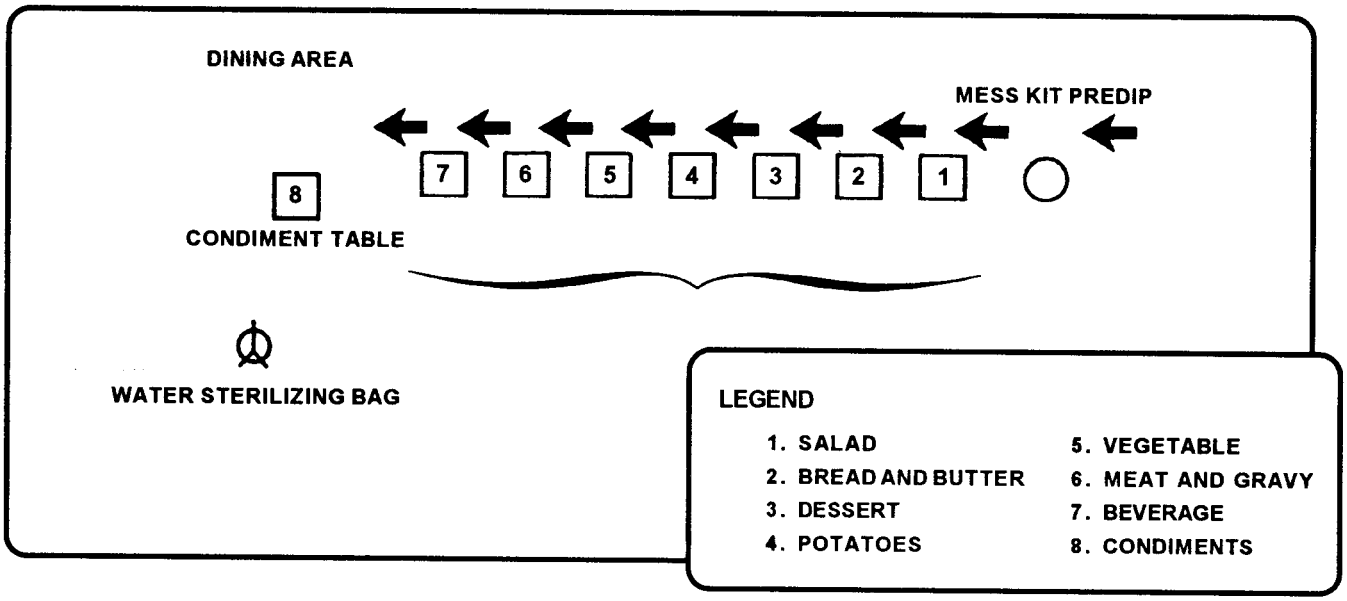


Figure 5-7. Serving line when attack is unlikely

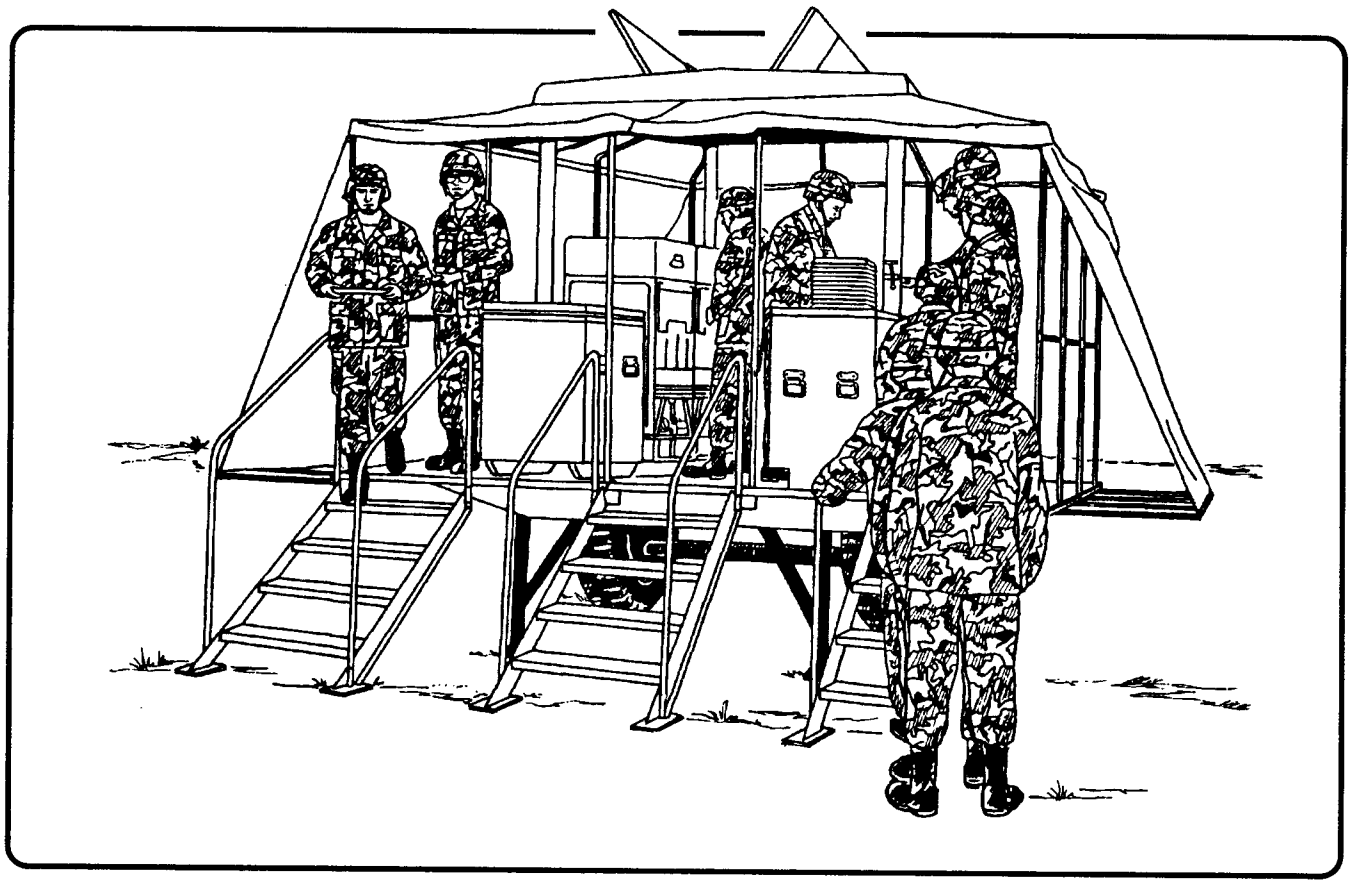


Figure 5-8. Trailer-mounted field kitchen with U-shaped serving line

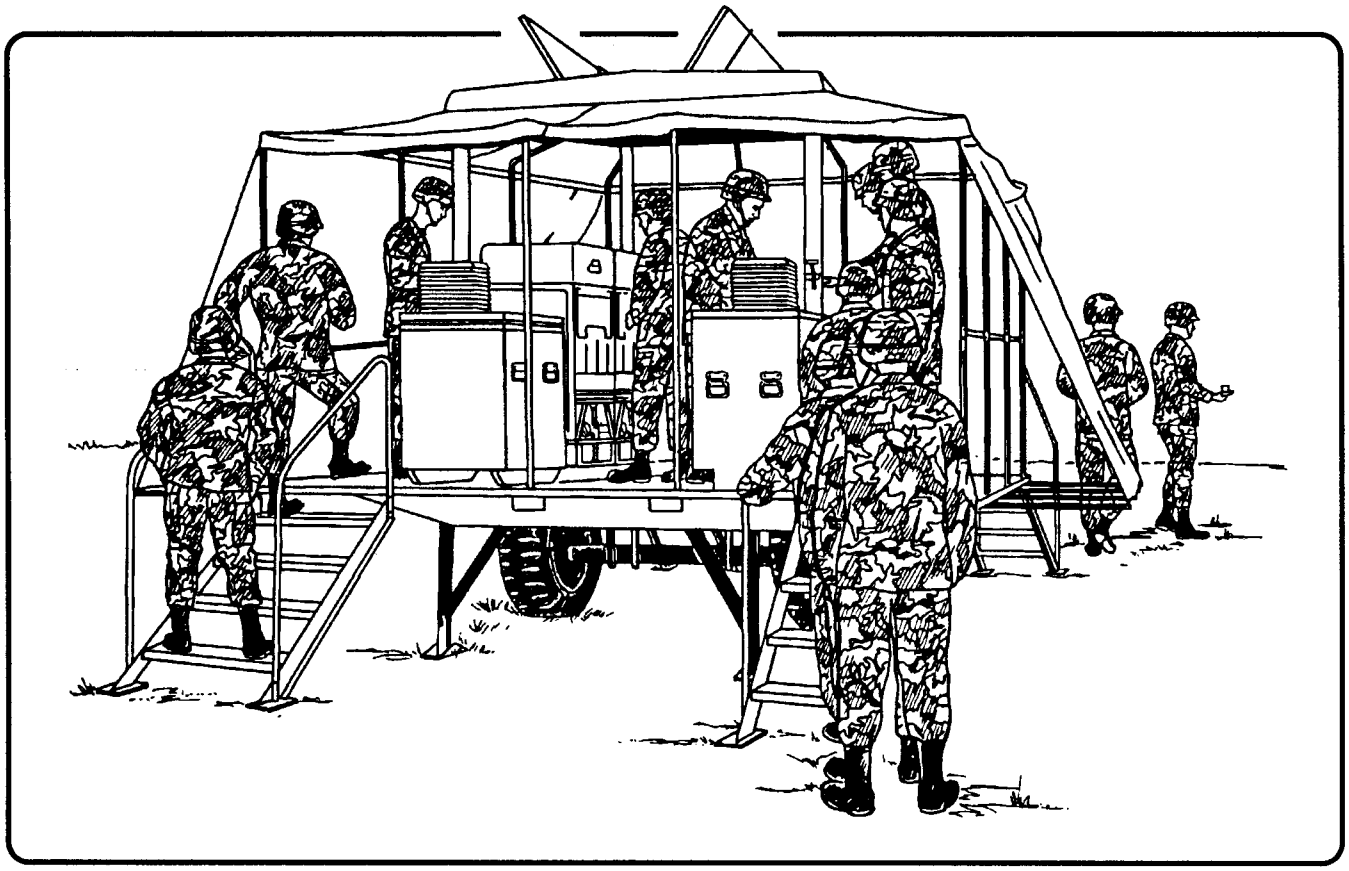


Figure 5-9. Trailer-mounted field kitchen with two serving lines

AFFS ACCOUNTABILITY

The AFFS establishes a single system to account for all field rations. Rations must be accounted for at all times as they move through the supply system. The audit trail for all except individual rations (MREs, RLW) is maintained by main entree only. The audit trail for individual rations is maintained by individual meal package. Medical B-Ration items used for simulated or actual patient feeding are accounted for on the Medical Field Production Schedule. DA Form 3294-R (Figure 5-10, page 5-12) has been designated as a multiuse form used to request, receive, transfer, and turn-in unopened T-Ration and UGR modules, boxes of MREs and loose, undamaged semiperishable A-, B-, and H&S-Ration components. A DA Form 3294-R facsimile may also be used when an automated ordering system is available. Audit trails for ration components are established through recording items received and disposition data on DA Form 5914-R. Complete accountability requirements, procedures and instructions for the AFFS are in AR 30-21.

Managing Supplies

Class I and food operations personnel must manage supplies so that only quantities required are consumed. All residuals are to be returned to the supply point or transferred to another field kitchen. Both the receiver and the issuer sign the DA Form 3294-R or the automated issue document. The MMC can audit the DSU Class I supply point anytime during the deployment. During peacetime training, an audit of the DSU at the end of the operation by the MMC is mandatory.

RATION REQUEST/ISSUE/TURN-IN SLIP

For the use of this form, see AR 30-21; the proponent agency is ODCSLOG

To: 1st FSC A McCoy

From: HHC 1/63 Inf Bn

Consumption date(s)

Number of meal(s) requested

Date: 1 Feb 95

Request: X

Issue:

Turn-in:

Items	U I	B	L	D	B	L	D	B	L	D	Total	Issue date	Supply action	Unit price	Dollar value
8970-01-220 T-Ration Bkft #4	Mod	22									22				
8970-01-220 T-Ration L/D #4	Mod			23							23				
A-Ration	ME														
UHT Milk, White	CO	662		362							1024				
UHT Milk, Choc	CO	100		400							500				
Bread, White	SV	508		508							1016				
Bread, Whole Wheat	SV	254		254							508				
Apples, Fresh	EA			762							762				
Oranges, Fresh	EA	762									762				
Cereal, Assorted	EA	200									200				
8970-00-149-1094 Meal, Ready to Eat	BX		64								64				

Requested by: SSG Tim Morton — Issued by: — Total dollar

Received by: — Received by: — Received by: — Control no.

Page no. — No. of pages — Remarks:

DA FORM 3294-R, JUN 90 — REPLACES EDITION OF MAY 84, WHICH IS OBSOLETE

Figure 5-10. Sample DA Form 3294-R

Class I Inventories

The rapid movement of subsistence through the theater reduces the need for scheduled inventories at DSU or RBP levels. The concept of operations is to maintain only minimal stocks at these levels to meet emergency requirements. Rations received from the theater subsistence distribution activity are issued on the same day to using units and stocks are not maintained at RBPs. Inventories at the COSCOM and theater subsistence distribution activity levels will be conducted at the direction of the theater Class I manager. Cyclic inventories are recommended to assist in maintaining asset visibility and to reduce excess stocks at these levels.

ORDERING RATIONS

Ration requests must be submitted in accordance with the established request and issue schedule for theater or supporting Class I point. This will normally be a minimum of 36 to 48 hours prior to the issue. Present-for-duty strength and unit remote feeding requirements provide the basis for the ration request. Commanders must estimate their unit status and direct the FOS as to the type of ration mix to request. While commanders may select the ration type desired for each meal period, the theater Class I manager will determine the menu number which will be supplied for that ration type. The RBP will make every effort to maintain uniformity with the established issue schedules and the approved feeding plan for each day. Figure 5-11 is an example of an approved feeding plan ration cycle.

Asset Visibility

The intermediate MMCs will have asset visibility for all Class I items in their area and the stocks that are en route to them. The TAMMC (or highest available) Class I manager will be responsible for receiving the requirements, determining the availability of components, making substitutions where required, providing instructions to the subsistence platoon at the GS and DS RBPs, and requesting the transportation to ensure that the rations are delivered in a timely manner.

Cross Leveling

The division and brigade food advisor will have to be aware of the operational status of the units, the feeding cycle, and the status of rations that are within and flowing into his operational area. He must monitor incoming rations and assist in cross leveling to accommodate meal schedule changes that result from METT-T and other operational changes.

DAY OF EXERCISE/MEAL	IF THE UNIT SELECTS	THE MENU RECEIVED
1/Breakfast	UGR H&S	UGR H&S Menu 4
	UGR B	UGR B Menu 2
	UGR A	UGR A Menu 1
1/Dinner	UGR H&S	UGR H&S Menu 5
	UGR B	UGR B Menu 4
	UGR A	UGR A Menu 1

Figure 5-11. Example of an exercise ration cycle

Ration Requests

T-Rations are requested by module. UGRs (A-, B-, and H&S), A-Rations and Standard B-Rat ions are requested by the FOS by meal. Class I personnel calulate the number of modules required. B-Ration and medical unique B-Ration components are requested by item. B-Rations also may be modularized if prior coordination has been affected by the MACOM with DPSC. MREs are requested by box (12 per box). The FOS prepares a Class I spreadsheet (see Figure 5-12) or DA Form 3294-R to identify the rations needed.

Computing T-Ration requirements. T-Ration requirements are determined by the total number of soldiers to be fed at each site divided by 18. Any resulting fraction must be rounded up to the next higher module. Remote site feeding must be considered when determining T-Ration requirements. For example, if the FOS knows that one remote site has eight soldiers, a second remote site has 11 soldiers, and a third remote site has nine soldiers, and the entree size is nine, there are two entree pans in the modules. However, three modules are still required since each module has only one starch, vegetable and dessert pan. The T-Ration calculator is designed to assist the FOS in preparing requests for T-Ration modules. The calculator wheel is constructed of heavy flexible plastic stock and fits in the pocket of the battledress uniform. It may be obtained from your supporting TASC by ordering GTA 10-1-12, T-Ration Calculator.

Supplemental and enhancement items for T-Rations. The T-Ration must be supplemented by bread and milk to make the meal nutritionally complete. See Chapter 3 for authorized supplements and enhancements. While supplemental items are required to make the T-Ration nutritionally adequate, enhancement items provide a more acceptable and complete meal.

Warming and cooling beverages. Warming and cooling beverages are in addition to the daily authorized beverage allowances in the field menu. Normally, the unit requests this allowance through the installation food advisor. It is not automatic and must be an integral part of the feeding and deployment plan.

UNIT	DAY OF EXERCISE				
	N	N+1	N+2	N+3	N+4 N+5
HHC 1st Bde *PFD	MRE/MRE/MRE (50/50/50)	MRE/MRE/MRE (100/100/100)	UGR H&S/MRE/UGR H&S (100/200/200)	UGR H&S/MRE/UGR A (200/200/150)	
361st MP *PFD	MRE/MRE/MRE (10/10/10)	MRE/MRE/MRE (10/50/50)	UGR H&S/MRE/UGR H&S (50/100/100)	UGR H&S/MRE/UGR B (100/75/50)	
21st Sig Co *PFD	MRE/MRE/MRE (10/10/10)	MRE/MRE/MRE (10/25/25)	UGR H&S/MRE/UGR H&S (25/50/90)	UGR H&S/MRE/UGR A (90/90/90)	

* Present-for-duty strength. Any remote feeding must be included in your computations.

Figure 5-12. Example of a Class I spreadsheet

Substitutions and deletions. Changes may be made to the prescribed field menu. However, through effective predeployment Class I planning, substitutions and deletions can be kept to a minimum. The TISO and/or Class I officer must keep supported units advised of substitutions or deletions on a timely basis.

Submission of Requests

The FOS (or unit personnel) uses voice communications to request rations from the supporting RBP. If voice communications capability is not located in the proximity of the field kitchen or are disrupted, handwritten information can be hand-carried to the supporting RBP for entry into the automated system. During peacetime operations and until this concept has been evaluated, tested, approved, and fielded, existing procedures using DA Forms 3294-R (Figure 5-10, page 5-12) may be used if voice communication links are not available.

RBP (DSU)

The RBP forwards all customer requests to the Class I manager with information copies going to the supporting COSCOM MMC, DMMC, DMMO, and SMO. This will be the initial entry point into the automated Class I system. Once the action request leaves the ULLS entry point and enters SARSS-O at the FSB, MSB, or CSB, it becomes a requisition.

Theater Subsistence Distribution Activity

The MMC converts ration requests to line item requisitions using the standard Army field menu or theater menu as a guide for the required issue factors. The theater Class I manager determines whether on-hand plus due-in stocks are sufficient to fill new requirements. When required, requisitions are released to the NICP for resupply.

RECEIPTS AND ISSUES

MMCs generate MROs (automated Pull System list for each unit), which are attached to the subsistence when it is shipped forward to the RBP by the subsistence platoon. The senior person on duty at the RBP must inventory the subsistence received and acknowledge receipt by signing and dating the automated form provided. Part two of the form is signed by the individual picking up subsistence for the unit from the RBP. Once the RBP has issued the subsistence to the field kitchen, the item is considered consumed. When the DA Form 3294-R is used as the request and issue document, two copies are kept by the RBP. The RBP balances its DA Form 3294-R receipts against its DA Form 3294-R issues to ensure accountability. Units that do not normally order directly from an MMC or TISA must be prepared to do so if the intermediate support elements are not participating in the operation.

Field Kitchen Receipts

All quantities of subsistence listed on the automated issue document or DA Form 3294-R must be verified and signed for in the next available "Received By" block. Check the amount issued by counting the items. When you receive less than you ordered, enter only the amount received on the issue document. Let the Class I personnel know at once so they can make up the shortage before you need the food. All rations must be inspected for condition before the issue documents are signed. Food service personnel must also inspect subsistence when cans are opened and when food items are in their preparation phase. Whether food is picked up or delivered, check its shape, color, and odor. If you believe that the food is not safe to eat, make a note on the issue document and ask veterinary personnel to check the items. Do not throw out or destroy food until instructed to do so by veterinary personnel or the TISO.

Semiperishables. Once cans have been opened, inspect the contents for signs of deterioration or spoilage before serving. Segregate for veterinary inspection tray packs or other canned items with any of the following defects:

- Items that show any evidence of leaks, foam or product stains on the exterior. Items

with any pin holes, seam fractures or incomplete seals.

- Rust that actually penetrates the tray pack or can, causing leakage or excessive end seam rust that cannot be removed with a soft cloth and which enter the product when it is opened.
- Dents that are so severe that they cause leakage or that make it impossible to open the product safely.
- Swollen or outwardly distended tray lids bulging from internal pressure or swells caused by physical damage such as dents or over heating.
- Buckles or bends in the top and extending into the end seam of the tray pack.

Dry stores. Check dry stores, such as cereal, flour, and sugar for signs of exposure to grease or moisture or contamination from insects or rodents. Do not accept open containers unless it is clear they were opened during ration breakdown operations. If a container is discolored, open it and make sure the food is not damaged or spoiled.

Perishables. Check the condition of all perishables received. Inspect foods as discussed below.

Fresh fruits and vegetables. Check fresh fruits and vegetables for mold, wilt, rot, and other defects. Remove the bad items and store the rest.

Meats and poultry. Inspect meats and poultry for color, odor, damage, and slime. Unfrozen meat should be firm and elastic to the touch. No meat should feel slimy, sticky, or dry. There should be no blotches or evidence of slime or sour smell. Check poultry and cuts of meat to see if they are the same as those listed on the issue slip and menu.

Frozen foods. Check frozen foods for firmness and for signs of thawing and refreezing. If the package of food has ice on the inside, this is a sign that the food has thawed and been refrozen. Do not accept this food.

Issues

When the FOS issues rations for preparation, they must be posted to DA Form 5914-R. Accountability for the UGR or T-Rations is based on the number of main entree servings per module or T-Ration pan. Posting and accounting for A-Rations is based on the number of main entrees received from the supply activity. For rations issued by the kitchen for airlift, post the number issued, the date and the aircraft tail number on the DA Form 5914-R.

Unopened Rations

All unopened modules, boxes of MREs, and loose semiperishable and B-Ration items are turned in by supply distribution channels until they are returned to the supporting TISA, per the turn-in schedule established by the TISA. DA Form 3294-R is used to turn in subsistence. When rations are turned in, the main entree or meal amount is posted to the unit's DA Form 5914-R. In active theaters, each level of distribution attempts to cross level supplies and reissue them to consuming units before turning them into their supporting Class I activity.

Forced and Mandatory Issues

During inspections, VSP may discover items in stock that must be issued at once to prevent loss to the government. Normally, these items are perishable and are forced- or mandatory-issued for immediate use (AR 30-18, Chapter 11, Section IV explains forced- or mandatory-issued items). They must be accepted, but only in the amounts that may be used before the next issue. Before forced- or mandatory-issued perishables are stored, remove and discard any visibly spoiled or damaged items. Use any forced- or mandatory-issued item as soon as possible.

Reheated T-Rations

Subsistence to be discarded after three beatings (two reheats, T-Ration only) or when determined by the FOS to be unfit for consumption will be entered on the DA Form 5914-R as shown in Figure 5-13, page 5-17.

RATION CONTROL SHEET

For the use of this form, see AR 30-21; the proponent agency is ODCSLOG

Period: 12 - 20 Feb 95

Unit: HHC 1/63 Inf Bn

Type of ration: (X)T ( )B ( )A ( )Other

a Date	b Modules drawn	c Meals drawn / Meals returned	d Meals issued	e Cum bal meals on hand	f No. of persons supported	g Unit, individual activity issued to	h Signature of individual receiving meal	i Issued by
12 Feb 95	42	756		756		HHC 1/63 Inf	SFC Tim Morton	TISA
13 Feb 95			126	630	125	A Co 1/63 Inf	1SG Clifford Wolf	TM
13 Feb 95			18	612	16	A Co 1/63 Inf	SMG DAVID SMITH	TM
13 Feb 95			18	594	10	A Co 1/63 Inf	SMG DAVID SMITH	TM
13 Feb 95			144	450	128	B Co 1/63 Inf	SFC Ben Long	TM
13 Feb 95			90	360	75	C Co 1/63 Inf	CPT John Marsh	TM
13 Feb 95			54	306	45	C Co 1/63 Inf	CPT John Marsh	TM
13 Feb 95			306	0	304	HHC MKT	SGT Toby Alderich (1st Cook)	TM
13 Feb 95		(1) 18		0		HHC 1/63 Inf	SFC Tim Morton	DS
13 Feb 95		(2) 72		72		HHC 1/63 Inf	SFC Tim Morton	JH
14 Feb 95			(3) 72	0		HHC 2nd BDE	1SG Debbie Cates	TM
14 Feb 95		(4) 72		72		HHC 1/63 Inf	SFC Tim Morton	TM
14 Feb 95			(5) 72	0		1st FSB	MSG William Frog	TM

Remarks:

1. 18 entrees returned from A Co 1/63 Inf, Entrees discarded (Reheated twice).
2. 72 entrees returned from C Co 1/63 Inf, site moved, MREs issued.
3. Four pans of Lun/Din entrees returned to home station (HHC 2nd Bde)
4. Four unopened modules returned from MKT.
5. Turn-in to Class I, four unopened modules.

DA FORM 5914-R, JUN 90

Figure 5-13. Sample DA Form 5914-R

STRENGTH REPORTING

Each day, each supported unit submits a DA Form 5913-R to its supporting field kitchen, see Figure 5-14, page 5-20. The supporting field kitchen consolidates all unit ration requests and submits a consolidated ration request to the supporting RBP, see Figure 5-15, page 5-21. DA Form 5913-R identifies by service component, the number of soldiers present-for-duty each day and the number of personnel paying by cash. Every third day, the FOS prepares a consolidated DA Form 5913-R and submits it to his RBP, see Figure 5-16, page 5-22. The RBP consolidates the DA Forms 5913-R from the supported units to show the consolidated service component data and meals sold for cash, see Figure 5-17, page 5-23. The FOS prepares an end-of-training report to the RBP at the conclusion of the exercise / deployment, see Figure 5-18, page 5-24. Complete instructions for use of the DA Form 5913-R are in AR 30-21.

SUBSISTENCE STORAGE AT FIELD KITCHENS

Subsistence storage actually begins with transporting rations. Requirements for vehicles used to transport rations are explained in the sanitation section of this manual and in more detail in TB MED 530. Improper storage causes loss from rodent or insect infestation or from deterioration because of excessive heat or moisture. The ISU-96 refrigerated container, Figure 5-19, page 5-25, is available in CTA 50-909. It provides the capability for transport and storage of perishable subsistence (frozen and / or chilled) and dry goods on the same trailer to brigade level and below. The ISU-96 offers the capability to not only maintain cool temperatures for perishables in hot environments, but to keep subsistence and other items warm to 70 degrees Fahrenheit in extreme cold weather environments. The ISU-96 is currently available through DLA contract DLA-413-93-D-8037 which became effective 17 Sep 93. Adding these refrigerated containers to CTA 50-909 will make this critically needed system immediately available to users.

Transportation

Vehicles used to transport subsistence should be clean, free of moisture, and have pallets to keep subsistence off the bed of the truck. The front and rear flaps must be lowered and secured during transport. Subsistence vehicles are not to be used to transport garbage or petroleum products while transporting subsistence. The bed of the truck should be free of harmful protrusions such as nails that could puncture food containers. Ice chests or other insulated containers should be used to transport perishables when time, distance and outside temperature could cause the temperature to rise above required safe levels for refrigerated items and frozen items.

Storage

Proper storage procedures must be adhered to at the field kitchen site to prevent possible spoilage and contamination of rations. Follow the recommendations listed below for storage of perishables, semiperishables, and prepared foods.

Perishables. Units are authorized ice chests in accordance with CTA 50-909. Every effort must be made to keep the temperature of food in the ice chest below 41 degrees Fahrenheit (5 degrees Centigrade). The MKT and the KCLFF are equipped with ice chests as parts of the system. These are discussed in Chapter 9.

Semiperishables. Semiperishable foods last longer than perishable foods, but you must still store them properly. They can be affected by heat, humidity, insects and rodents. Storage racks or containers must beat least six inches from the ground. The following are some considerations for safe storage:

- Cover bulk food items to prevent contamination from dust and other debris.
- Store items like flour, sugar, and rice in their original containers and place them in metal

containers with tightly fitted lids to protect them from excessive heat, moisture, and infestation.

- Store hardy fruits and vegetables, such as potatoes and onions, in a dry place on dunnage to permit air to circulate around them to retard decay and spoilage. Highly perishable vegetables, such as bagged salad or lettuce, should be placed in an ice chest if possible. Only what can be used in a short time should be requisitioned.

Prepared foods. Store prepared food in preheated or prechilled insulated containers. Instructions for heating or chilling the containers are in Chapter 9 of this manual.

COLD-WEATHER FIELD FEEDING

Commanders at all levels must plan for extreme cold-weather operations. The three basic components of CWFF are equipment, rations, and procedures.

Equipment

Restrict the use of the MKT in CWFF to temperatures above 32 degrees Fahrenheit. Commanders must do a risk assessment when deploying the MKT in temperatures below 32 degrees Fahrenheit. These areas must be considered when assessing the situation: poor heat distribution with the MKT; condensation inside the MKT and mobility problems in transporting the MKT. Use tents to support the KCLFF. Some examples of suitable tents are the GP small tent and the GP medium tent. The unit provides assigned tents to the food service section. Other types of equipment and things to remember are discussed below.

Specially designed water trailers (trailer, NSN 2510-01-091-5167, and frame, NSN 2330-01-108-7767) are required. Each water trailer is equipped with swing-fire heaters.

Preventive maintenance and adequate predeployment testing is critical and must not be neglected.

The failure rate of equipment increases in extreme cold environments. This causes a need for more repair parts.

The current dining or sleeping tent authorized for zones 6 and 7 is the 10-man tent.

The Yukon stove (M-1950) is used to heat sleeping and work areas. Special safety considerations are necessary (for example, fire guards and positioning within the tent).

Rations

Soldiers' needs are greater in CWFF. Rations for CWFF are discussed below.

Soldiers are authorized 4,500 calories per day in extreme cold weather.

Units operating in extreme cold-weather may use the arctic T-Ration supplement.

Soldiers may be authorized a 900-calorie supplement on days when no arctic T-Rations or other hot supplemented meals are used.

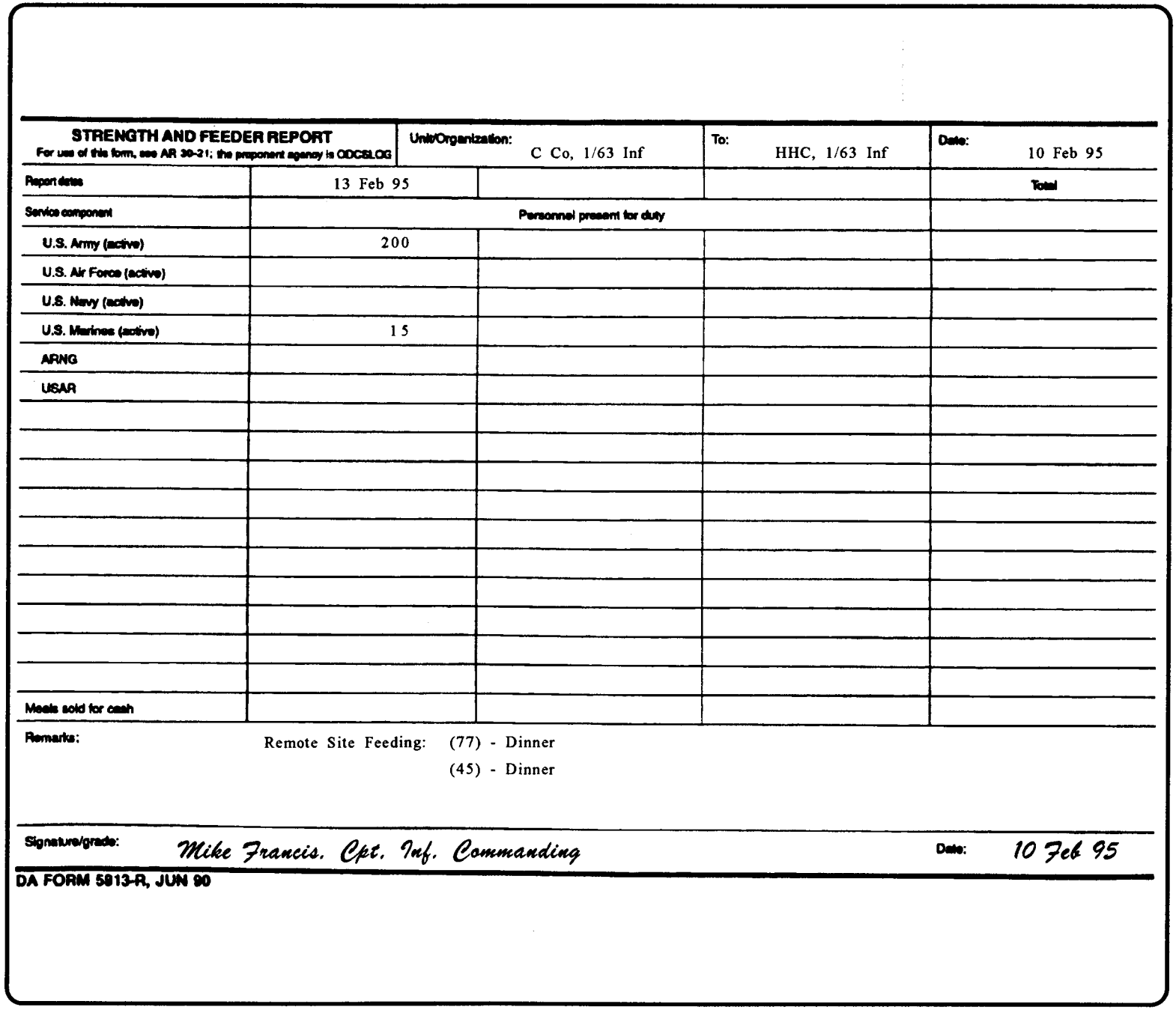
Warming beverages are included in the dinner module of the arctic T-Ration module. Warming beverages (soup and coffee) may be authorized separately when arctic T-Ration supplements are not available.

Commanders are reminded that water is a nutrient and that soldiers need sufficient quantities. Soldiers' water requirements increase in extreme cold climates. For a more detailed discussion on individual and unit water requirements refer to FM 10-52.

MREs freeze at temperatures below 32 degrees Fahrenheit. Store rations to prevent freezing when possible. Use procedures in Chapter 6 of this manual for handling of MREs in freezing temperatures.

Personnel

Food service personnel require additional time and assistance in preparing rations in extreme cold-weather environments. KPs are needed to assist in sanitation at field sites.



STRENGTH AND FEEDER REPORT For use of this form, see AR 30-21; the proponent agency is ODCSLOG	Unit/Organization: C Co, 1/63 Inf	To: HHC, 1/63 Inf	Date: 10 Feb 95
Report dates	13 Feb 95		Total
Service component	Personnel present for duty		
U.S. Army (active)	200		
U.S. Air Force (active)			
U.S. Navy (active)			
U.S. Marines (active)	15		
ARNG			
USAR			
Meals sold for cash			

Remarks: Remote Site Feeding: (77) - Dinner
(45) - Dinner

Signature/grade: Mike Francis, Cpt, Inf, Commanding Date: 10 Feb 95

DA FORM 5913-R, JUN 90

Figure 5-14. DA Form 5913-R completed as a unit request to a supporting field kitchen

STRENGTH AND FEEDER REPORT
For use of this form, see AR 30-21; the proponent agency is ODCSLOG

Unit/Organization: HHC, 1/63 Inf

To: 725 FSB

Date: 6 Feb 95

Report dates	11 Feb 95	12 Feb 95	13 Feb 95	Total
Service component	Personnel present for duty			
U.S. Army (active)	425	425	425	1275
U.S. Air Force (active)				
U.S. Navy (active)				
U.S. Marines (active)	20	20	20	60
ARNG				
USAR				
Meals sold for cash				

Remarks:
B - MRE
L - MRE
D - UGR H&S
B - UGR A-Rat
L - MRE
D - UGR H&S
B - UGR H&S
L - MRE
D - UGR A-Rat

Signature/grade: *Mike Francis, Cpt, Inf, Commanding*

Date: *6 Feb 95*

DA FORM 5913-R, JUN 90

Figure 5-15. DA Form 5913-R completed as a consolidated ration request to the RBP

STRENGTH AND FEEDER REPORT For use of this form, see AR 30-21; the proponent agency is ODCSLOG	Unit/Organization: HHC, 1/63 Inf	To: 725 FSB	Date: 14 Feb 95
Report dates	11 Feb 95	12 Feb 95	13 Feb 95	Total
Service component	Personnel present for duty			
U.S. Army (active)	390	385	405	1180
U.S. Air Force (active)				
U.S. Navy (active)				
U.S. Marines (active)	15	15	12	42
ARNG				
USAR				
Meals sold for cash	4		2	6

Remarks:

Signature/grade: *Mike Francis, Cpt, Inf, Commanding* Date: *14 Feb 95*

DA FORM 5913-R, JUN 90

Figure 5-16. DA Form 5913-R completed as a consolidated report to the RBP

STRENGTH AND FEEDER REPORT
For use of this form, see AR 30-21; the proponent agency is ODCSLOG

Unit/Organization: 725 FSB

To: DMMC 25th Inf Div

Date: 17 Feb 95

Report dates	11 Feb 95	12 Feb 95	13 Feb 95	Total
Service component	Personnel present for duty			
U.S. Army (active)	1565	1565	1565	4695
U.S. Air Force (active)	20	20	20	60
U.S. Navy (active)				
U.S. Marines (active)	35	35	35	105
ARNG	50	50	50	150
USAR				
Meals sold for cash	10	10	10	30

Remarks:

Signature/grade: Tim Alden, Cpt, Inf, Commanding

Date: 17 Feb 95

DA FORM 5913-R, JUN 90

Figure 5-17. DA Form 5913-R completed as a consolidated report from the RBP to a higher supply activity

STRENGTH AND FEEDER REPORT
For use of this form, see AR 30-21; the proponent agency is ODCSLOG

Unit/Organization: HHC, 1/63 Inf

To: 725 FSB

Date: 12 - 21 Feb 95

Report dates													Total
Service component	Personnel present for duty												
U.S. Army (active)													2550
U.S. Air Force (active)													
U.S. Navy (active)													
U.S. Marines (active)													405
ARNG													400
USAR													
Meals sold for cash													120

Remarks:

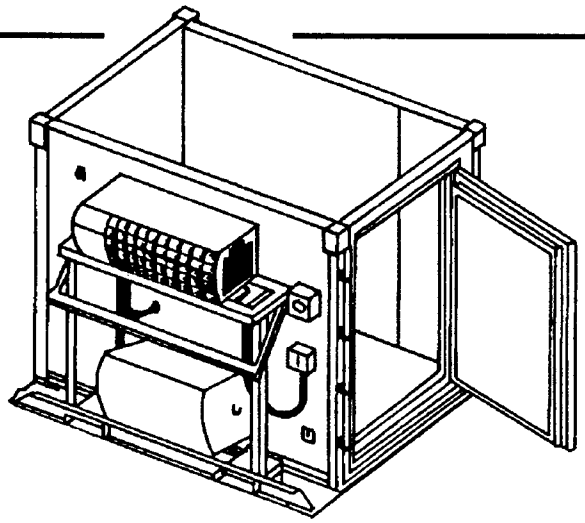
End of Field Training Report

Signature/grade: *Mike Francis, Cpt, Inf, Commanding*

Date: *21 Feb 95*

DA FORM 5913-R, JUN 90

Figure 5-18. DA Form 5913-R completed as an end-of-training report to the RBP



CAPABILITIES

- Provides storage and transport of temperature-sensitive materials and perishable items.
- Completely intermodal.
- Two-way forkliftable with standard 10,000-lb fork trucks.
- Certified for external helicopter lift.
- Maintains temperature in sub-zero environments through the integral heating unit.
- Reduces total airlift requirement.
- Eliminates dry ice in aircraft.
- Maintains constant temperature during transport for several hours.
- Operates with diesel fuel or electrical power.
- Temperature range is -30° F to +70° F.
- Security provisions for high value items.

Figure 5-19. ISU-96, refrigerated container

Maintenance

Maintaining mechanical equipment is exceptionally difficult in the field during cold weather. Additional time is required to perform tasks. This time lag cannot be over emphasized and must be included in all planning. Bulky and clumsy clothing that soldiers must wear in extremely cold areas reduces personal efficiency. At temperatures below -20 degrees Fahrenheit, maintenance requires up to five times the normal amount of time. Several requirements that affect maintenance directly and require planning and preparation before a cold weather operation are:

- Site clearance is difficult. More man-hours and engineer support may be required.
- Work productivity is reduced about 50 percent when temperatures go below 20 degrees Fahrenheit.
- Daylight is limited in extreme cold-weather climates. Lighting and maintenance tents are recommended.
- Shelter is needed for equipment requiring maintenance.
- Proper clothing and tools are required for mechanics.
- Adequate portable heaters must be available.
- Suitable methods must be in place to store and issue antifreeze, fuels, hydraulic fluids, and lubricants.
- Adequate supplies of repair parts must be maintained.
- Sufficient equipment for snow and ice removal must be available.

Safety

Safety is as important in CWFF as it is in any other area. The following are additional considerations for CWFF safety:

- Because MRE towelettes have an alcohol base, they may stick to your skin or may cause frostbite when used in extreme cold climates.
- Metal objects should not come in direct contact with your skin.
- Bulky clothing, fatigue, and cold hands and fingers add to the risk of accidents. Safety must be stressed and personnel must be aware of the limitations and hazards of working in extreme cold conditions.

FORCE PROVIDER ORGANIZATION AND DEPLOYMENT

The Force Provider is assigned to a TAACOM or a COSCOM with further detachment to an appropriate support battalion headquarters. The company may be detached to operate separately in an austere environment. The Force Provider cadre unit, augmented with military or civilian personnel, will be the primary operator of the Force Provider. Currently under development is the TM for direct support and general maintenance of the Force Provider System. It will provide detailed information for the operators of Force Provider. Figure 5-20, page 5-27 gives the layout of a 550 soldier module of a Force Provider unit.

Organization

The Force Provider company is a TOE unit organized under the "TYPE B" alternate. The requirement for US military personnel is thereby significantly reduced. The number and type of military personnel allocated are based on minimally acceptable levels for supervisory functions. Vacancies existing in the B-TOE are indicative of the types of positions which can be filled by US civilians and/or non-US personnel. The number of non-US personnel will be determined by the MACOM commander to which the unit is assigned and will depend upon capacity of available personnel to produce, number of shifts required, and other local factors and conditions. The Force Provider Company consists of nine major elements which include:

- Company Headquarters.
- Support Operations Section.
- Maintenance Section.
- Provider Platoon Headquarters (x6).
- Food Service Section (x6).
- Laundry and Shower Section (x6).
- Water Distribution Section (x6).
- Facilities Support Section (x6).
- Petroleum Distribution Section (x6).

Employment

The Force Provider offers a vast range of capability across the spectrum of military operations. It can be deployed early into a bare base area and used to supplement staging or reception facilities and for acclimation purposes. As the theater begins to mature, it could be used as a part of a vehicle rest stop in support of troop movements over long distances. As the combat forces are deployed forward, Force Provider will be used for its primary purpose of supporting the front line soldier.

Force Provider may be employed in direct support of a brigade or battalion size element. It may also be employed to provide support on an area basis, servicing all soldiers in a given geographical area. The modular configuration of Force Provider allows the flexibility needed to provide support based on the strength of the supported organization.

This system also provides support to intermediate support bases, noncombatant evacuation operations, reconstitution efforts, and during redeployment staging.

Force Provider may also be used to support US civil authorities in non-military operations such as disaster relief, interagency support, and humanitarian aid.

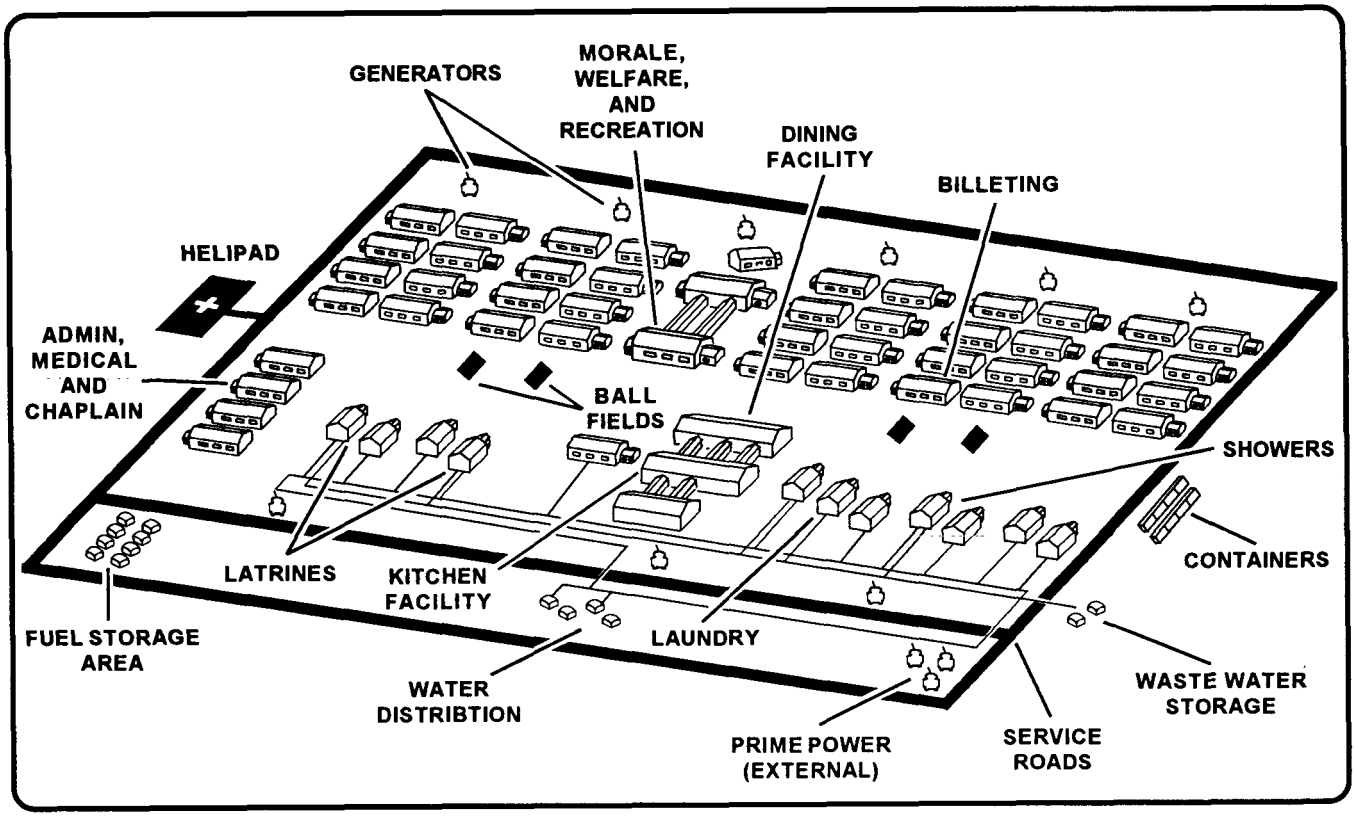


Figure 5-20. Force Provider

Force Provider Food Service Operations

Food service operations employed by Force Provider differ from other tactical food service operations. The mission of the food service section is to provide the capability to prepare and serve three cook prepared meals per day. A brief description of the Force Provider Food Service elements are discussed below.

Feeding standard. To provide soldiers with three cook prepared meals each day. The primary rations used will be the A- and B-Ration components.

Personnel. US military personnel staffing requirements shown in the type B TOE may be used for staffing only when authorized by the Department of the Army. However, staffing of food service personnel to perform the food service operation will primarily come from contractor personnel, local nationals, or US military personnel borrowed from other military units. Current type B TOE Force Provider staffing requirements for the six Food Service Sections under strength level one when authorized by the Department of the Army are shown in Table 5-2.

Table 5-2. Force Provider staffing requirements

TITLE	MOS	GRADE	NUMBER
Food Operations Sergeant	92G40	E-7	6
First Cook	92G30	E-6	6
Cook	92G20	E-5	18
Cook	92G10	E-4	36
Cook	92G10	E-3	36

Equipment. Kitchen equipment used for Force Provider will consist of standard TOE field kitchen equipment supplemented with additional required kitchen equipment. The major kitchen components of the Force Provider include:

- Field kitchen modular.
- Extendible modular kitchen tents.
- Kitchen, company level field feeding.
- M-59 field range outfits with M-2 burner units.
- Range outfit/oven assembly field gasoline.
- Ice making machine.
- Mechanical refrigeration.
- Water chiller.
- Sanitation center (includes Temper tent).

Training for Force Provider. The initial training base for the subsystems of the Force Provider has been established in TRADOC proponent schools. The skills and knowledge required to operate and maintain the Force Provider are currently taught in resident courses for each individual subsystem.

CAMOUFLAGE

Camouflage is one of the basic weapons of war. Correctly used, it can mean the difference between a successfield campaign and defeat. To the individual, it can mean the difference between life and death. Regardless of the type of warfare– all-out nuclear or internal defense operations– camouflage remains important. Small semi-independent units must furnish their own security, reconnaissance, and surveillance. They must be able to exist for long periods of time with minimum control and support from higher headquarters. As a result, their success will depend largely on their ability to remain concealed from the enemy. This, in turn, will depend on their knowledge and proper execution of the camouflage principles.

Responsibilities

The Class I point and field kitchen area must be camouflaged to keep enemy aircraft, ground forces, or infrared sensors from finding it. The following are some precautions to take:

- Do not let the troops gather in large groups to eat.
- Make sure the area and equipment cannot be seen from the air.
- Screen the dining area from ground observation if it is set up near the front lines.
- Bury or retrograde disposable dishes and utensils, tin cans, and litter from packaged rations. Camouflage the area where refuse is buried. Class I personnel must be aware of policy on retrograde or disposal of condemned rations. ***NOTE:*** *In some cases, arrangements are made to backhaul garbage. Make sure food service and Class I personnel are aware of the policy on garbage disposal in their area of operations.*
- Camouflage equipment and other things that might reflect light and keep them out of sunlight. Specifics about using camouflage are in FM 5-20.

Blackout Procedures

Use light discipline when required. If the kitchen has to black out completely, stop cooking. Since kitchens are hot, infrared sensors could find the kitchen area. Eat MREs during these periods. Ensure the RBPs use appropriate lighting during night operations.

RECORDS MAINTENANCE

All records of field operations must be maintained per requirements of the MARKS. Refer to ARs 30-21 and 25-400-2 for guidance on the establishment, maintenance, and destruction of files. Class I personnel and FOSs must ensure that account closeout procedures are followed and that accountability and audit trails are complete. Records of field operations provide a basis for forecasting requirements on future operations.

EVALUATING OPERATIONS

Commanders, Class I managers, FSOs, food advisors, and FOSs all have responsibilities related to

evaluating field food service and Class I operations. An evaluation checklist or SOP is needed to assist in evaluating operational effectiveness. Figure 5-21 may be used but should be modified to meet unit requirements. No single checklist can cover all aspects of every field operation, but an established checklist or SOP is helpful in standardizing the evaluation process.

ADMINISTRATION

- ☐ Effective use of personnel (Class I, Food Service, KPs).
- ☐ Current regulations and manuals on hand (book set).
- ☐ Current and appropriate SOPs on hand.
- ☐ Subsistence estimate and strength reporting procedures current.
- ☐ AFFS accountability forms completed and maintained correctly.
- ☐ Cash and cash meal payment sheets secured (if applicable).
- ☐ Inventory records maintained (as required).
- ☐ Vehicle loading plans available and used.
- ☐ Subsistence residuals properly disposed of.
- ☐ Excess subsistence levels managed properly.

FIELD KITCHEN SITE (GENERAL)

- ☐ Appropriate fire extinguishers on hand and serviceable.
- ☐ Refueling and preheating areas are clearly marked and located at least 50 feet from stored fuels and kitchen operating area (tent, MKT, KCLFF).
- ☐ No smoking signs posted.
- ☐ Gasoline storage site at least 50 feet from the kitchen and from where burner units are lit.
- ☐ Mess kit laundry line/sanitation center at least 50 feet from the kitchen.
- ☐ Soakage pit clearly marked and at least 90 feet from the kitchen.
- ☐ Garbage pit clearly marked and at least 90 feet from the kitchen and 100 feet from water source.
- ☐ Incinerators at least 150 feet downwind from the kitchen.
- ☐ Good cover and drainage available for the water trailer.
- ☐ Water trailer treated and checked for chlorine levels in accordance with FM 21-10 (unit field sanitation team).
- ☐ Water trailers cleaned and inspected in accordance with TB MED 577.
- ☐ Kitchen site camouflaged (if applicable). Camouflage netting secured to within 6 inches of the ground.
- ☐ Handwashing site available for diners and kitchen personnel.
- ☐ Soap and brushes available at handwashing site. Towels are optional.
- ☐ Burning or burying used for trash disposal in accordance with FM 21-10 or hauling trash and garbage out of field site in accordance with local guidelines.
- ☐ Sanitation center properly established (if available).

CLASS I POINT

- ☐ Accessible to customers. Traffic flow established to enhance ration transfer and reduce time on site for customers.
- ☐ Roads sufficient to handle traffic volume.
- ☐ Directional signs posted.

Figure 5-21. Checklist for evaluating Army field feeding and Class I procedures

- ☐ Security measures in place and enforced.
- ☐ Quantity and identity verified when subsistence received at class I point.
- ☐ Condition and quality checked.
- ☐ First in/first out inventory control used.
- ☐ Rations stored on pallets or shelving.
- ☐ Semiperishables kept dry, stored out of direct sunlight, and in a manner to protect against pests and rain.
- ☐ Adequate refrigeration available, set up, and operable for perishable subsistence storage.
- ☐ Only potable ice used.
- ☐ Temperature logs maintained for all refrigeration.
- ☐ Pesticides and cleaning products maintained separately from food.
- ☐ Pest control measures adequate.
- ☐ Proper administrative procedures in place to provide accountability for subsistence. Requisitions, receipts, issues properly documented.
- ☐ Co-located with water point operations if possible.

PERSONNEL

- ☐ Uniforms clean.
- ☐ Hair properly cut and covered.
- ☐ Hands clean, fingernails clean and cut short.
- ☐ No jewelry worn except plain wedding band or medical alert ID.
- ☐ Personnel appear to maintain adequate personal hygiene.
- ☐ Food service personnel inspected at the start of work by supervisor for infected cuts, sores, burns, and signs of respiratory illness.
- ☐ No evidence of smoking in food preparation areas.
- ☐ Servers are courteous.
- ☐ Proper food handling techniques evident.
- ☐ All personnel demonstrate operator's knowledge of each piece of food service equipment, field expedients, field sanitation, and trash and garbage procedures.

FOOD PREPARATION AND SERVICE

- ☐ Adequate supervision (Supervisors visible during meal preparation and service).
- ☐ Meal hours adequate.
- ☐ Safety and tactical standards followed.
- ☐ Production schedule prepared correctly (if applicable).
- ☐ Appropriate recipes available and followed (if applicable).
- ☐ Appropriate and sufficient serving utensils available and used.
- ☐ Leftovers disposed of correctly.
- ☐ Food held and served at appropriate temperature (Correct temperatures maintained throughout the meal service).
- ☐ Food prepared in the correct quantities, palatable, and served on time.
- ☐ Correct portion control evident.
- ☐ Hot foods served last in cold weather.
- ☐ Serving line under protective cover (when available).

Figure 5-21. Checklist for evaluating Army field feeding and Class I procedures (continued)

- ☐ Serving line allows smooth flow of traffic.
- ☐ Staggered serving lines used for tactical situations.
- ☐ One-way, straight-serving line used for nontactical situations.
- ☐ Prompt replenishment of serving line items.
- ☐ Sanitation practices maintained in accordance with this manual, TB MED 530, and FM 21-10.
- ☐ Cooking utensils and equipment cleaned and stored to preclude contamination in accordance with TB MED 530.

KITCHEN AND KITCHEN EQUIPMENT/KITCHEN TENT/SHELTER (IF APPLICABLE)

- ☐ Located near good natural cover.
- ☐ Located on level ground which is free of projecting roots and rocks.
- ☐ Located on high, dry ground for good drainage of tent.
- ☐ Protected from wind.
- ☐ Adequate, nonabsorbent work tables available.
- ☐ Tables placed to avoid overcrowding.
- ☐ Orderly and efficient equipment arrangement.
- ☐ Available shelving clean.
- ☐ Appropriate liners (screening) for shelters available.
- ☐ Appropriate fire extinguishers available, visible, and serviceable.
- ☐ Replacement parts available for kitchen equipment, as appropriate.

MKT (IF APPLICABLE)

- ☐ Positioned on firm, level ground.
- ☐ Positioned free of large rocks and trees.
- ☐ Good water drainage available.
- ☐ Minimum operating area of 30 feet by 30 feet.
- ☐ Minimum overhead clearance of 11 feet.
- ☐ Trailer entrance turned away from windward side.
- ☐ Appropriate fire extinguishers available, visible and serviceable.

INSULATED FOOD CONTAINERS

- ☐ Adequate number of insulated food containers on hand to support feeding mission.
- ☐ All components serviceable.
- ☐ Containers tempered correctly (hot or cold).
- ☐ Time and temperature rules for potentially hazardous foods followed in use of insulated food containers (Four hours maximum time for holding PHF).
- ☐ Menu items labeled on containers.
- ☐ Containers used only with inserts.
- ☐ Containers sealed when not serving.
- ☐ Gaskets replaced after cleaning.
- ☐ Containers cleaned, dried, and stored properly between uses.

FIELD RANGE M59

- ☐ Accessory outfit complete.

Figure 5-21. Checklist for evaluating Army field feeding and Class I procedures (continued)

- ☐ Positioned on firm, level ground or on noncombustible material.
- ☐ Adequate ventilation available.
- ☐ All hinges serviceable.
- ☐ Ranges cleaned and maintained properly.

M2 BURNER UNIT

- ☐ No damaged generators in use.
- ☐ Pressure gauge serviceable and unit operated within acceptable limits.
- ☐ No cracked or threadworn filler caps in use.
- ☐ Gasket fits tightly.
- ☐ Leakproof fuel tank.
- ☐ Generator and preheater valves turned on and off.
- ☐ Stored under cover when not in use.
- ☐ Safety procedures used during lighting, transporting, operation, and maintenance.
- ☐ Burners cleaned and maintained daily.
- ☐ Knobs, handles and gauges present on all burner units.
- ☐ Heat protective gloves used when preheating and transporting units.

IMMERSION HEATERS (IF APPLICABLE)

- ☐ Combustion chamber free of gas, rust, and damage.
- ☐ Flue component free of rust or damage.
- ☐ Flue preheated for 1 minute prior to lighting.
- ☐ Heating pipes (four per heater) serviceable and free of soot.
- ☐ Leakproof fuel tank.
- ☐ Mounting clamps serviceable.
- ☐ Heat protective gloves used when igniting gasoline.
- ☐ Fuel valve adjusted until fuel flows in rapid drops but not in a fine stream.
- ☐ Soldier's face shielded from burner compartment during lighting or adjustments.

SANITATION AREA, MESS KIT LAUNDRY LINE/POT AND PAN WASHING AREA

- ☐ Site is sheltered and on level sandy or gravel ground.
- ☐ Good ventilation available.
- ☐ Scrap can is first can in mess kit laundry line.
- ☐ Three thirty-two gallon cans with immersion heaters placed on soakage pits.
- ☐ Proper water temperatures maintained.
  - — Wash, hot soapy water 120° F to 150° F .
  - — First and second rinse 170° F or higher.
- ☐ Mess kit laundry line rotated and cleaned at least every 80 mess kits, or more frequently as necessary.
- ☐ Brushes available for cleaning.
- ☐ Washed pots and pans allowed to dry properly before storage.

DINING AREA

- ☐ Handwashing device for diners available and maintained properly.

Figure 5-21. Checklist for evaluating Army field feeding and Class I procedures (continued)

CHAPTER 6
CLASS I STORAGE AND ISSUE PROCEDURES

SUBSISTENCE STORAGE AT THE CLASS I POINT

This chapter contains guidance for Class I storage and distribution operations. Included are procedures for perishable storage, semiperishable storage, sanitation at storage points, pest control, security, inspections, ration breakdown and issue, stock locator system, inventory management, subsistence handling procedures, and night operations. Subsistence must be stored so that it is both accessible and secure.

Types of Storage

A covered storage area is in a walled and roofed structure. An open storage area provides protection which can vary from no protection at all to the protection of tarpaulins, tents, huts, or sheds. Class I supplies, even semiperishables, keep best in covered storage. However, in the field you will have a rapid turnover, eliminating many of your long term storage problems.

Methods

Store supplies so that those with the oldest date of pack are easily issued first. The Class I officer is responsible for planning, using, and maintaining a stock locator system. To prevent their total destruction, store and disperse perishable and semiperishable subsistence from separate locations.

PERISHABLE STORAGE

Maintain proper temperatures, humidity, and air circulation and store only compatible products together. Also, follow the storage precautions discussed below.

Temperature

Perishables stored below prescribed temperatures can suffer chill injury. The temperature for storing frozen subsistence should not exceed 0 degrees Fahrenheit. During transportation, the temperature should not exceed 10 degrees Fahrenheit. For ice cream, the recommended temperature is -10 degrees Fahrenheit and should not exceed 0 degrees Fahrenheit at any time. Chill items should be stored at 34 degrees Fahrenheit to 40 degrees Fahrenheit. Each storage (mobile or fixed) container is equipped with a thermometer which must be checked frequently. It should be checked each morning and at the end of the operating day as a minimum. Temperatures are recorded on DA Form 5296-R. See Figure 6-1, page 6-2. Temperatures should also be checked at least twice on nonoperating days.

Humidity

Prescribed humidity levels stop an item from gaining or losing moisture. A high humidity level allows moisture to condense on an item and be absorbed. A too low humidity level allows the item to dry out.

Air Circulation

Proper circulation of refrigerated air is the prime factor in keeping the temperature in all parts of

storage spaces at recommended levels. It is also important in keeping eggs fresh and in preventing carbon dioxide from building up in fresh fruits and vegetable compartments. Use pallets to raise containers off of the floor and permit the free circucation of air. Stack containers so that there is a 4-inch wall clearance, a 2-foot ceiling clearance, and adequate working space between stacks. Use fan or duct systems (where available) to maintain proper circulation. Do not stack items in front of the refrigeration unit and fan in prefabricated units.

TEMPERATURE MAINTENANCE CHART

For use of this form, see AR 30-18; the proponent agency is ODCSLOG

1. MONTH/YEAR: *May 1995*

2. PROPER TEMPERATURE RANGE: *34° - 40°*

3. LOCATION: *Fort Anywhere*

DATE	TIME	TEMP	INITIAL	TIME	TEMP	INITIAL	TIME	TEMP	INITIAL	TIME	TEMP	INITIAL	TIME	TEMP	INITIAL
1.	0800	34°	BG	1530	35°	SS									
2.	0810	35°	JW	1520	34°	TO									
3.	0800	34°	DM	1530	36°	BG									
4.															
5.															
6.															
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28.															
29.															
30.															
31.															

DA FORM 5296-R, NOV 92 — DA FORM 5296-R MAY 84 IS OBSOLETE

Figure 6-1. Temperature maintenance chart

Product Compatibility

Storing incompatible products together may result in color loss, taste changes, and odor absorption. Products should be grouped according to compatibility. Meat, eggs, and dairy products (odor-absorbing items) should not be stored with odor-producing items such as apples or citrus fruits.

Storage Precautions

As soon as frozen items are delivered, they should be transferred to freezer storage. If the product temperature is higher than the freezer area, place the shipping containers on pallets or hand trucks. This allows the air to circulate and reduce the product temperature as quickly as possible. The containers should be stacked more compactly once a uniform temperature is achieved. Never refreeze items which have been thawed. Do not stack items so high that containers on the bottom are damaged and the contents are crushed and bruised. Egg cases should not be stacked more than 5 feet high. Store items so that the oldest lots, by date of pack, are issued first. The only exception to this FIFO rule is when older lots are in better condition than newer ones. If perishables are stored properly, they should show no major loss of quality within plus or minus 20 percent of the approximate storage life.

SEMIPERISHABLE STORAGE

Semiperishables are not as susceptible to spoilage as perishables. They may spoil if they are handled or stored incorrectly or if they are kept for too long. Properly storing and protecting semiperishables ensures that products are tasty and safe for consumption during their shelf life and possibly beyond. After a product is inspected by veterinary personnel, its shelf life may be extended.

Correct Storage

Do not stack items so high that boxes and their contents are damaged. Do not place items directly on the floor. Bagged items should not be stored in corners and no subsistence should be stored directly against walls. MRE cases may be stacked up to four pallets high. In open storage, items should be placed on pallets and organized for ease of access.

Freezing Temperatures

For dry or low moisture semiperishable items, freezing temperatures do little or no damage. Freezing may cause damage to the packaging of water content items. Can seams (commercial and tray pack) may rupture and MILE pouches may be cut or punctured. This damage can lead to serious health risk if not properly handled and inspected by veterinary personnel. Metal cans are not generally engineered for freezing. Frozen cans and MRE pouches should not be rough handled as this may compound the problem. (See also page 6-4). Storage life of semiperishable rations is extended by lower temperature storage (from 50 degrees Fahrenheit to as low as 32 degrees Fahrenheit.) Frozen storage is not recommended.

High Temperatures

High storage temperatures encourage the growth of bacteria and molds, promote insect infestation, and shorten the approximate storage life of semiperishable items. The serviceable storage life of MREs decreases as storage temperatures increase. T-Rations have been designed to have a minimum shelf life of three years when stored at 80 degrees Fahrenheit or six months at 100 degrees Fahrenheit. In fixed warehouse facilities, semiperishable items should not be stacked so high that they are damaged by higher temperatures near ceilings. Items should not be stacked near hot water heaters, steam, heating pipes, or in metal buildings or trailers without adequate ventilation to prevent heat build up. Fans should be used to provide ventilation and to prevent excessively high temperatures. Do not store food items in direct sunlight. In open storage, natural cover can help hold down damage from direct sunlight and high temperatures. ***NOTE:*** *DO NOT cover UHT milk and/or other subsistence with*

black plastic in a field environment. Black plastic intensifies temperatures and causes rapid deterioration of subsistence.

High Humidity

Avoid high humidity, when possible, because it also encourages the growth of bacteria and molds and promotes insect infestation. High humidity also causes dry items to absorb moisture, making them cake and harden. Loss of flavor and discoloration may also occur in some items. Humidity also causes metal containers to rust and boxes to become weaker.

Exposure to Light

Items packed in clear containers may lose their flavor because of over heating and become discolored when exposed to light for prolonged periods. To prevent this, keep clear containers boxed or in areas with reduced light exposure.

Pests

Prevent insects, birds, and rodents from entering storage areas because they damage food packaging and transmit disease.

HANDLING OF MEAL, READY-TO-EAT, INDIVIDUAL, IN FREEZING TEMPERATURES

The flexible film pouch used for MRE items such as the entree or wet pack fruit becomes less flexible or more brittle at temperatures below zero degrees Fahrenheit. The contents of the pouch freeze in random shapes, creating sharp edges or points. These edges and points may cut, puncture, or otherwise damage the pouch material if they are handled roughly. When the contents are thawed, bacteria can begin to grow and the food becomes unfit for consumption. Following the procedures below will reduce the possibility of damaged pouches and foodborne illnesses.

MREs that become frozen during exercises should be kept frozen until issued for immediate consumption.

If frozen MREs are returned to storage and thawed, they must be segregated and marked with a placard stating "HOLD-PREVIOUSLY FROZEN, RETURNED TO HEATED STORAGE ON *(DATE)*, CLEARED FOR ISSUE *(DATE - minimum of 30 days after returned to heated storage)"*. Frozen MREs will be tempered to ensure that the center of pallets or boxes reaches room temperature (77 degrees Fahrenheit) The MREs are then held at this temperature for thirty days and then inspected by VSP prior to issue. The time and temperature period stated will allow the contents of the pouches to react, if spoilage bacteria are present.

Frozen MREs must be handled with care. Rough handling (For example, dropping boxes off trucks or throwing them into the truck) increases the risk of pouch failure and loss of the MRE.

Rations not intended for freezing should not be frozen. Stationary MRE pouches may be frozen a number of times without damage to the pouch. The product quality will deteriorate with each freeze/thaw cycle, but the food will remain wholesome as long as the pouch is not damaged. The MRE should not be cycled through more than five freeze/thaw cycles.

STORAGE AND HANDLING OF THE FLAMELESS RATION HEATER

The FRH is a chemical heating device for the MRE. It is activated by adding water as prescribed on the package. The FRH pad is a mixture of magnesium and iron powders, sodium chloride, and a wetting agent dispersed throughout a mixture of polyethylene powders pressed into a stable, porous pad. Approximately eight grams of magnesium are contained within each heater pad.

Packaging

FRHs are packed in both case lots (boxes) and as individual units within the MRE pouch. These are then labeled by the manufacturer as prescribed by OSHA.

In bulk pack, each FRH heater pad is packaged in a sealed polyethylene bag. Twelve FRHs are packed into a plastic shrink wrap sleeve. Each box contains 24 unit packs (288 FRHs).

Each pallet of the FRH contains 30 boxes and 8640 heater pads. Pallets are wrapped in polyethylene, covered with a top cap, and strapped to protect the shipping boxes.

Storage

FRHs packaged within the MRE box are not regulated by DOT. No special handling or storage is required. The following guidelines are applicable to bulk storage and will improve storage of individually packaged FRHs as well.

Specific storage guidelines are in DOD Regulation 4145.19-R-1.

Installation fire protection officials should be notified of location of stored FRHs and may impose local storage decisions.

Handling and storing FRHs present no health hazard beyond that of ordinary combustible materials.

Store boxes in dry storage areas where protection against rain, snow, flooding, or leaks is provided. Wrapping or use of tarpaulins on pallets will aid in the prevention of water damage.

Storage under sprinkler systems that meet DOD standards is authorized. When possible, end bays should be used for the storage of FRHs. Stacks of FRHs are to be arranged for access to the stack's interior and removal to outdoors for fire fighting.

Quick response to fire detection and use of appropriate fire fighting agents is important. Fire fighting agents are to be present for both Class A and Class D protection. Any damaged boxes must be removed from storage, inspected, and the contents repackaged in the required container or disposed of properly. Damaged boxes should be considered for first issue as a distressed item.

For proper disposal, the FRH should be activated according to the instructions, then disposed of as ordinary waste. They may also be incinerated in a waste facility, ensuring that all material is burned thoroughly.

Transportation (Bulk Pack Only)

All transport vehicles (including air and sea cargo containers), other than military, are to use placards stating that the cargo is "Dangerous When Wet" material.

SANITATION AT SUBSISTENCE STORAGE POINTS

Sanitation in a subsistence supply activity must be maintained per TB MED-530. Food can cause illness and death if it becomes contaminated. Food that must be disposed of is a loss to the government and can have an adverse impact on mission accomplishment. Environmental protection laws and regulations must be followed when disposing of subsistence.

Personnel

Class I personnel should be neat, clean, and free of disease and infection before they are allowed to handle subsistence. They should not smoke or chew tobacco when handling subsistence. Disposable gloves used in handling fresh foods should be impermeable to contamination and must be maintained in a clean and sanitary condition. Personnel must wash their hands thoroughly before starting work, before eating, after breaks, and after using latrines.

Area and Equipment

Storage areas should be kept clean, orderly, and free of garbage at all times. Garbage should be disposed of in approved containers with tight-fitting lids. Spilled food should be cleaned up completely as soon as possible to prevent insect and rodent infestation. Scales and MHE should be kept clean. Handwashing facilities should be readily available for personnel to use before starting to work, after each break, after using latrines, and whenever hands become soiled.

Transportation

Vehicles used to transport subsistence should be clean, free of moisture and have pallets to keep subsistence off the bed of the truck. The front and rear flap must be lowered and secured during transport. Vehicles used to transport food are not to be used to transport garbage or petroleum products while transporting subsistence. The bed of the truck should be free of harmful protrusions such as nails that could puncture food containers. Refrigerated or insulated vehicles should be used to transport perishables when time, distance, and outside temperature could cause the temperature to rise above required safe levels for refrigerated items and frozen items.

PEST CONTROL

Unit field sanitation teams have the primary mission of insect and rodent control in the field. Class I and food service operations personnel must assist by maintaining properly established and sanitary operations. Pests can be controlled by pest-proofing the storage area, depriving them of food, and using appropriate extermination measures. When pests are discovered in the storage area, the preventive medicine activity must be notified immediately.

Insects

Insects, especially cockroaches, are hitchhikers. Incoming supplies should be inspected carefully for infestation and empty cartons should be removed from the premises promptly. In fixed facilities, screens should be used on outside doors. When supplies are received, doors and screens should be open for the shortest time possible. Cracks in the walls and floors should be filled. Rest rooms should be kept clean. Garbage cans should be kept covered with tight-fitting lids and the contents disposed of promptly to prevent breeding. Subsistence should be stored on pallets away from walls to eliminate hiding places and to facilitate inspection and cleaning. If at all possible, subsistence should be on shelves or dunnage a minimum of 6 inches off the floor or ground and a minimum of 4 inches away from the walls to permit cleanup of spills. In open storage, supplies should be covered with tarpaulins or clear plastic when practical. Broken containers of food should be cleaned up quickly and completely. If areas do become infested, insecticides are used for control. Class I personnel must implement measures to ensure subsistence items do not become contaminated.

Rodents

The first step in rat and mouse control is to prevent their entry into the storage facility. Holes should be covered or filled in and doors should close tightly. The next step is to eliminate rodent hiding places by placing subsistence on pallets away from walls. Finally, their food sources should be eliminated by proper garbage disposal and good housekeeping. If areas become infested, traps and poison baits can be used for elimination. The use of poison baits must be approved by the medical authority. Their approval is based on compliance with environmental stewardship principles. All environmental laws and regulations must be adhered to in the use of poison baits.

SECURITY

The enemy may try to contaminate or destroy supplies. Subsistence supplies should be protected to prevent loss from enemy action, pilferage, or theft during receipt, storage, and issue. The MPs can help in setting up an effective program. Some effective measures are shown in Figure 6-2, page 6-7.

INSPECTIONS

Subsistence supplies are inspected and reinspected from the time they are received until they are consumed. Inspections ensure that only food that is fit for consumption is received and issued.

Responsibilities

The Class I officer in the field is responsible for the inspection of all subsistence items before they are accepted. This inspection ensures that items are received in good condition and in the authorized quantities. A representative of the Army Veterinary

Service is responsible for inspecting all animal-origin and perishable subsistence as it is received at a supply point. Semiperishables are not inspected by the veterinary food inspector on receipt unless it is requested by the accountable officer for local procurement. If the subsistence is wholesome and complies with contract requirements and the contractor can be identified from container markings or shipping documents, the veterinary food inspector stamps the delivery documents. Veterinary food inspectors are also responsible for conducting Class IX type inspections on subsistence in storage to detect early signs of deteriorating food. Cases of semiperishables that pass inspection are stamped with an ITD. The ITD indicates the approximate remaining shelf life. Rejetted items are reported to the accountable officer so he can initiate appropriate disposal action. The Class I officer is responsible for ensuring subsistence being turned in to a TISA has received a Class V veterinary inspection. Detailed information on Army Veterinary Service inspections are in FM 8-30.

Inspection Types

There are three types of inspections. They are visual, sampling, and fill inspections.

Visual. Usually, subsistence supply specialists perform the visual inspection. The inspector checks the outside of the Class I item or its container for damage or deterioration. Damaged containers, such as broken boxes and dented cans, are a good reason to request an Army Veterinary Service inspection.

- Disperse supplies and equipment in the field so that one hit does not destroy the total supply.
- Provide an aggressive security education program that convinces personnel that they have a legal responsibility to report losses.
- Ensure that supervisory personnel set a good example.
- Inspect delivery and pickup vehicles before departure to ensure they contain only authorized supplies properly recorded on shipping and receiving and/or issue documents.
- Use seals on vehicles if possible.
- Use DD Form 5977 to allow only authorized personnel to enter the supply areas. Each individual authorized to request or receive Class I subsistence will have a DD Form 577. The Class I point will have a memorandum for each unit, signed by appropriate individual, listing individuals authorized to request and receive Class I subsistence for that unit. The Class I personnel will verify the individual's DD Form 5977 with the memorandum prior to admittance to Class I point.
- Limit access to actual storage areas to personnel on duty and inspectors.
- Provide accurate methods for taking physical inventories.
- Investigate losses quickly.
- Use locks, screens, and bars on doors and windows.
- Remove trash periodically during the day rather than just at the end of the day.
- Inspect empty containers and flatten cartons before removal.
- Use barbed or concertina wire and inspect daily for breaks and tunnels.
- Keep the number of open cases of subsistence to a minimum.

Figure 6-2. Effective security measures

Sampling. In sampling, the veterinary food inspector chooses a number of units at random and inspects them thoroughly. If any of the samples are damaged or deteriorated, the veterinary food inspector performs a full inspection. Items used during sampling inspections are accounted for on DA Form 3161 as an identifiable loss.

Full. The veterinary food inspector thoroughly examines all units of a particular item or shipment. Damaged or deteriorated items are set aside, and the veterinary food inspector advises the accountable officer what to do with them. Full inspections should not be conducted unless absolutely necessary.

Criteria Used During Inspections

Certain criteria are used to inspect subsistence. These criteria are discussed below.

Canned goods. Individual cans should be inspected when there is reason to believe they may be damaged. If boxes are broken or bent, they should be opened and each can should be inspected. Cans that have been stored for a long time or exposed to high temperatures should be inspected. Cans that are rusted, swollen, leaking, or dented should be inspected by the veterinary food inspector.

T-Rations. Tray packs are inspected for damage such as swelling or rust. Tray packs with any of the following defects should be set aside for further inspection and destruction:

- Leaks from a pinhole, a fracture, or an incomplete seal where the contents of tray packs are on the outside of the container.
- Rust that actually penetrates the tray pack causing leakage or excessive end seam rust that cannot be removed with a soft cloth and would enter the product when the tray pack is opened.
- Dents that are so severe that they cause leakage or affect usability.
- Swollen or outwardly distended tray lids bulging from internal pressure or swells caused by physical damage such as dents or overheating.
- Buckles or bends in the top which extend into the end seam of the tray pack.

Other semiperishables. Semiperishables in jars, cardboard containers, and paper bags will spoil if they are mishandled, improperly stored, or stored for a long time. The containers should be inspected for signs of insects or rodents and damage from moisture or mishandling. Products in clear containers should be inspected for color changes. If any of these signs are evident, a veterinary food inspector should be called.

Fresh fruits and vegetables. Fresh fruits and vegetables should be inspected on receipt and every day while they are in storage. Fruits and vegetables must also be inspected for insect infestations including fruit flies, roaches, and worms. Preventive medicine and veterinary personnel must be notified if insects are seen. Appearances are deceiving. The best way to tell if they are fit for consumption is to cut them open and taste them. Items that have been freezer damaged will appear glassy, and those that have chill injury may be discolored and have an off-flavor.

Frozen items. Frozen items, including meat, should be frozen solid when they are received. If they are thawed, they must be used right away, if approved by the veterinary food inspector. It should never be refrozen. Packages are checked on all sides for ice, which is a sign that they have thawed and been refrozen. Icy packages should be checked by the veterinary food inspector. Freezer temperatures should be checked twice a day.

Other perishables. Eggs are checked for breakage. Eggs should not be cracked, checked, or dirty. Eggs should be inspected for freshness. Take at least one egg per case and break it open. If the white clings to the yolk, the yolk is firm, high, does not break easily, and there is no odor, the eggs are acceptable. The temperature of the egg should be 41 degrees Fahrenheit. If not, contact the veterinary personnel. Other perishables are inspected for cleanliness and to see that they are chilled properly.

RATION BREAK AND ISSUE

After receiving subsistence from the theater subsistence distribution activity, rations sent to the subsistence platoon are reconfigured and forwarded to FSBs. Personnel of the FSB RBP issue to the supported units. The unit's DA Form 3294-R is used to determine what the unit requires (see Chapter 4, page 4-8). The method of break used depends on the quantity and type of ration, personnel, time, and transportation available.

Unit Pile

All the supplies for a unit are put in one marked pile, (Figure 6-3) and the using unit personnel load the supplies on their trucks under the supervision of RBP personnel. This method is used mainly when there is no further break.

Item Pile

Items are separated into piles by type. (Figure 6-4, page 6-10). The requesting unit's trucks stop at each pile and pick up the authorized amount of that item under the supervision of supply point personnel. This method is used mainly when large quantities of each item are to be issued. Supply point personnel handle supplies less, but longer loading times for each truck may cause more traffic congestion and delays.

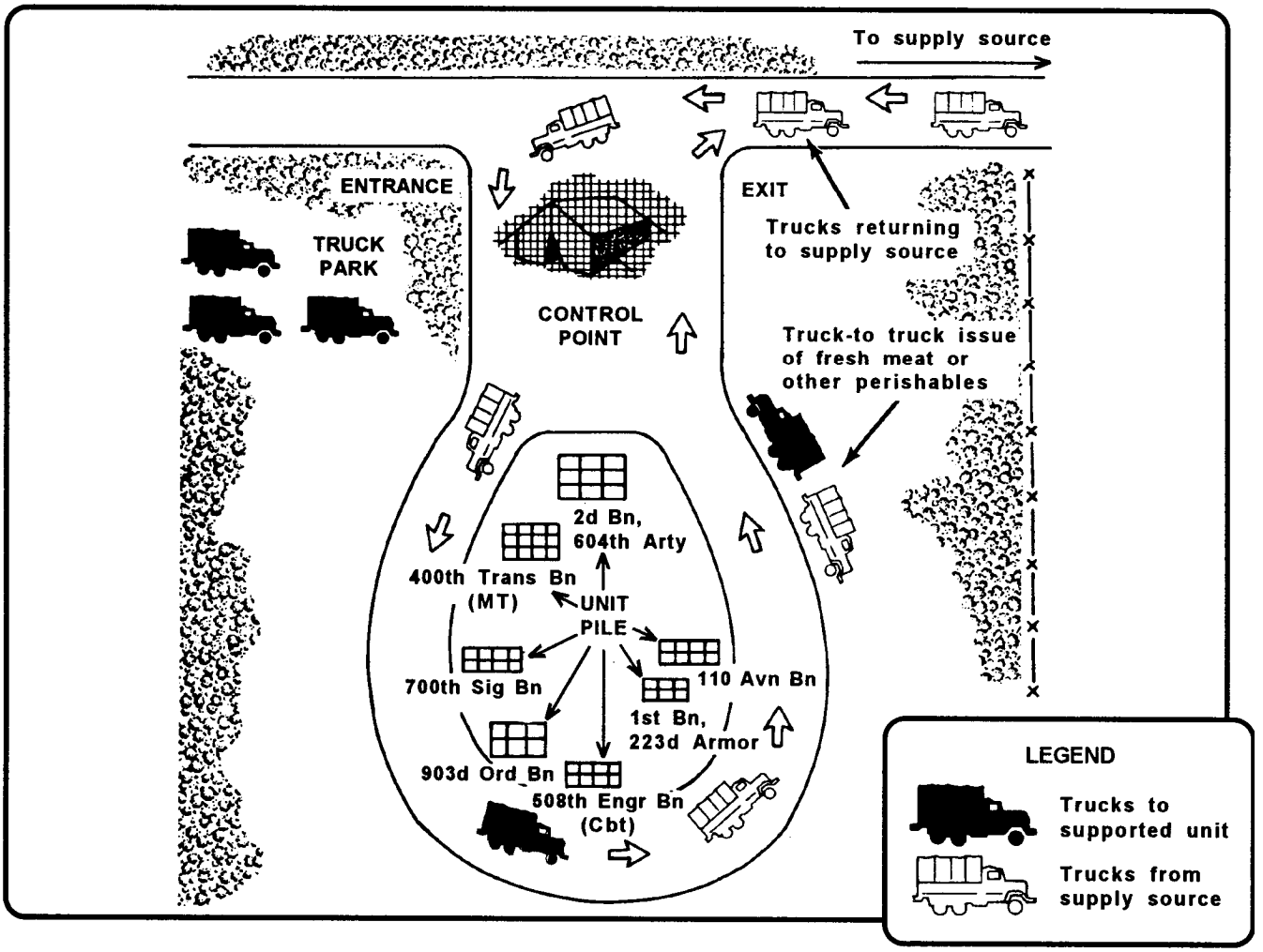


Figure 6-3. Unit pile method of ration distribution

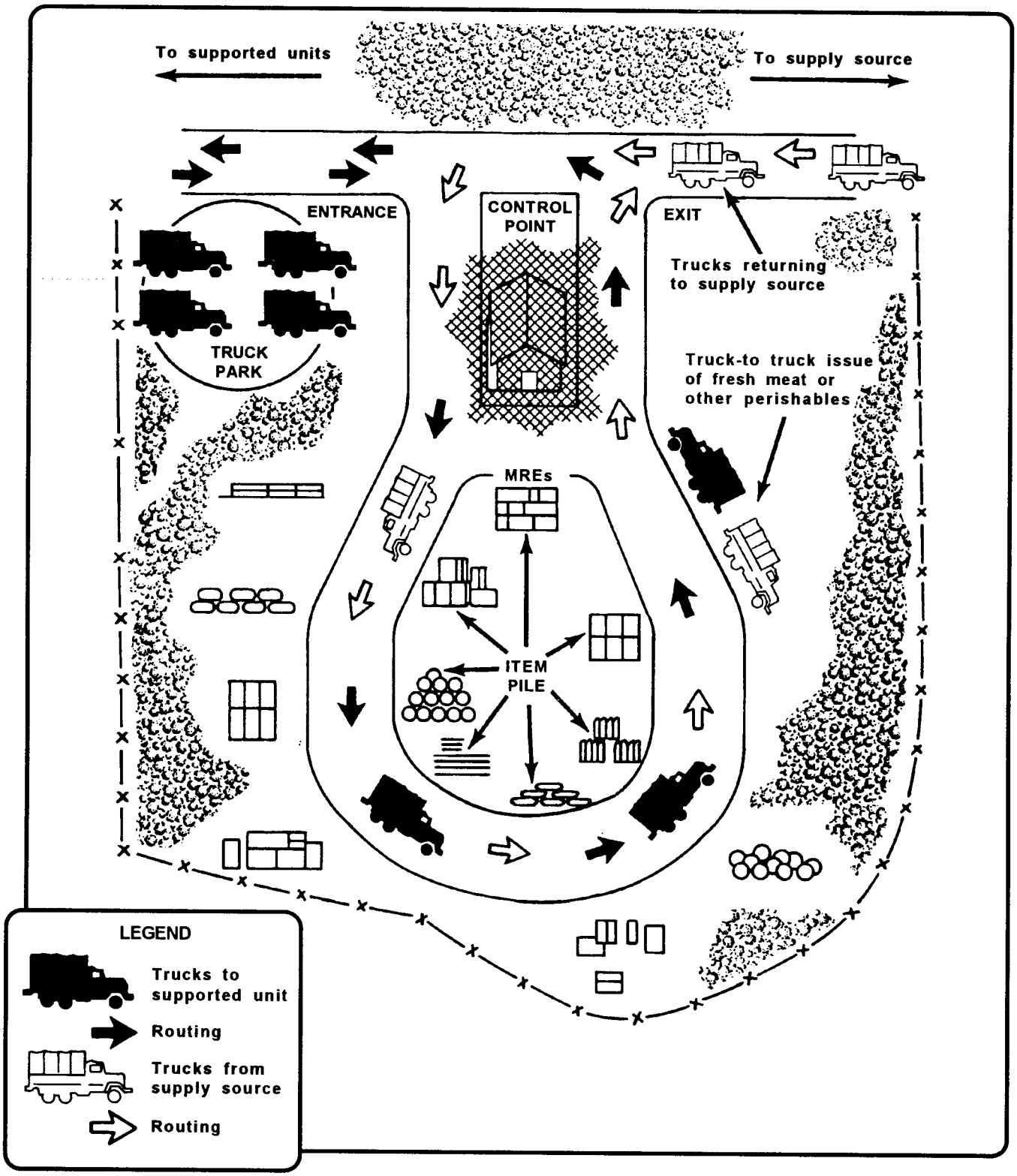


Figure 6-4. Item pile method of ration distribution

Truck to Truck

Items are transferred directly from the RBP's vehicles to the unit's vehicles under the supervision of RBP personnel (Figure 6-5). This method ties up vehicles, but it cuts handling, keeps supplies under cover and increases mobility. This method is used mainly for perishable supplies.

Sling Load

Sling loading is essential to the supply or resupply distribution system. This method of delivery is used widely to overcome problems of distance and time constraints. For more information on sling loading care, maintenance and operations, refer to FM 55-450-1/3/4/5.

STOCK LOCATOR SYSTEM

At main Class I supply points, the Class I manager should establish a system that pinpoints the exact storage location of supplies in a simple, easily understood manner. This system is no different than that used in a garrison operation, but it is more streamlined because of smaller stockage levels and shorter turnaround times for the receipt and issues of subsistence. The stock locator system assists in timely and accurate storage of items and provides for optimum use of storage space. It provides rotation of stock on a FIFO, by date of pack, basis of rotation to prevent possible spoilage of subsistence. Damage to semiperishables (dented cans, open bags of flour, salt, sugar) due to shipment, may require early rotation to prevent possible loss. The three steps in setting up a stock locator system include the stock location code, stock locator description, and stock location file. A planograph is commonly used to assist in identifying storage locations for subsistence items.

Stock Location Codes

Each stock location is assigned an address consisting of up to nine alphanumeric characters. Smaller operations may shorten the code. Stock location codes provide all the information needed to identifiy and locate subsistence items.

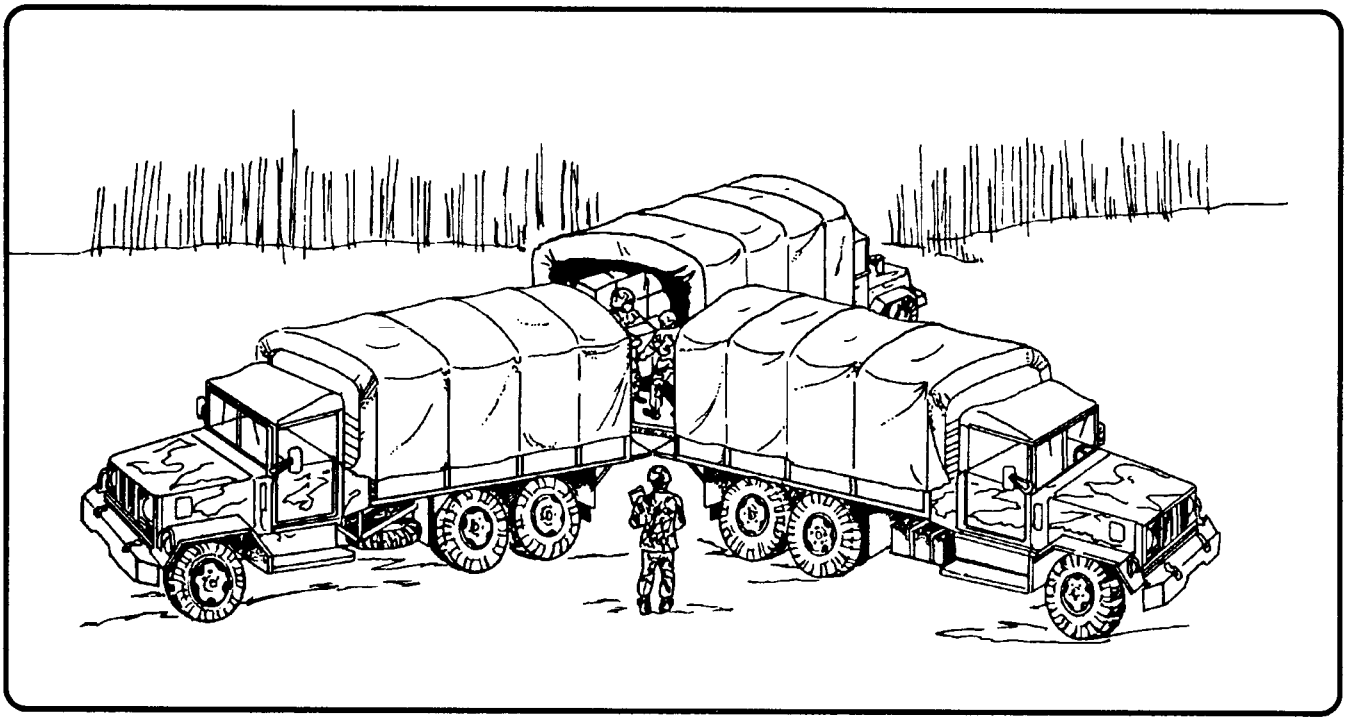


Figure 6-5. Truck to truck method of ration distribution

Stock Location Description

Each materiel location must have location identifications at the actual site. These markings permit immediate recognition of the specific storage location. Markings may be displayed on posts (fixed or portable) facing operating aisles or on other suitable easily visible structures. As a minimum, each aisle intersection and every fifth grid should be marked along working aisles. In bulk storage areas, applicable markings will be posted on storage aisle ends facing working or traffic aisles.

INVENTORY MANAGEMENT

Subsistence managers use inventory management at the various MMCs and Class I sites to determine the identity and quantity of subsistence in the theater. Inventory management tasks in subsistence supply include determining subsistence requirements and acquiring, distributing and disposing of subsistence. The inventory is controlled by a system of reports, computations and evaluations which provide the input data necessary to manage the subsistence inventory.

SUBSISTENCE HANDLING PRINCIPLES

Automated supply specialists at all levels are required to use MHE. Whether you are receiving, storing, packing, or shipping perishable or semiperishable items, follow the important principles below.

The least handling is the best handling. This saves time, cost, potential material damage and reduces accidents.

Standardize your equipment and operating procedures as much as possible. Maintenance and repair requirements are reduced and storage and issue procedures simplified when your personnel are working from the same plan.

Choose the right machine for the right job. Equipment capabilities are detailed in the operator's manuals. Consider the number of items to be moved, weight and the distance of the move.

An essential phase of any field operating Class I program is planning for weather and transportation restrictions and reducing safety hazards.

Never exceed your equipment capabilities. Overloading equipment increases equipment failures, maintenance requirements, and the risk of accidents.

Loading and unloading materials with mechanical devices, when properly done, reduces safety hazards and decreases subsistence damage.

NIGHT OPERATIONS

Sometimes it is necessary to receive and issue supplies at night. Night operations involve decreased visibility and the use of artificial light, and may be conducted under blackout conditions where no artificial light is permitted. Any vehicle operating in the blackout area must follow blackout procedures. Advance preparation and training are required for successful night or blackout operation. Two SOPs should be established for night operations, one for RBP personnel and one for units picking up or delivering supplies. Cover the items below in SOPs for blackout conditions.

Facilities

Black out tents or buildings used for offices and storage areas so that no light shows outside. Use extra canvas to make blackout flaps on tents to block light.

MHE

MHE cannot be used under total blackout conditions except in a building or when the environment is METT-T driven. Night operations involve a commander's risk assessment and risk reduction management when the mission is METT-T driven and the use of MHE is required under blackout conditions.

Traffic

All traffic must be one way to avoid collisions. The unit picking up supplies must provide walking

traffic guides to direct vehicles. Place personnel with flashlights with red filters at strategic points to answer questions and direct traffic.

Loading

Trucks from a main supply point supplying a forward supply point should be loaded by unit pile so that the items may be directly onto the user's vehicles by the truck-to-truck method (See Figure 6-5, page 6-11).

CHAPTER 7
REDEPLOYMENT

PLANNING FACTORS

This chapter addresses preparing for the end of field operations, closing out the site, moving the unit back to the home station, handling residual Class I items, and accounting for supplies. Planning Class I and food service requirements for redeployment is equally as important as planning for deployments. Follow the predeployment checklist in Figure 4-3, page 4-10, for your redeployment planning.

PREPARING FOR REDEPLOYMENT

The FOS must ensure that enough Class I supplies are available to sustain the unit enroute to its home station. If residuals are present at the end of the exercise or deployment, turn-in excess Class I supplies to the supporting supply activity. Attend to detail and coordinate with your commander and staff to ensure that the unit's movement is smooth. Figure 7-1, page 7-2, is an additional checklist to aid in redeployment planning.

CLOSING THE DEPLOYMENT SITE

Following the correct procedures for closing the field kitchen and Class I areas of operations is extremely important. You must consider the environmental impacts caused by soakage pits, grease traps, trash pits, and incinerators. The FOS must ensure that all environmental concerns have been met in closing a field site. Also, you must understand the battlefield signature that a haphazardly closed field site can leave for enemy forces. FM 5-20, FM 21-10 and FM 21-10-1 provide information to help you close your field site. Also, refer to the field kitchen equipment technical manuals and Chapter 12 of this manual for the correct methods of cleaning and maintaining your equipment before movement back to your home station.

MOVING THE UNIT TO THE HOME STATION

It is vital that the FOS be prepared to provide food service support during redeployment. The commander and unit movement officer should be the first stop in gathering information. They will provide the specifics of when, how, and where the unit will move. Also, they can provide specific food service needs such as convoy rest halts, railhead support, and overnight commitments.

ACCOUNTING FOR RESIDUALS

Turn in all unopened modules, boxes of UGRs, MREs and excess loose semiperishable A- and B-Rations. At the end of the field operation or deployment, the FOS must coordinate with the food advisor to transfer all loose MREs, UGR component items, and residual T-Ration pans (not heated or heated only twice) to another field kitchen or supporting garrison dining facility. Use DA Form 3294-R to transfer all residual items. T-Rations and UGR components are transferred at no cost to the receiving dining facility. Items transferred are listed by type of menu item (vegetables, starch, or dessert). See AR 30-21. When possible, program them for use before closing the field kitchen or during redeployment. When units are away from the home station and there is no transportation to return residuals to the home station, the food advisor must provide the MACOM with a complete inventory for disposition instructions.

- ☐ Have you advised your commander regarding a realistic ration mix during the last days of the deployment? For example, you should not try to serve a hot A-Ration meal just hours before your unit is scheduled to deploy.
- ☐ Review and evaluate your current inventory of Class I supplies, including condiments and enhancement items. Can items in the inventory be incorporated into remaining meals to be served?
- ☐ Will your inventory sustain your unit through the operation? If not, request additional Class I supplies.
- ☐ Are you prepared to subsist your unit personnel during the movement back to the home station (if required)? Do not forget rest halts, overnights and railheads. Request rations, if required.
- ☐ Have you accumulated Class I items which should be turned in?
- ☐ Will you be required to transfer loose rations to another unit/home station?
- ☐ Are you prepared to submit final strength and feeder reports before departing the deployment site?
- ☐ Are you prepared to perform required maintenance on your equipment before closing the field site?
- ☐ Are all records and files on hand and complete?

Figure 7-1. Redeployment checklist

Turn-in Procedures

Field kitchens use DA Form 3294-R to return unopened boxes of MREs, T-Ration, and UGR modules and enhancements to the supporting RBP. Reusable items are consolidated and shipped to the next level of supply. During peacetime field operations, the accountable Class I officer returns residual semiperishable subsistence to a TISA designated by the MACOM. Their disposition is based on the remaining shelf-life, quantity, and the number of upcoming operations.

End of Operations Reporting

FOSS must ensure that their turn-ins and residuals have been annotated on the proper forms and that their final strength and feeder reports have been submitted to their supporting RBP.

Forward personnel report data to the next supply level on a DA Form 5913-R. Each level of supply prepares a consolidated feeder report and submits it to the Class I officer at the highest level of the supply activity.

Also, the RBP prepares a consolidated DA Form 3294-R for all receipts and issues. The MMC schedules an audit of the RBP. The total cost of subsistence minus turn-ins is charged to OMA. Reimbursement for support to other services and reserve components are explained in Chapter 4 of this manual.

The designated and/or accountable Class I officer for the field operation ensures that all reports and redeployment accountability y procedures are completed. At the end of the field operation, the Class I

officer submits a consolidated report to the supporting TISA. When no Class I supply activity is participating in the field operation, each supported unit submits the required data to the TISA.

The FOS must review AR 30-21, Chapter 2, for specific guidance on the use, transfer, turn-in, and reporting of residual rations.

RECORDS REVIEW

All records of Army field feeding must be reviewed for completeness and accuracy. The brigade (or responsible) food service technician must play the key role in ensuring that FOSs are trained and maintaining records properly. Commanders and FSOs should review records periodically during the field operation to ensure that required accountability procedures are being followed. Food advisors should review all field records as soon as possible after redeployment but not later than the next scheduled quarterly review of garrison dining facility records or update of action plans as required by AR 30-1. Figure 7-2 provides a guide for the review of field feeding records and required unit actions.

- Was suspension or recoupment of BAS for all personnel accomplished per requirements of AR 600-38?
- Are letters of instruction or operations orders on file? Do they support completion of the requirements of Appendix B, AR 30-21 (prior to departure for the field operation)?
- Are files established and maintained per requirements of AR 25-400-2?
- Are the following forms available (if appropriate) for each day of the operation?
  - _ DA Form 3034.
  - _ DA form 3294-R.
  - _ DA Form 5913-R.
  - _ DA Form 5914-R.
- Is the end of field training report on file (DA Form 5913-R)? Was it submitted to the appropriate Class I support activity?
- Are copies of all consolidated DA Forms 5913-R submitted to the supporting Class I activity on file?
- Were meals sold for cash during the exercise? If so is DD Form 1131 on file to verify turn in of cash?
- Were separate DA Forms 5914-R maintained for each type of ration used and as required for breakfast/lunch/dinner?
- Were residuals properly disposed of? Loose B-Ration components - semiperishable A-Rations - unopened UGR or T-Ration modules - unopened cases of MREs? Are copies of DA Forms 3294-R, documenting turn-ins or transfers on file? Were all DA Forms 5914-R (for each type of ration served) closed out at a zero balance?

Figure 7-2. Guide for review of Army field feeding records

- Review request and issue documents (DA Form 3294-R) to determine if:
  - _ DA Forms 3034 were prepared for each A- or B-Ration meal served.
  - _ The number of main entrees received was properly posted to the DA Form 5914-R.
  - _ The number of A-Ration main entrees was posted to the DA Form 3034 correctly.
  - _ The number of MREs received was posted to the appropriate DA Form 5914-R correctly.
  - _ Supplements were requested for use with UGR meals.
  - _ Requests for fresh fruit and bread were properly submitted (individual requirement versus pounds or loaves).
  - _ Records indicate deletion of enhancements and supplements to reduce on hand inventory prior to the end of the exercise.
  - _ Commanders must stay within a 10 percent variance between present-for-duty on DA Form 5913-R and actual number of soldiers supported in the field. Wider variances will be justified.
- Confirm mathematical accuracy of documents reporting meals drawn, issued for consumption, turned-in, transferred, or destroyed.
- Have residuals been moved to home station? If so, have these items been accounted for by being added to DA Form 5914-R at the supporting garrison dining facility?

Figure 7-2. Guide for review of Army field feeding records (continued)

PART THREE
AFFS EQUIPMENT

CHAPTER 8
EQUIPMENT OVERVIEW

EQUIPMENT CATEGORIES

Several categories of equipment are used in Army field feeding. There are individual items used by the soldier, major items used in setting up a field kitchen, components used to prepare meals, and unique items used for field hospital food service and feeding to the FLOT. This chapter gives a brief description of this equipment with reference to applicable publications. Details of the KCLFF-E, field kitchen components, light sources, and field hospital food service equipment are discussed in Chapters 9 and 10 and Appendix A.

INDIVIDUAL RATION HEATING DEVICES

There are three individual ration heating devices available for soldiers to heat MRE entree packets or water for instant soups and beverages. These devices are the canteen cup stand, MWRH (armored vehicles), and the flameless ration heater.

Canteen Cup Stand

This is a reusable, lightweight, aluminum stand (Figure 8-1) that fits over the standard Army canteen cup for travel. The stand allows the soldier to heat his MRE by immersing it in a canteen cup of hot water. The water is heated by the standard trioxane heat tablet or, if necessary, any other combustible material. The stand can also be used to heat water for coffee, soup, or hot chocolate.

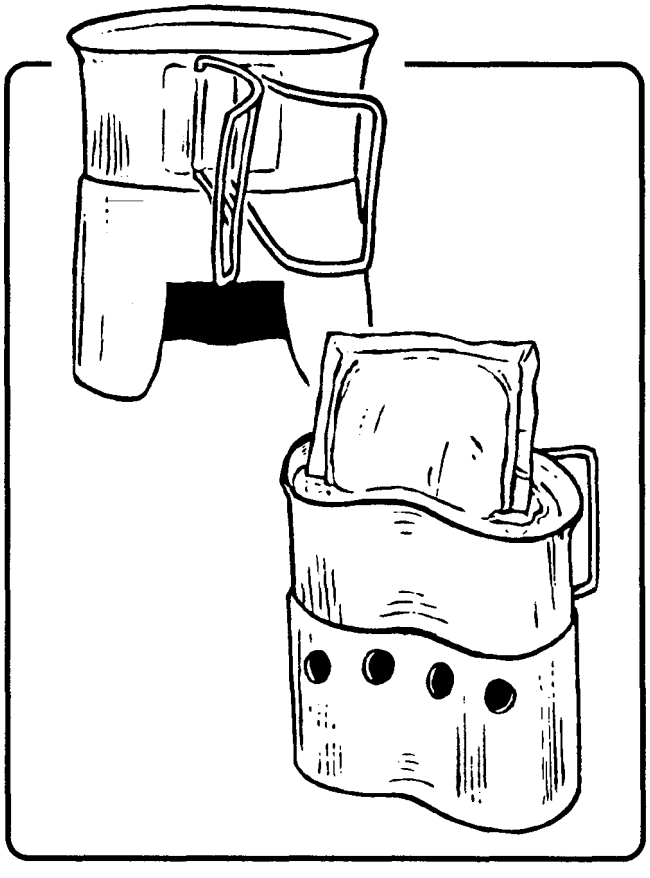


Figure 8-1. Canteen cup stand

Mounted Water Ration Heater

The MWRH (Figure 8-2) is used in armored vehicles to heat individual meals. The heater can be plugged into an auxiliary receptacle on a crew-served combat vehicle giving crew members a means to heat the MRE entree and water for soups or beverages.

Flameless Ration Heater

The FRH is a water-activated, exothermic, chemical heating pad. It is packaged with each MRE to provide soldiers a means to heat the main entree items. It is listed in FSC 8900-SL and may also be requisitioned (in bulk pack) separately. See Chapter 6 for storage and handling procedures.

MOBILE KITCHEN TRAILER

The kitchen, field trailer, mounted is commonly called the MKT (LIN L28351). It is a complete kitchen unit mounted on a trailer chassis that can be towed by a standard 2 ½-ton or 5-ton truck. A helicopter or cargo aircraft can also airlift the MKT. Currently, there are five models of the MKT in use. They are the MKT-75, MKT-75A, MKT-82, MKT-85, and the MKT-90. The MKT-90 has sling load capability. The components of the MKT, their use, and maintenance procedures are discussed in Chapter 10 of TM 10-7360-206-23P.

Configuration

The MKT is covered by a metal roof that can be lowered for storage or transport or raised when food is prepared and served. After the roof has been raised, mosquito netting may be attached to keep insects out. Also, the kitchen has detachable fabric sides to protect soldiers from inclement weather. Figure 8-3, page 8-3, shows the MKT set up in different environments. Figure 8-4, page 8-4, shows the MKT in its three configurations:

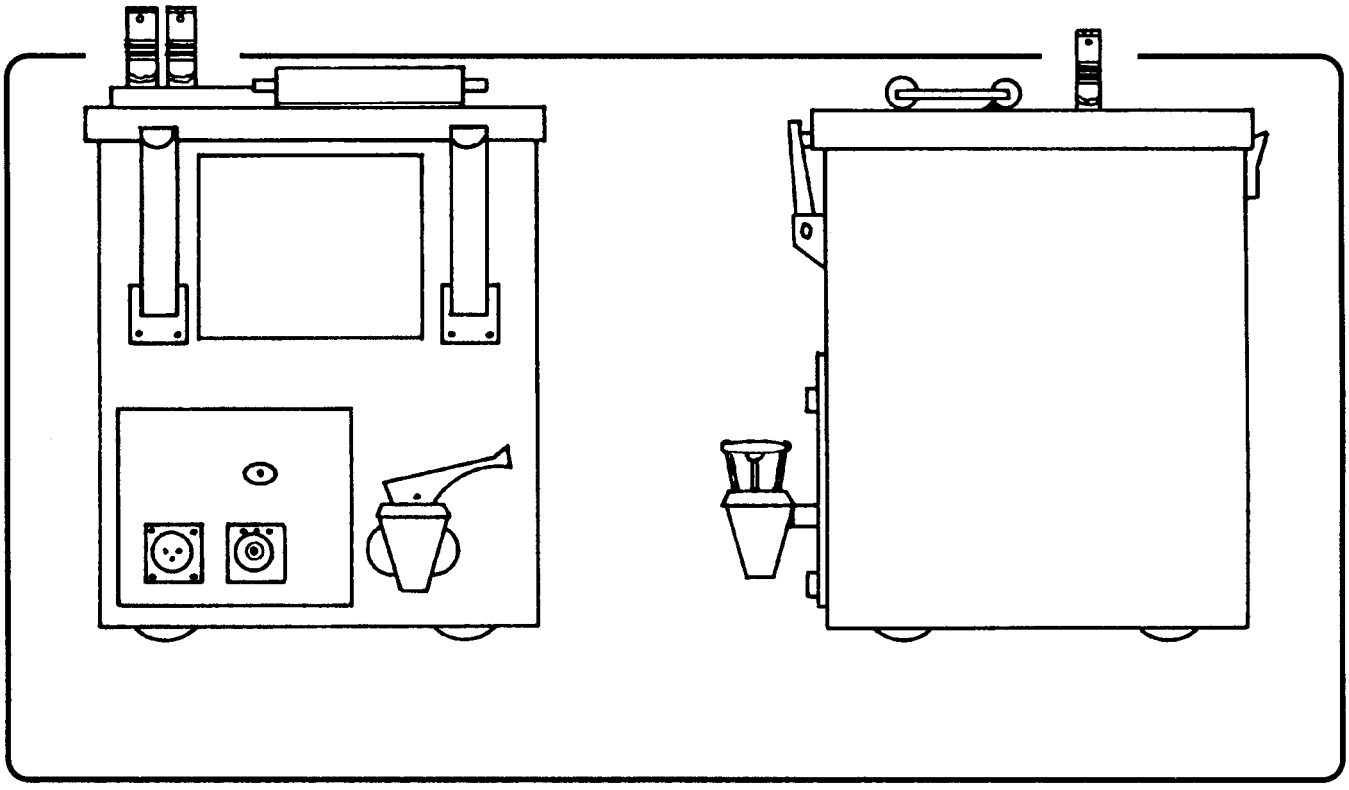


Figure 8-2. MWRH

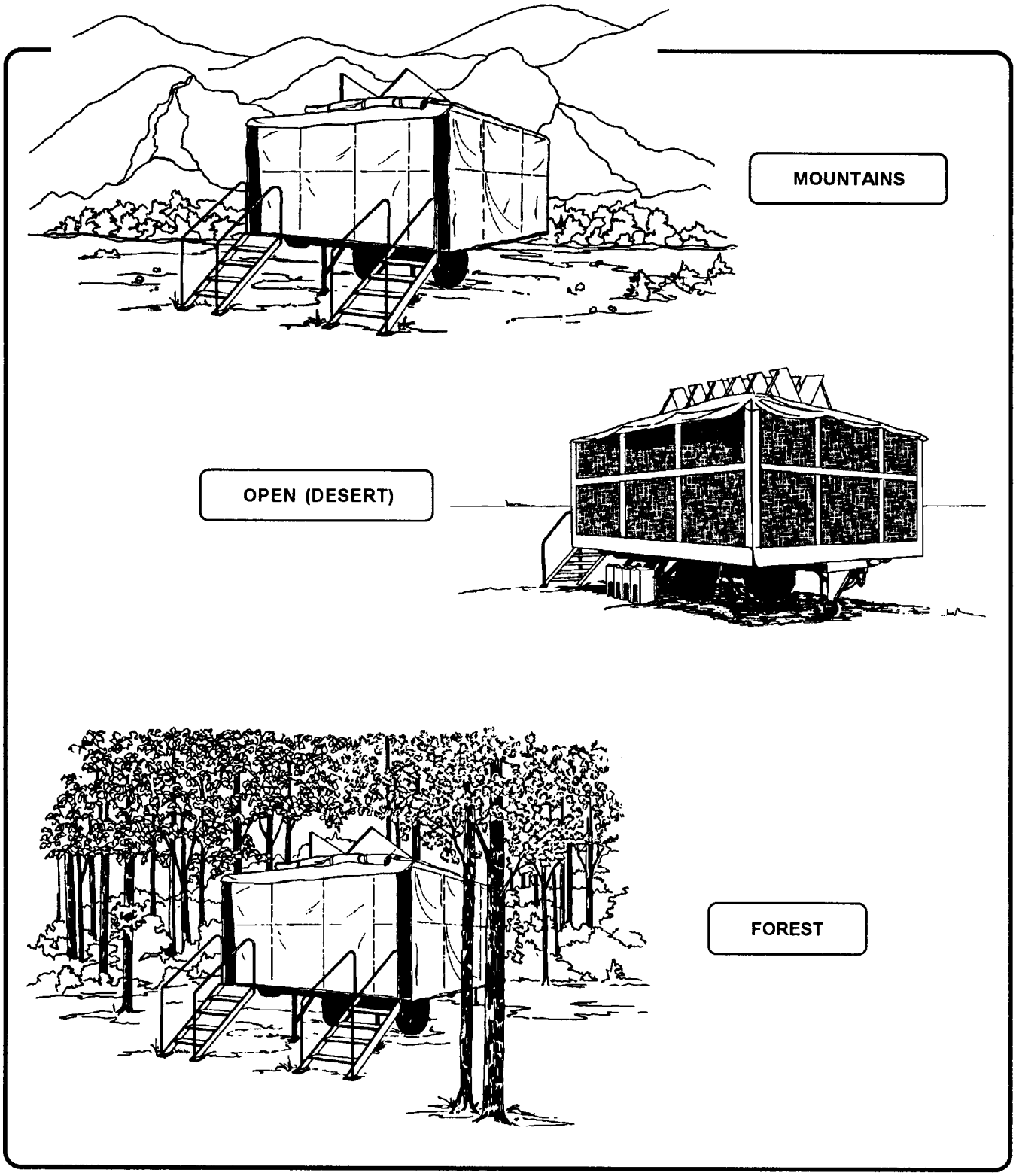


Figure 8-3. MKT in different environments

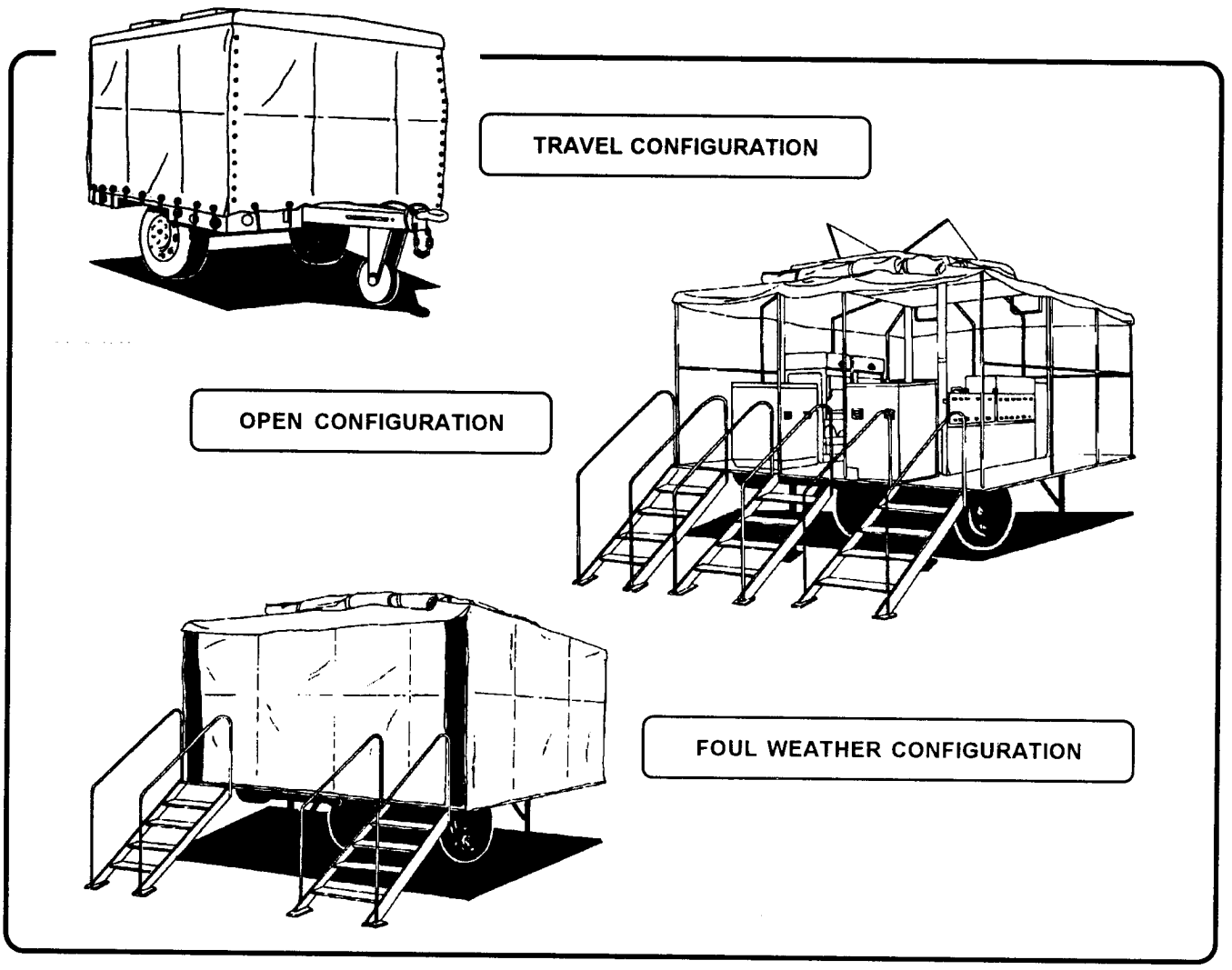


Figure 8-4. Various configurations of the MKT

Issue and Setup

The MKT is issued to EAD and EAC units, divisions, separate brigades, armored calvary units, and to MASH units. Four experienced 92G soldiers can set up the entire unit for operation in about 30 minutes.

Meal Service

With one MKT, you can prepare and serve A-, B-, H&S, or T-Ration meals for up to 300 soldiers per meal. Two trailers may be hooked up in tandem to prepare and serve up to 700 meals at consolidated field kitchen sites.

Packing Process

After meals have been served, the kitchen can be packed up into the travel mode. The packing process is very important; if not properly packed, the trailer can be permanently damaged. It is imperative to train soldiers to pack the MKT according to TM 10-7360-206-13.

Operation During Inclement Weather

Fabric curtains are provided with the MKT for operating during inclement weather. Follow the

steps below to prepare the MKT for operation during cold or inclement weather.

- Partially close air vents to prevent entry of outside elements.
- Remove six fabric curtains from storage.
- Install the longest curtains on the sides and fasten them to the roof fabric flap.
- Install the two smallest curtains on the right side of the roof fabric flap (both ends).
- Install the two remaining curtains.
- Secure the bottom edge of the curtains to the ramps with rope tie-downs.
- Open and close kitchen exits and entries as required with Velcro hook-pile tabs.
- Secure all ties around the tent poles and handrails, except at the entrances and exits.

Operation in High Winds

Install hold-down ropes from the tent pole tops to the ground for added support.

SANITATION CENTER

The SC (LIN S33399) consists of equipment required to clean and sanitize the food service equipment. One SC is authorized for each MKT. Information on the equipment and set up of the SC is discussed in Chapter 9. Operation of the SC for dishwashing is discussed in Chapter 12.

CONTAINERIZED KITCHEN

The CK is an emerging system currently under materiel development. The CK requirement calls for a rapidly deployable, trailer-mounted, containerized field kitchen capable of supporting up to 500 soldiers. It will provide the capability to prepare any of the group ration meals. The CK will replace the MKT when development is complete and as it becomes available.

KITCHEN, COMPANY LEVEL, FIELD FEEDING ENHANCED

The KCLFF-E (LIN K28601) is capable of limited cooking, heating and serving of the UGR-A or B, H&S, and T-Ration meals such as, grilling steaks, pork chops, and eggs. It is also capable of preparing complete T- and H&S-Ration meals. Operated by two cooks, the KCLFF-E is used by company sized units which must operate near the FLOT or from dispersed field locations where battalion field kitchen sites are not available. Cooks have a limited capability to heat or reheat rations and provide warming beverages as needed to increase the quality of food served forward. It also serves as a steam table to keep foods hot during serving. Details for operating the KCLFF-E are in Chapter 9.

FIELD KITCHEN TENTS

For nonmedical units that are not authorized the MKT, field kitchen tents are used. The type of unit being supported and the physical location of the field kitchen operation will dictate the type of equipment needed. A description of several tents that may be used and related safety precautions are outlined below. Safety precautions must be followed no matter which type of tent is used for the field kitchen.

Types

The following are types of tents that can be used for the field kitchen:

- M-1948 kitchen tent.
- GP medium tent.
- SICP tent.
- TEMPER.
- GP large tent.

For instructions on how to set up and take care of the tents, see TM 10-8340-13 for the M-1948 tent, TM 10-8340-224-13&P for the TEMPER, and TM 10-8340-211-13 for the GP medium tent.

Safety

Safety tips and general precautions that personnel should be aware of when working with the tents are described in Figure 8-5, page 8-6.

- Set up the tent on level ground.
- When lifting the tent, start in the correct squatting position and use your legs to avoid back injury.
- When working near frame hinges, be careful to avoid pinching your hands or fingers. Do not hold the hinge at the eave or ridge location.
- Raise and lower the entire side of the tent smoothly and evenly to avoid damaging the frame.
- Do not step on the tent components.
- To avoid damaging the tent frame, do not twist or turn it when handling.
- Be careful when moving or storing the tent components to avoid damaging the fabric.
- When using the M1941 stove, make sure to tie the stove pipe flap securely with the two tie tapes provided.
- Remember that under high wind conditions, extra personnel are needed to erect or strike tents.
- Use as much natural camouflage as possible.
- Position equipment inside the kitchen tent for efficient operations.
- Use old crates and scrap boards to lay a floor in the tent, but do not use them under the field ranges.
- Do not use the Yukon stove (M1950) in the extendable modular tents.
- Make sure to leave at least 1 foot of space between field ranges and tent walls. When the M2 burner units are lit, they get hot. Frequently check the tent wall for heating while using the M2 burner units. Move the M2 burner units further away from the tent wall if necessary.

Figure 8-5. Safety tips and general precautions.

CHAPTER 9
FIELD KITCHEN COMPONENTS

EQUIPMENT

This chapter discusses and describes the various components associated with the field kitchen whether established with the MKT or using various tents. It also identifies the importance of equipment status and readiness and the causes of and solutions to problems.

Status and Readiness

Food advisors must monitor food service equipment status and readiness rates. They are key problem indicators for field equipment. Equipment status is the percentage of authorized equipment on hand. The PBO maintains information on equipment status. The readiness rate is the percentage of equipment that is fully mission capable. To determine the equipment readiness rate, divide the number of days during the reporting period the equipment is fully mission capable by the number of days the equipment is on hand in the unit, and multiply the resulting number by 100. If under ULLS, ensure the automated maintenance forms are completed and maintained in accordance with the most recent Maintenance Management Update. (ULLS replaces DD Form 314 and DA Form 2408-14 for determining deferred maintenance.) Food advisors can monitor their equipment status by using the ULLS generated forms or the manual forms listed below. DA Pamphlet 738-750 explains the use of these forms. Commanders and food advisors must ensure that entries on these forms are accurate and show the true status of equipment. Monitoring these records helps determine the causes of equipment problems.

DD Form 314. This form provides for recording of data used to figure the readiness rate for each item of equipment. It also provides a format for programming and recording the scheduled services required by the equipment technical manuals and lubrication orders at the organizational level.

DA Form 2404. This is used to record operator services, equipment inspections, faults, performance of operator services, corrective maintenance actions, and to order parts.

DA Form 2407. This is used to request higher echelon maintenance.

Problems

Problems may be caused by operation, maintenance, or supply failures. For example, if inspections and services are not being scheduled or performed, then resulting problems would probably be due to maintenance failures. If equipment is serviced regularly, but equipment readiness is below standard, personnel may be misusing the equipment or they may not be performing services correctly. DA Forms 2404 and DD Forms 314 will indicate whether items of equipment deadlined for maintenance are waiting for parts or waiting for repair. If a large percentage of equipment is waiting for parts, there is a supply failure. The FOS or food advisor may need to contact the supporting supply activity to request information on the status of requisitions. Reports on equipment waiting in DS maintenance are provided by the maintenance control section at the supporting DSU.

Problem Solutions

Once the problem has been determined, the food advisor should brief the supply officer or commander. Include the statistics that show there is a problem and the probable cause of the problem. Suggest ways to

solve the problem. Be prepared to support recommendations. Ask the commander or supply officer for a decision on how to handle the problem and what action to take. Take the necessary action and keep the commander informed of your progress.

M2 BURNER UNIT

The M2 burner unit (Figure 9-1) is the heat source for the M59 field range, KCLFF, MKT, and the SC. The M2 burner unit has a U-shaped tank. For more information and operating instructions on the burner unit, see TM 10-7360-204-13&P. The FOS must ensure that the cooks operate burner units safely and in a manner which protects the environment. They must be trained in fire prevention, and they must know what to do if a fire starts.

Fire Prevention and Environmental Protection

Be sure that all personnel follow these rules when operating the M2 burner unit:

- Make a firm, level, and well-drained foundation, free of burnable material, for the range.
- Make sure that the burner unit is at least 15 meters (50 feet) from any open flame before filling. The gasoline storage area should also be 15 meters from the kitchen tent or MKT.
- Never pressurize the tank while the flame is burning or when the burner is hot, as escaping gasoline vapors will ignite.
- Wipe up spilled fuel on the burner unit. Vapors from spilled fuel can catch fire or explode if they contact the burner flame or heat from a hot burner. Do not permit fuel spills to absorb into the ground. Place contaminated dirt in plastic bags for retrograde and disposal.
- Do not operate the burner unit when the pressure gauge reaches or exceeds 25 pounds per square inch.
- Do not operate a burner unit with a pressure gauge that has not been equipped with the correct safety color code indicator (green 0-25, yellow 25-35, and red 35-60). Do not operate the M2 burner unit with a cracked or broken lens on the air pressure gauge.
- Do not tighten joints while the burner unit is in operation.
- *NEVER* put more than one burner unit in the M59 range.

Fire Fighting

Be sure that all personnel know what to do if a fire starts while using the M2 burner unit. When a fire starts follow these steps:

- First try to close the flame valve. If you close the flame valve, pull the burner unit from the range cabinet.
- If the flame valve cannot be closed, use a fire extinguisher to put out the fire in the cabinet.
- After the fire is out, remove the burner unit from the kitchen.
- After the unit cools, let out the air pressure from the fuel tank by loosening the fuel tank filler cap.

WARNING

Do NOT operate the burner in an unventilated space. Buildup of carbon monoxide gas could lead to INJURY or DEATH.

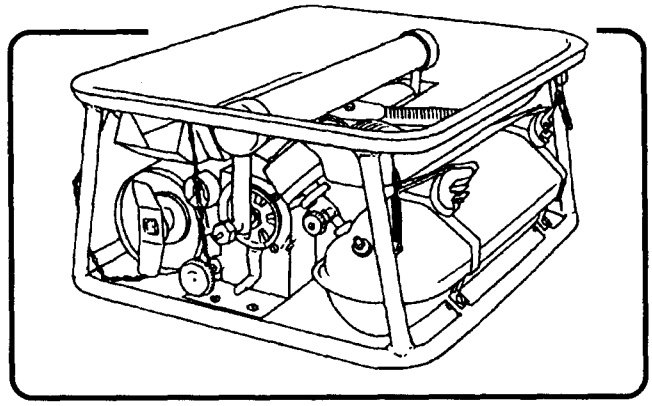


Figure 9-1. The M2 burner unit

M59 FIELD RANGE OUTFIT AND ACCESSORIES

The M59 field (LIN R14154) range is portable and can be adapted to many different cooking configurations. One field range outfit may be used to cook

for up to 50 people. Field ranges are grouped together to cook for more than 50 people. Each field range comes with pots, pans, and cooking and serving utensils. One accessory outfit is authorized for every one to four ranges. Figure 9-2 shows the M59 field range. Figure 9-3 shows the accessory kit. For more information on the field range and accessory outfit, see TM 10-7360-204-13&P.

WARNING

Before placing a burner unit in either position, check to be sure that the other position is empty. Operating a field range with two burner units could lead to INJURY or DEATH.

Using the Field Range

The M59 field range can be used to bake, roast, boil, grill, and deep-fat fry foods by putting the burner unit in the correct position. The range may also be used as a hot line or steam table. The burner unit can be used in either the top or bottom position. Figure 9-4, page 9-4, shows the field range with the burner unit in the top position. When the burner unit is used in the top position, open the slide shutters on the field range cabinet. Figure 9-5, page 9-4, shows the field range with the burner unit in the bottom position. Close the slide shutters on the field range cabinet when the unit is in the bottom position.

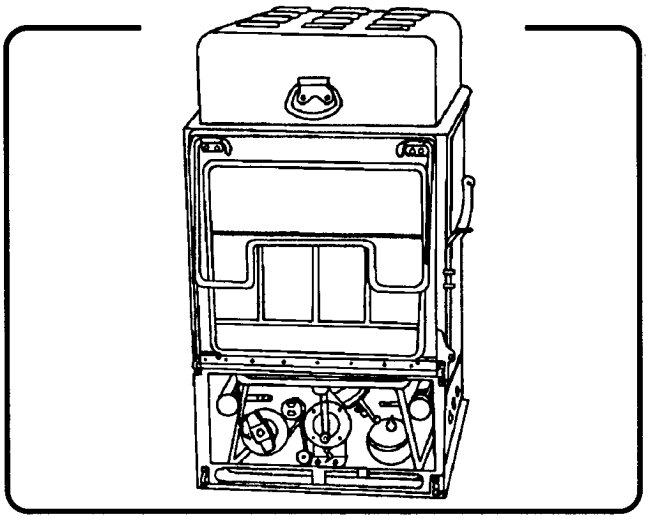


Figure 9-2. M59 field range

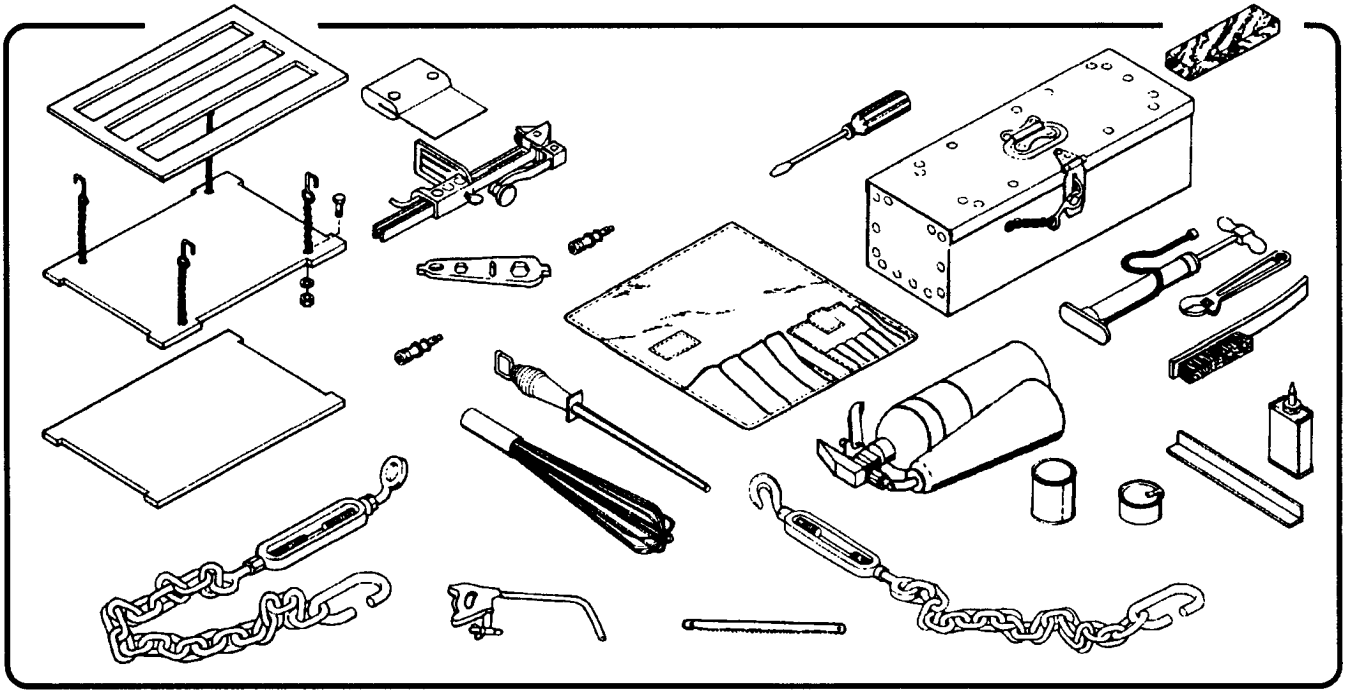


Figure 9-3. Field range accessory kit

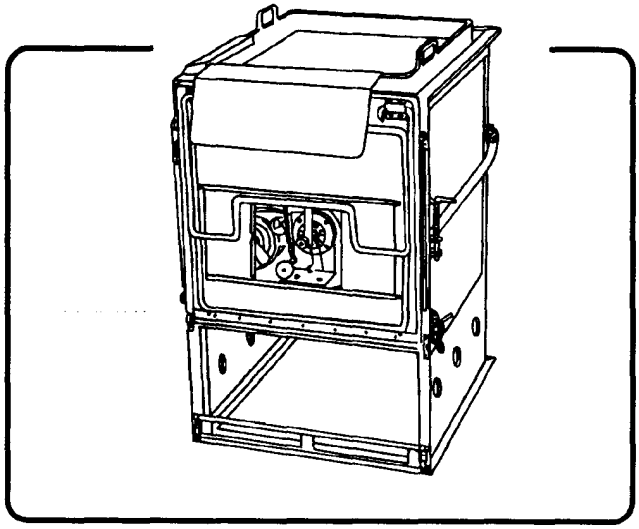


Figure 9-4. Field range with burner in top position

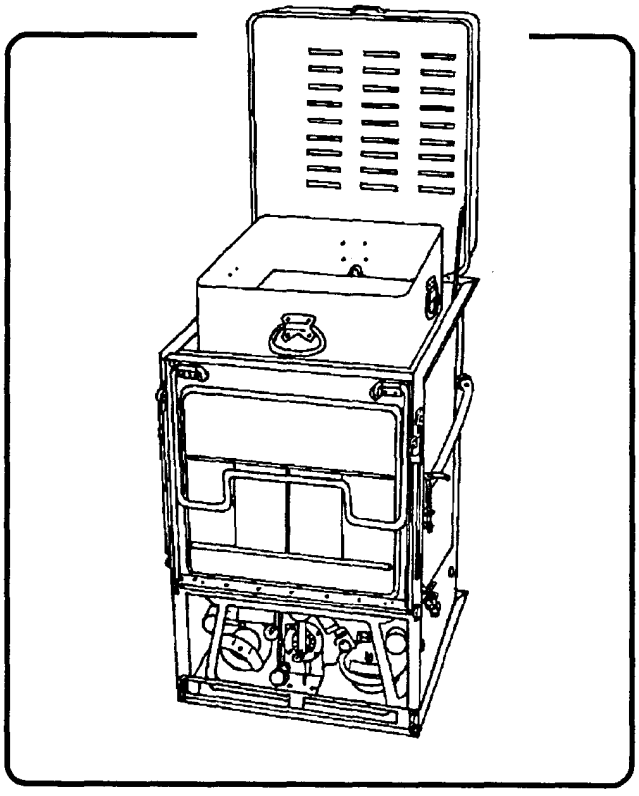


Figure 9-5. Field range with burner unit in bottom position

Roasting

Put the burner unit in either the top or bottom position. Place the baking and roasting pan on the top of the field range and preheat it to the proper temperature. Place roasts in the pan. Cover the pan if you are cooking the roasts by the moist-heat method. Close the door and lid.

Boiling

Put the burner unit in the bottom position. Use either the 40- or 60-quart cooking pot. Attach the splash plate and cover it. Place the cooking pot in the cooking pot cradle and put them in the cabinet of the field range. Close the door and lid. When you need a double boiler, put 21 liters (22 quarts) of water in the 60-quart pot. Place the pot in the cradle. Put a 40-quart pot in the 60-quart pot and then cover the 40-quart pot.

Baking

Three baking racks come with the field range as part of the accessory outfit. You can bake foods inside the cabinet or on top of it in a baking and roasting pan. You can bake cakes, bread, biscuits, cobblers, or cookies using the rack set and the burner unit in the bottom position. Preheat the cabinet to the proper temperature. Place a pan on each shelf. During the baking time, be sure to rotate the pans three times. If you do not have a baking rack set, follow these steps for preparing cakes, biscuits, and cobblers.

Cakes, cookies, and breads. Place the burner unit in the bottom position. Put the empty baking and roasting pan on the field range top. Preheat the pan to the proper temperature. Place the sheet pan in the baking and roasting pan. (The five indentations in the bottom of the baking and roasting pan let the heat flow evenly around the sheet pan.) Close the cabinet door and lid. When the cake, cookies, or bread are done, use two forks to remove the sheet pan as shown in Figure 9-6, page 9-5.

Biscuits and cobblers. You can bake biscuits and cobblers with the burner unit in either the top or the bottom position.

Top position. Place an empty baking and roasting pan on-top of the field range. Preheat to the desired temperature. Put a sheet pan of biscuits or cobbler in the empty baking and roasting pan. Close the cabinet door and lid. ***NOTE:*** *Make sure that the slide shutters on the cabinet door are open.*

Bottom position. Open the cabinet lid and place the baking and roasting pan on top of the field range. Preheat the pan before placing the product inside. Close the cabinet door and lid. In both positions, remove the sheet pan as shown in Figure 9-6.

Deep-Fat Frying

Place the burner unit in the top position and close the cabinet door. ***NOTE:*** *Make sure that the slide shutters on the cabinet door are open.* Put the baking and roasting pan on top of the field range. Fit the long arm protector over the front side of the cabinet and the edges of the pan. Fit the short arm protector over the edge of the pan on the side where you plan to work. Fill the pan one-third to one-half full of shortening. Heat the shortening to the required temperature. Check the temperature with a thermometer or drop a bread cube into the hot shortening. If the bread browns in 20 seconds, the shortening is hot enough to use. After you have fried the food, use the skimmer to remove the food from the pan.

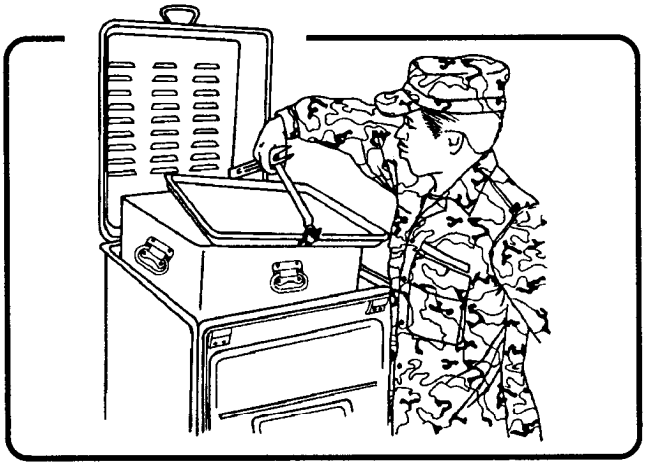


Figure 9-6. Removing sheet pan from the baking and roasting pan

Grilling

Place the burner unit in the top position and close the cabinet door. ***NOTE:*** *Make sure that the slide shutters on the cabinet door are open.* Turn the cover of the baking and roasting pan upside down and fit it onto the griddle supports. Fit the long arm protector over the front edge of the griddle and cabinet. Fit the short arm protector over the side edge of the griddle and cabinet where you are working. You may need to grease the griddle lightly. (The MKT has its own special griddle which is placed over two burner units.)

Hot Line

Place the burner unit in the top position of the range and close the cabinet door. ***NOTE:*** *Make sure that the slide shutters on the cabinet door are open.* Put the baking and roasting pan on top of the range, fill the pan one-third to one-half fill of water, place a warmer adapter inside of the baking and roasting pan to form a holder for up to six insulated food container inserts. Fit the long arm protector over the front side of the cabinet and the edge of the pan. Fit the short arm protector over the edge of the pan on the side you plan to work and/or serve the food. Heat the water in the pan to maintain the internal temperature of the food products at 140 degrees Fahrenheit or above. Place the inserts with the hot food products inside the warmer adapter as needed during the meal service period. A product thermometer must be used to check food temperatures.

IMMERSION HEATERS

Immersion heaters are used to heat water for clean up operations at the field kitchen. Two types of immersion heaters are the standard model and the preway model. Figure 9-7, page 9-6, shows what they look like. The models look very much alike, with the main difference being the two column stacks on the heater body. Make sure your cooks know how to preheat and light the model with which your unit is equipped. Operating instructions are on the data plate attached to the burner unit cover. In addition, TM 5-4540-202-12&P and TM 10-4500-200-13

discuss the immersion heater in detail. Details for set up and operation of the immersion heater are in Chapter 12. The Army plans to replace the immersion heater (and mess kit laundry lines) with the deployment of the SC. This conversion will depend on finding and deployment of the SC.

SANITATION CENTERS

Food service sanitation requires that certain standards be maintained during field kitchen operations. The SC (Figure 9-8), provides a means for effectively maintaining sanitation.

Equipment

The equipment for the SC, which includes the TEMPER tent (LIN S33399; NSN 7360-01-277-2558), is shown in Figure 9-9, page 9-7. Assemble equipment as described in the following paragraphs.

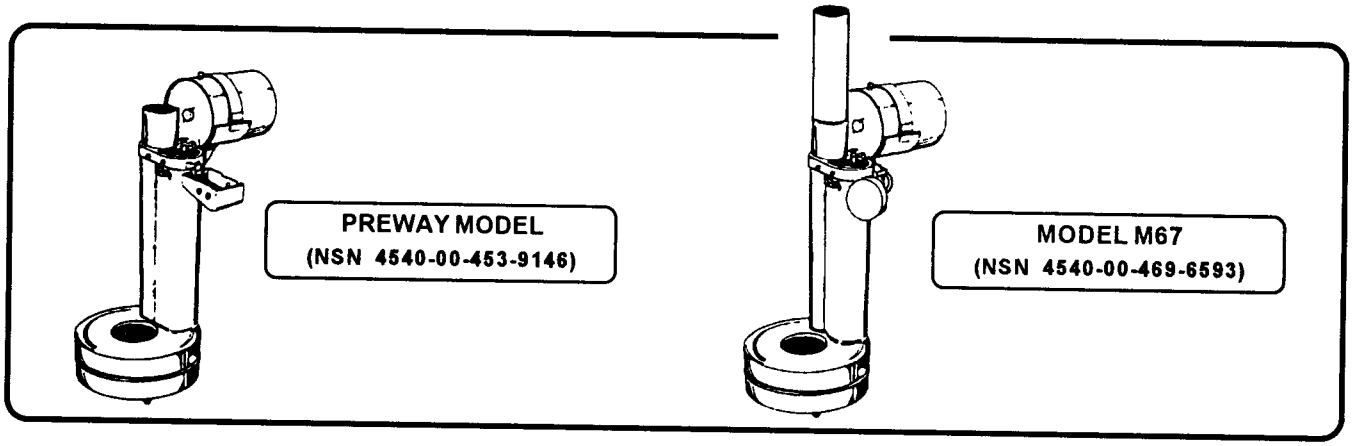


Figure 9-7. Immersion heaters

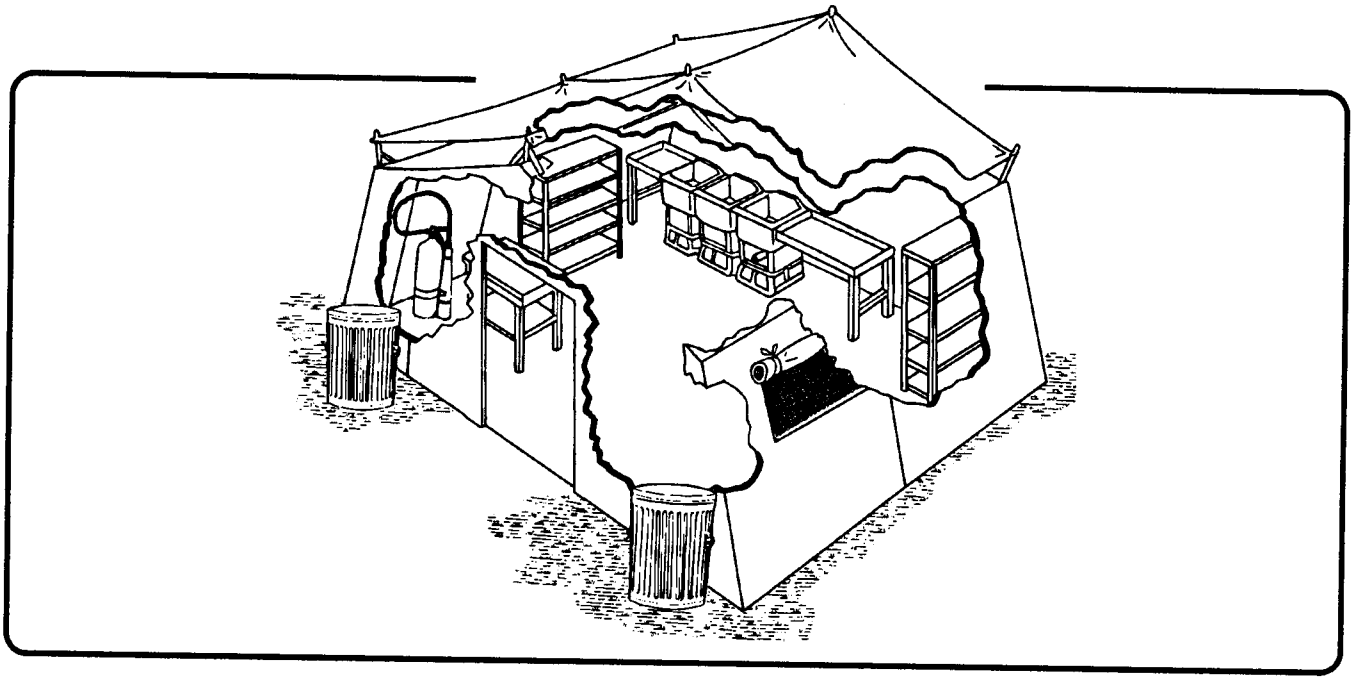


Figure 9-8. Sanitation Center

Sink assembly. The sinks come complete with two racks inside each sink (a burner rack for the M2 burner and a rack base). Assemble the sinks as shown in Figures 9-10 and 9-11, page 9-8.

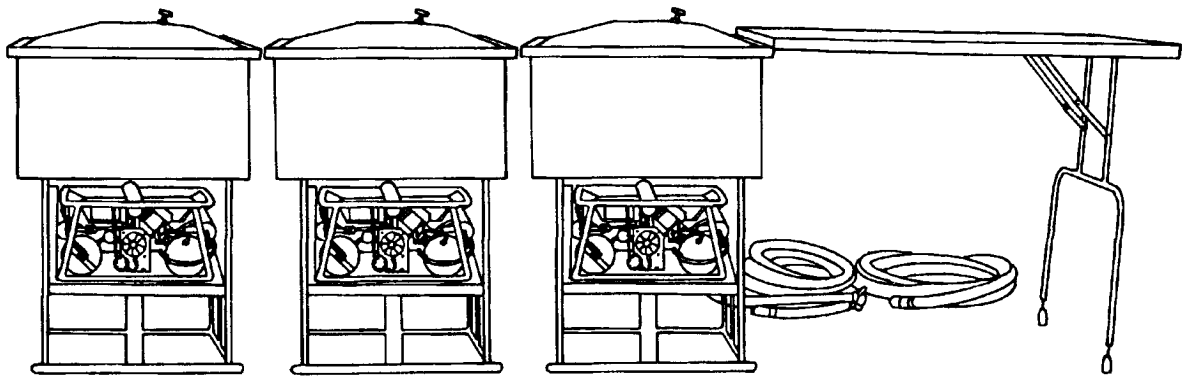
Worktable. Assemble the worktable. Place it in front of the three sinks.

Storage rack assembly. Assemble the storage rack and place it in a convenient area of the tent.

Trash cans. Place the two 32-gallon-capacity plastic trash cans inside the tent entrance. You can also place the trash barrel outside the tent, if that is more convenient. One can is used for food waste (plate scraping, leftovers, and vegetable culling) and the other is for nonfood waste (cans, bottles, boxes, and paperware).

- Three field sinks and three sink covers
- Two drain tables
- One worktable
- Two storage racks
- Three burner units
- One tent, extendable, modular, utility (16 feet by 20 feet)
- One gasoline lantern
- One 50-foot drain hose assembly
- One fire extinguisher
- Three thermometers for the sink and three brackets for the thermometers
- Two plastic trash barrels
- Two sink immersion racks
- Two sink adapters (to connect sinks at the top)

Figure 9-9. Sanitation Center equipment



1. Take out the first rack for the M2 burner.
2. Take out the rack base. Invert it, and use it as a foundation.
3. Set the M2 burner rack on the rack base.
4. Center the sink on top of the M2 burner back with the drain assembly to the rear.
5. Repeat steps 1 through 4 with the remaining two sinks.
6. Place the three sinks next to each other by the window at the rear or left side of the tent. Attach the sinks together with sink adapters. Attach the drain table to the side of the two end sinks. The two drain tables will hook onto the top edge of the sink. Adjust the fold-out legs for balance. Attach thermometers and thermometer brackets to each sink.
7. Attach the drain hose assembly to the rear of each sink; then attach the 50-foot length of drain hose to the drain hose assembly, and extend it to the proper location (Figure 9-11, page 9-8).
8. Close the sink drains.

Figure 9-10. Sink assembly

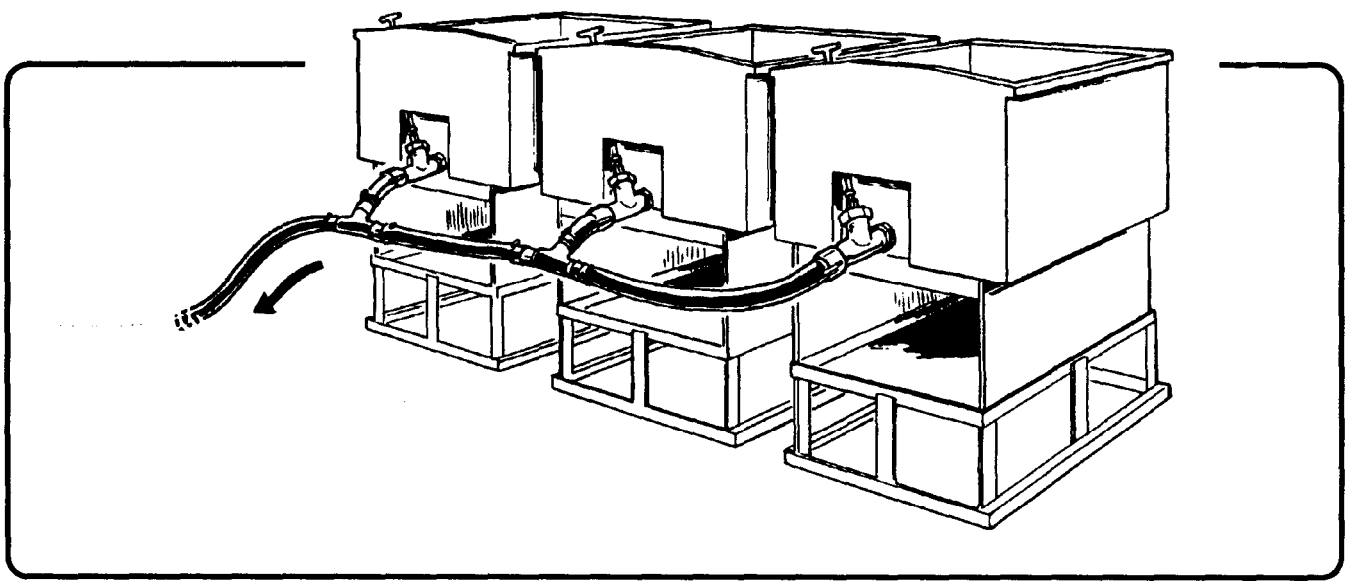


Figure 9-11. Drain hose assembly

INSULATED FOOD CONTAINERS

Insulated food containers (LIN H83817) are used to keep hot foods hot and cold foods cold. Each container has three aluminum inserts with tight fitting covers. Each insert may be filled to 5 1/3-liters-(5 2/3-quart-) capacity. Hot and cold food should be stored in separate containers. The insulated food container may also be used to transport T-Ration pans.

Heating and Filling

A properly heated container will keep food warm for three to five hours. However, keep in mind that *TB MED 530 states that PHF held in an insulated food container for more than four hours must be discarded.* Before you put hot food in the container, heat the container as described in the following steps:

- Remove the inserts.
- Pour 2 quarts (1.9 liters) of boiling water into the container.
- Replace the inserts.
- Close the container lid and secure the latches diagonally.
- Let stand for at least 30 minutes.
- Open and remove the inserts.
- Pour water from the container.
- Put hot food in the insert and replace the insert cover (with gasket).
- Place the filled inserts in the container.
- Close and fasten the container lid by securing the latches diagonally.

Chilling and Filling

If you need to chill a container before you put cold food into it, follow the steps described below:

- Remove the inserts.
- Put crushed ice or 2 quarts of ice water in the container.
- Close the container lid and secure the latches.
- Let stand for 30 minutes.
- Pour ice or water from the container.
- Put food in the inserts and fasten the lids.
- Place the filled inserts in the container.
- Close and fasten the container lid by securing the latches diagonally.

Labeling Containers

Label each food container after you fill it. A good label can be made by placing a strip of masking tape across the top of the container lid. Write the menu item, the number of servings, the date, the time the item was placed in the container, and "Consume by_____or Discard" (fill in the time 4 hours after the container was filled) on the tape. The NSNs for the labels on the top of the insulated food container are 7690-01-224-6411, 7690-01-220-3274, or 7690-01-223-2521.

Transporting Food

If the food is to be carried to other sites, use a code letter or color to identify each site. Make sure that each site has a complete menu. Write the menu items, the number of servings, the date and time prepared, "Consume by_____or Discard", and the site code on each container label. For feeding small units, put separate inserts of a meat, a starch, and a vegetable in one insulated food container.

Cleaning the Container

Clean the insulated food container and the inserts before and after every use. Never immerse the food container in water. Remove the inserts and gaskets and wash them in hot, hand-dishwashing compound solution. Then rinse and sanitize the parts in water at 170 degrees Fahrenheit or greater. After you have washed the gaskets from the food container, put them back on the container with the flat sides down and let them dry that way. Place the gaskets from the insert covers back on the insert covers and let them dry. If you take care of the rubber gaskets properly, they will not warp or lose their shape.

Ordering Replacement Parts

If components of the insulated food container become unserviceable or are misplaced, you can order replacements through normal supply channels. Figure 9-12 gives the NSN and nomenclature for each part.

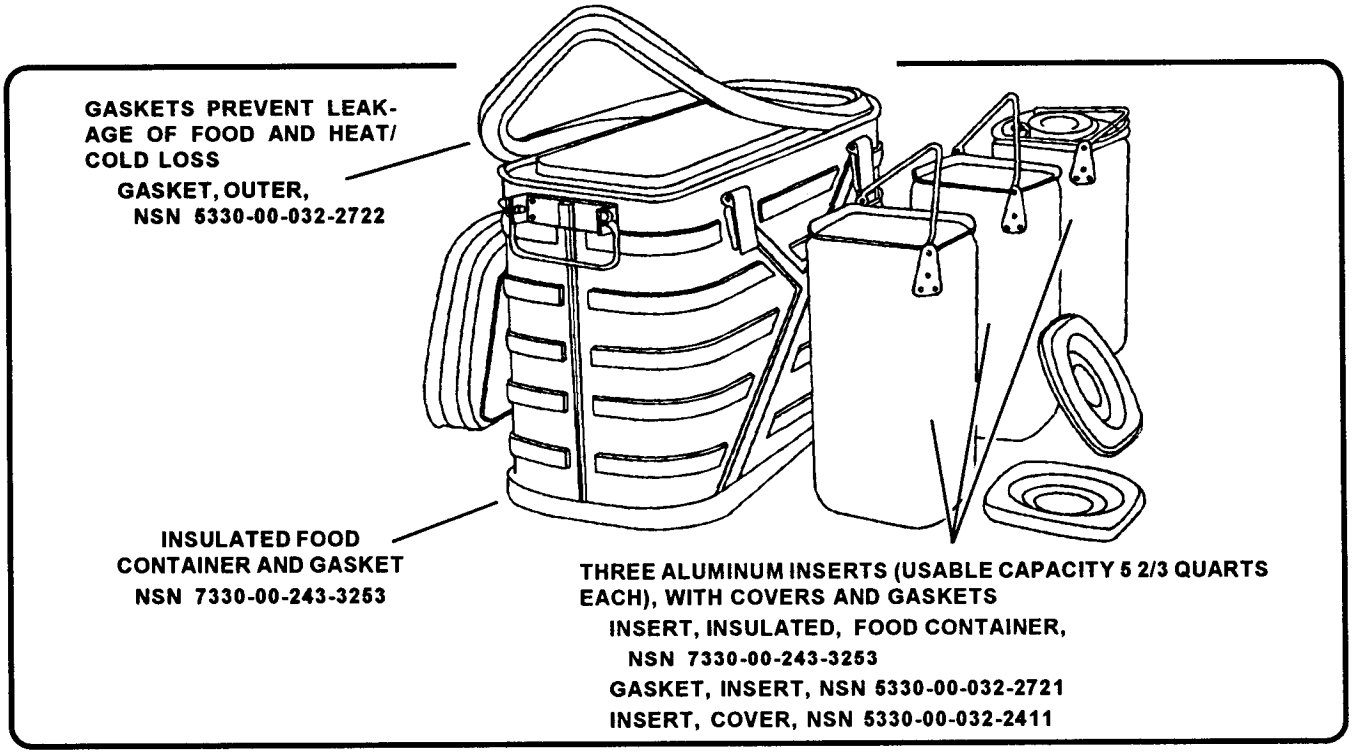


Figure 9-12. Replacement parts for the insulated food container

Storing the Container

Store containers with lids closed but unlatched. Make sure the food container lid is pushed back slightly to allow air to circulate. This will reduce mold or mildew.

WATER-STERILIZING BAGS

Water sterilizing bags (Figure 9-13) are used to dispense treated drinking water in field kitchens. These 36-gallon canvas bags are authorized at the rate of one for each 100 people at the field kitchen. Treated water to fill the bags is brought to the area in water trailers, tank trucks, or water cans. Direct personnel to set up and fill the bags as described below.

Select an Area to Set Up the Bags

The area should be readily accessible to the users. It should have good drainage and overhead protection. If you have only one bag, locate it in the bivouac area.

Set Up the Bags

The bags can be hung from a tree limb or from a tripod. (To build a tripod, lash three poles together as shown in Figure 9-14.) Dig a sump pit under the bag and fill the pit with gravel or stones.

Filling the Bags

Untie each bag and lift its cover. Inspect the bag for cleanliness. If it is dirty, clean and sanitize it with food service disinfectant. Fill the bag only with potable water. Check the spigots for leaks and tighten them if necessary. Replace the cover and secure it tightly. Finally, check the water for chlorine.

Cleaning the Bags

Scrub the inside of the bag with a chlorine solution. Use a one-half mess kit spoonful or 1 MRE spoonful of calcium hypocholorite, NSN 6810-00-255-0471, stirred into 1 gallon of water. Rinse the bag several times with clean, fresh water to get rid of all the cleaning solution. Hang it up until it is completely dry.

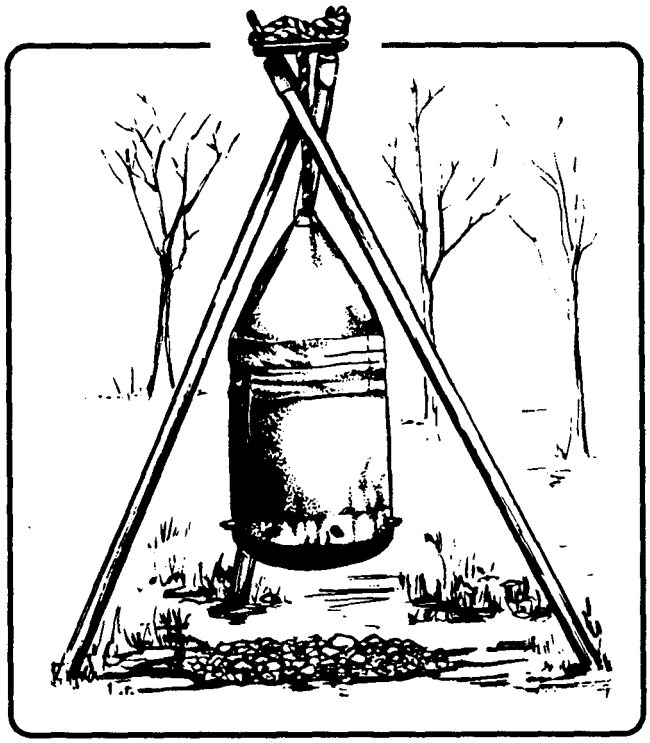


Figure 9-13. Water-sterilizing bag

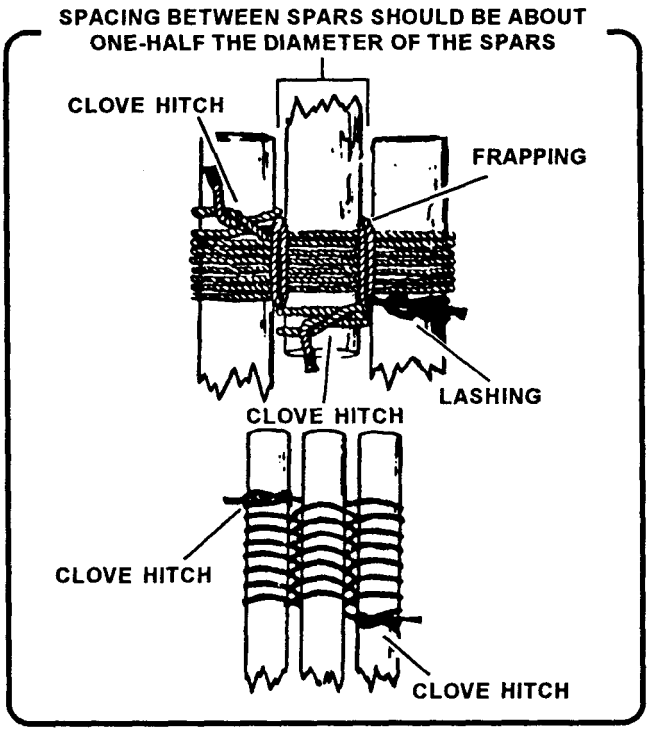


Figure 9-14. Lashing for a tripod

Storing the Bags

Fold the dry bag and wrap it in kraft paper (NSN 8135-00-160-7752). Store it in a new fiberboard box in a clean dry place. The NSN for the fiberboard box is 8115-00-428-4124. They are packed ten to a box and are 24 by 24 by 10 inches.

ICE STORAGE CHEST

There are two ice storage chests authorized for use in the field. They are NSN 4110-00-142-2445 (200-pound-capacity) used with the KCLFF and NSN 4110-00-640-1941 (400-pound-capacity). Store perishables in the ice chest for up to 24 hours when there is no refrigeration. When block ice and perishables are stored in the chest, use enough ice to keep the temperature below 50 degrees Fahrenheit. Potable ice that has been used to chill perishables must not be used to chill drinks, except in emergencies. When it is necessary to use ice in a drink, make sure the perishables are packed in clean, moisture-proof wrappers so they do not contaminate the ice. Also, rinse the ice with potable water before adding it to drinks. Clean the chests and gaskets with a mild detergent and warm water. Rinse the ice chest with clean water and let it air dry with the top open.

GASOLINE LANTERN

Supported units may be able to provide the field kitchen with light sets and generators. However, that depends on the type of unit being supported. The primary source of artificial light for the field kitchen is the gasoline lantern (NSN 6260-00-170-0430). See Appendix A for a full description of the lantern.

KCLFF-E USE

The KCLFF-E was designed to provide commanders a limited ability to prepare and serve hot meals to soldiers at forward sites. It requires two people to load, unload, prepare, and serve meals. The cooks must be provided additional support (KP) from the unit when preparing A- or B-Ration meals.

Transport

A HMMWV and cargo trailer are provided to transport the KCLFF-E for infantry, armor, and field artillery companies or batteries of all divisional units and separate infantry brigades and armored cavalry regiments. The company load of operational rations, camouflage nets, and other items to support the KCLFF-E must be transported on other company vehicles.

Shelter

Appropriate shelter must be provided for the KCLFF-E during inclement weather. If no shelter is available, serve MREs. If units require shelter, tentage is a CTA item. However, transportation assets are critical in the light divisions and tents may not be transportable. Examples of shelters which are currently in the system and may be ordered for use with the KCLFF-E are the—

- Tent, command post, complete, NSN 8340-00-254-5358.
- Tent, hexagonal, M1950, OD, NSN 8340-00-269-1372.
- Tent, SICP, NSN 5410-01-323-2454.

Basic Components and Accessories

The KCLFF-E is equipped with an M-59 field range, insulated food containers, ice storage chest, beverage dispensers, a heater cabinet, M-2 burner units, work tables and required pots, cradles and utensils. The components of the KCLFF-E are listed in Table 9-1, page 9-12. The accessory equipment used with the KCLFF-E is listed in Table 9-2, page 9-12. The accessory outfit for the KCLFF-E is shown in Figure 9-15, page 9-13. The dispenser, liquid, insulated, with spare parts and their NSNs is shown in Figure 9-16, page 9-14.

Water capability. The KCLFF-E comes with eight 5-gallon water cans. The total capacity of the system may be expanded to approximately 111 gallons. The sixteen insulated food containers will hold 36 gallons; the eight 5-gallon water cans will

hold 40 gallons; the 15-gallon pot will hold 10 gallons; the 10-gallon pot will hold 5 gallons; and the four 5-gallon beverage dispensers will hold 20 gallons. Use of the insulated food containers and pots to transport water will require reconfiguration of the load plan. The pots must be used with the splash lids in place.

Storage. All accessories can be stored in the KCLFF-E heater and other KCLFF-E components for loading and transporting purposes.

Table 9-1. KCLFF-Enhanced Equipment List (LIN K28601) (NSN 7360-01-200-9828)

ITEM	NSN	PER KCLFF-E
Dispenser, liquid, insulated	7320-01-093-7371	4
Burner Unit, M2/M2A	7330-00-842-9247	3
Cooking Pot, 10 gal, w cover	7330-00-292-2306	1
Cooking Pot, 15 gal, w cover	7330-00-292-2307	1
Heater Cabinet		1
Insulated Food Container w inserts	7330-00-238-2411	12
Pot Cradle Assembly		1
Table, work and serving		2
Lifter, tray pack, extracting	7330-01-234-2164	1
Lifter, tray pack, serving	7330-01-224-0914	1
M59 Field Range		1
Ice Storage Chest (200 lb)		1

Table 9-2. Basic issue accessory items for the KCLFF-E

NSN	DESCRIPTION	U/M	QTY
8030-00-087-8630	Antiseize compound	EA	1
4610-00-268-9890	Bag, water, sterilizing	EA	1
7330-00-078-5706	Board, food, cutting	EA	1
7920-00-291-5815	Brush, wire	EA	1
8110-00-824-1443	Can, friction, top	EA	1
7240-00-222-3086	Can, gasoline (5 gal)	EA	2
7330-01-245-0201	Can opener, hand	EA	2
7330-00-272-2591	Can opener, tray pack	EA	1
7240-00-089-3827	Can, water (5 gal)	EA	8
5120-00-379-2490	Cleaner, burner, slot	EA	1
4210-00-270-4512	Fire extinguisher	EA	1
	First aid kit	EA	1

Table 9-2. Basic issue accessory items for the KCLFF-E (continued)

NSN	DESCRIPTION	U/M	QTY
7310-00-999-2552	Generator, preheater	EA	4
8415-01-134-8233	Gloves, heat protective	EA	1
	Hose, drain	EA	1
4720-00-379-2518	Hose, pump, inflating	EA	1
7340-00-197-1271	Knife, boning	EA	1
7340-00-223-7766	Knife, bread	EA	1
6260-00-170-0430	Lantern, gasoline	EA	1
7330-01-234-2164	Lifter, tray pack, ext	EA	1
7330-01-224-0914	Lifter, tray pack, serv	EA	1
7240-00-205-3096	Measure, liquid (2 qt)	EA	1
7240-00-171-6154	Nozzle, spout, can, gas	EA	1
7330-00-292-2306	Pot, stock (10 gal)	EA	1
7330-00-292-2307	Pot, stock (15 gal)	EA	1
4320-00-852-9036	Pump, inflating	EA	1
5120-00-222-8852	Screwdriver, flat	EA	1
7340-00-223-7800	Spoon, basting	EA	1
7340-00-205-1421	Spoon, serving , slotted	EA	1
	Tray pack, cover	EA	TBD
7310-00-310-8544	Tool chest	EA	1
5120-00-240-5328	Wrench, adj, crescent	EA	1
5120-00-303-7737	Wrench, combination	EA	1

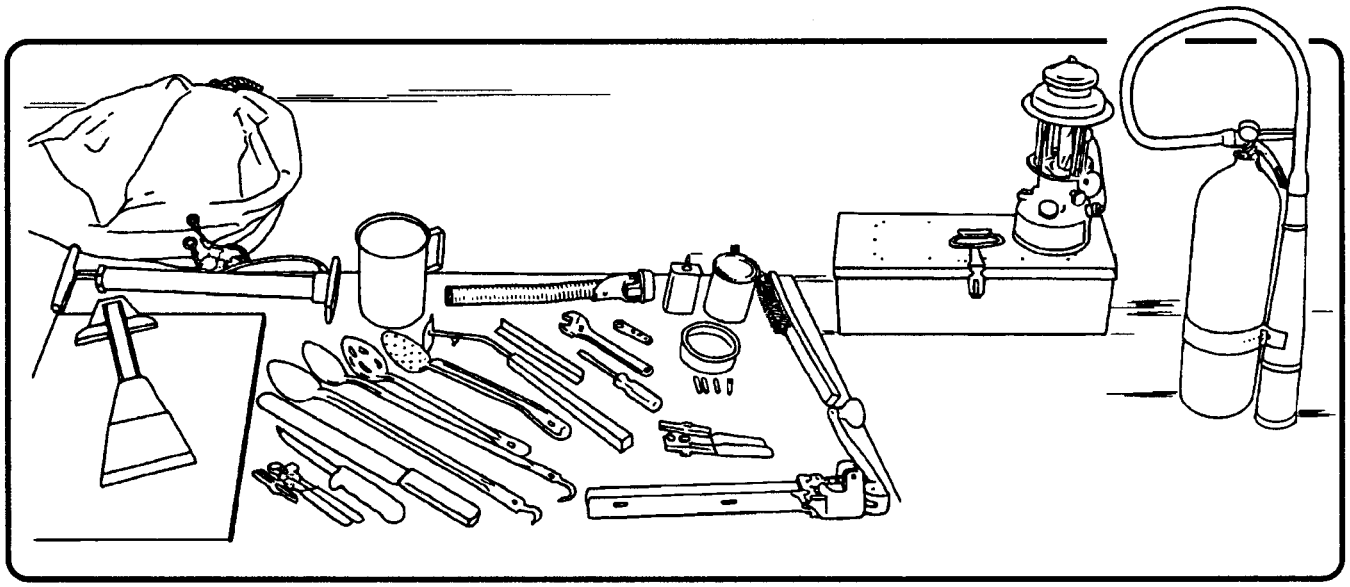


Figure 9-15. Accessory outfit for the KCLFF-E

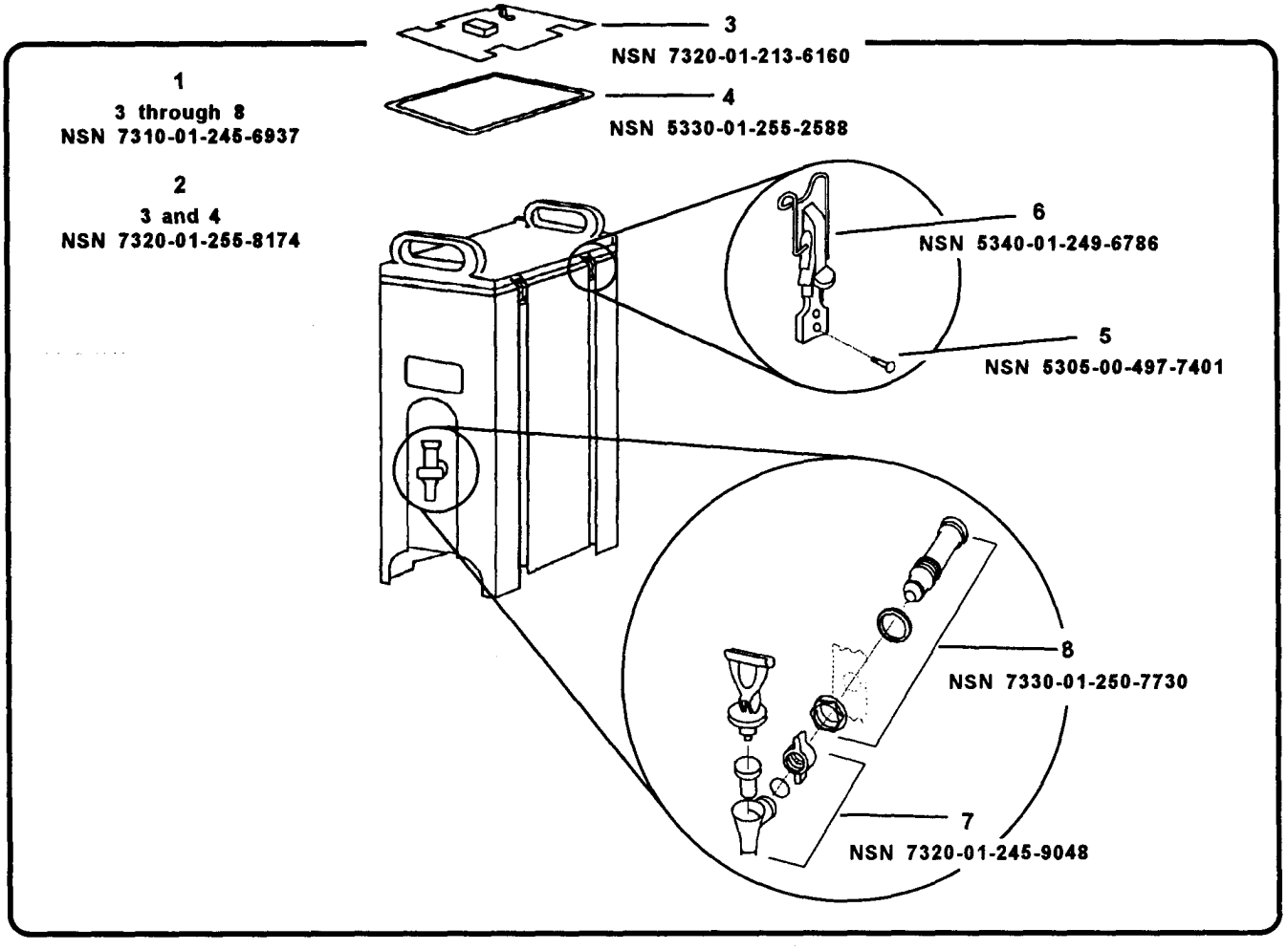


Figure 9-16. Dispenser liquid, insulated

Tray pack lifter, extracting. The tray pack lifter, extracting, (Figure 9-17) is the long-handled utensil used to remove tray packs from the hot water.

Tray pack lifter, serving. The tray pack lifter, serving, (Figure 9-17) is the utensil which clamps on either side of the tray pack. This utensil is used to move a hot tray pack, once it has been opened, to the serving line.

Hot pads. Once a tray pack has been removed from the hot water using the tray pack lifter, extracting, the hot tray packs can be handled with hot pads. The hot pads should be used to transfer the hot tray packs into the insulated food containers. The hot pads should not be used alone to handle opened tray packs.

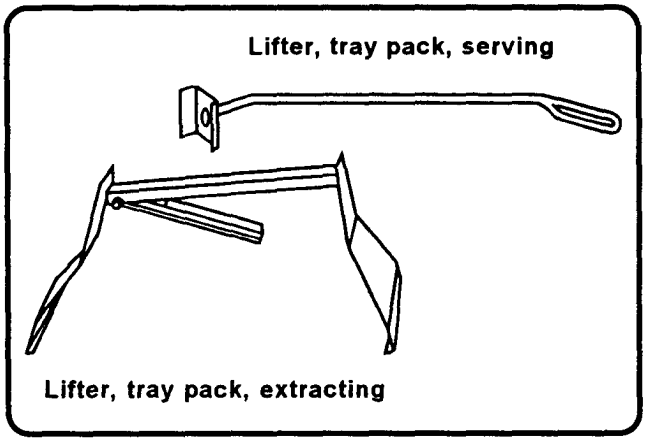


Figure 9-17. Lifter, tray pack, extracting and lifter, tray pack, serving

Site Selection

All personnel working with the KCLFF-E should be familiar with the procedures in TM 10-7360-209-13P. Although the KCLFF-E goes where necessary, consider the following points when selecting a site for setting up the KCLFF-E:

- Good natural cover is ideal to shield troops from the enemy and to protect them from sun, heat, and cold winds.
- High, dry ground near a protected slope is ideal to ensure good drainage and to protect you from the wind.
- Enough space to keep from crowding the troops is required. It also allows you to spread out your equipment enough to work efficiently.
- It is ideal if you are near a source of potable water.
- Sandy loam or gravelly soil is best to let excess water seep away and to help soakage pits and trenches work well.

Camouflaging

The KCLFF-E must be camouflaged after it is set up. Follow the points on page 5-28 when you camouflage the KCLFF-E, equipment, and the feeding site.

Operation

When setting up the KCLFF-E, precautions must be taken to ensure safe operation. Before operating the KCLFF-E, ensure personnel follow the procedures in Figure 9-18.

1. Locate the tray pack heater in a reasonably level and clear area.
2. Erect the two serving tables within 5 to 6 feet of the tray pack heater.
3. Place a fire extinguisher conveniently near the heater.
4. Fill the heater with 20 gallons of water (about 8 inches deep).
5. Follow all precautions and instructions in TM 10-7360-204-13&P to light the M2 burner unit. Monitor the burner for proper flame color.
6. When the flame is properly adjusted (has reached a stable operating state), carefully slide the unit in the burner rack under the heater tank. DO NOT FORCE IT.
7. While the water is being heated, ready the tray packs for loading. The tray packs are loaded *after* the water begins to boil.
8. Mount the can opener on the serving table.
9. Place eating and serving utensils, trays, bread, and condiments in a convenient place on one of the serving tables.
10. If a hot beverage is to be served, assemble a 15-gallon stock pot, cradle, and burner rack.
11. When the water in the heater has started to boil, load a maximum of 24 tray packs into the tank as follows:
    - Arrange the tray on their edge in two rows of 11 with two trays between the rows.
    - Place the first tray in the tank with the bottom of the tray against the side of the tank and the short side down. Load entree tray packs requiring the full amount of heating time and others progressively so the full menu may be served together.
    - Close the cover on the tank.
    - Periodically monitor the pressure gauge on the burner while the trays are being heated.

Figure 9-18. Safety precautions for operating the KCLFF-E

12. After 45 minutes, the trays should have reached the serving temperature. (Some items, such as vegetables, may take only 15 minutes to heat).
13. If the trays are not served immediately, or if they are to be taken to a remote site, take them from the heater and put them into insulated food containers to maintain the serving temperature.
14. To load the insulated food container, remove the tray packs from the heater cabinet using the tray pack lifter, extracting.
15. Transfer the tray pack using hot pads. Place the tray packs into the insulated food container. Soldiers must use the tray pack lifter, serving to place opened tray packs on the serving line.
16. Load utensils and condiments into a box and close the box.
17. Use the hot water in the tray pack heater and stock pots for sanitation purposes. Add one-half cup of dishwashing compound (hand) for each 5 gallons of water to the T-Ration heater. (If the alternate method is used, add one-half of a packet of food service disinfectant for each 5 gallons of unheated water in the remaining stock pot). Clean the utensils, tables, insulated food containers and beverage dispensers using the water in the heater cabinet for washing and the stock pots for rinsing.
18. After the unit has cooled, drain the water from the tank by opening the drain valve on the bottom of the unit. The drain hose should be attached so that the cooking area does not get muddy. Run the drain hose into a soakage pit to prevent standing water that could breed insects. When the water is contaminated with foodstuff and/or other waste, dumping must be according to local environmental regulatory requirements. Never dump contaminated water directly on top of the ground.

Figure 9-18. Safety precautions for operating the KCLFF-E (continued)

Serving Operations

The cook operating the KCLFF-E will require servers to assist at meal time. Two to three servers could be used, depending on the number of troops to be fed. Examples of how to use servers follows.

- One server would serve the entree, starch, and vegetable.
- One server would serve the salad, bread, and dessert.
- One server would serve the beverages (server fills cups) and condiments.

When serving operations are ongoing, the cook must replenish the serving line, open tray packs, monitor serving sizes, and refill beverage dispensers,

Before serving, the cook is responsible for briefing the servers on proper serving sizes and portion control. During serving, it is important that the cook monitor the servers to ensure that the serving procedures and portion sizes are correct.

The cook is also responsible for disposing of leftovers (serve or discard) and for using insulated food containers and beverage dispensers for remote site feeding.

Planning and Accounting Procedures

No operation can be totally successful without proper planning. The operation of the KCLFF-E is no exception to the rule.

Each tray pack contains either 9 or 18 portions. Therefore, there is no general rule to determine the number of modules required to feed a certain number of soldiers. The FOS will have to determine the number of modules to send to remote sites.

Complete planning instructions for the T-Ration are in Chapter 5.

CHAPTER 10
MEDICAL FIELD FOOD SERVICE EQUIPMENT

THE ARMY MEDICAL FIELD FEEDING SYSTEM

The AMFFS provides responsive, flexible, and mobile food service support to medical units in the field. Major equipment includes the MKT (for MASH units), FKM (Figure 10-l), and the SC. The FCIHW and food preparation and service sets furnish additional items to support the patient feeding mission. The FKM and SC are housed in a TEMPER (Figure 10-2, page 10-2) while subsistence storage and the dining areas utilize GP tents.

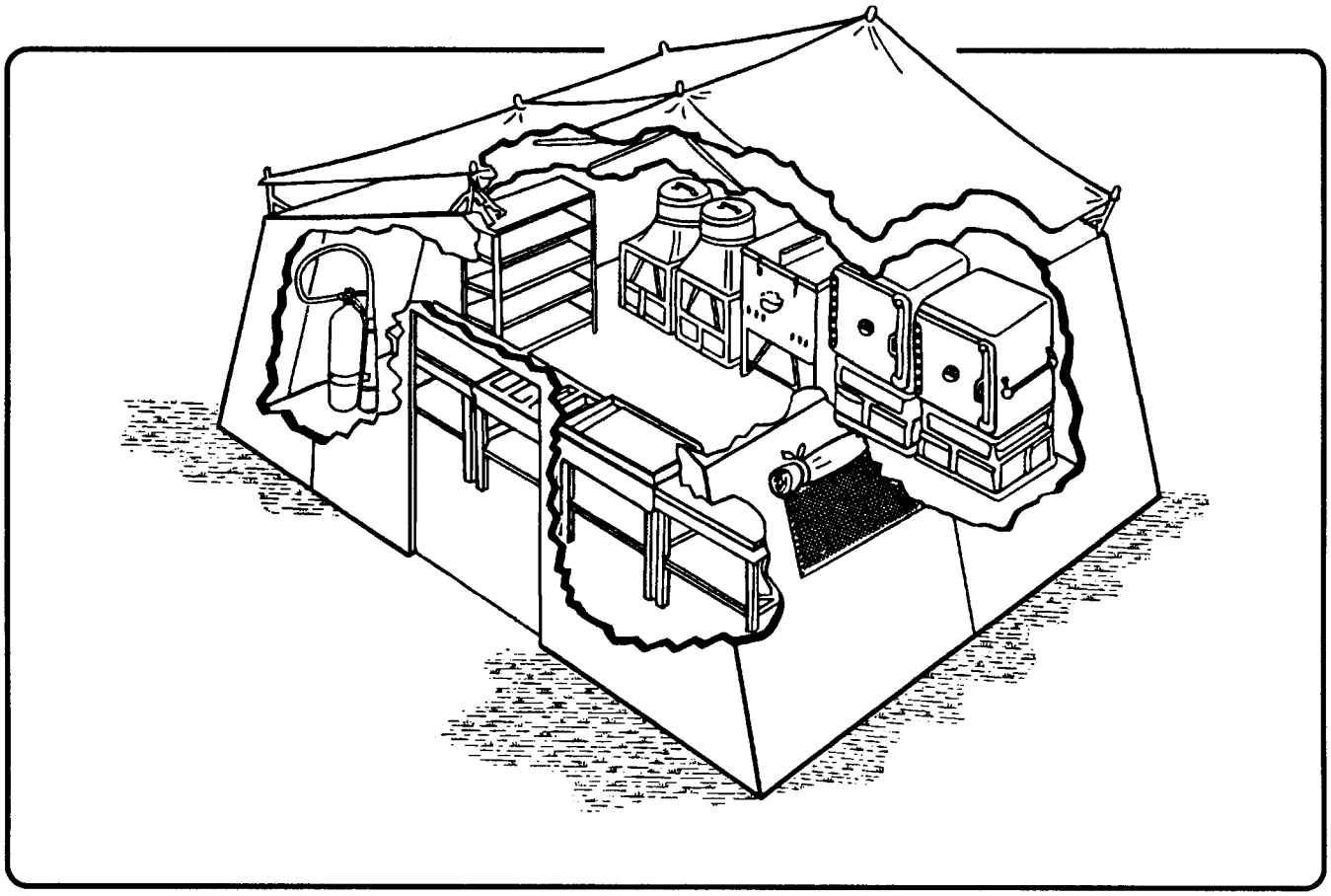


Figure 10-1. Field kitchen modular (FKM)

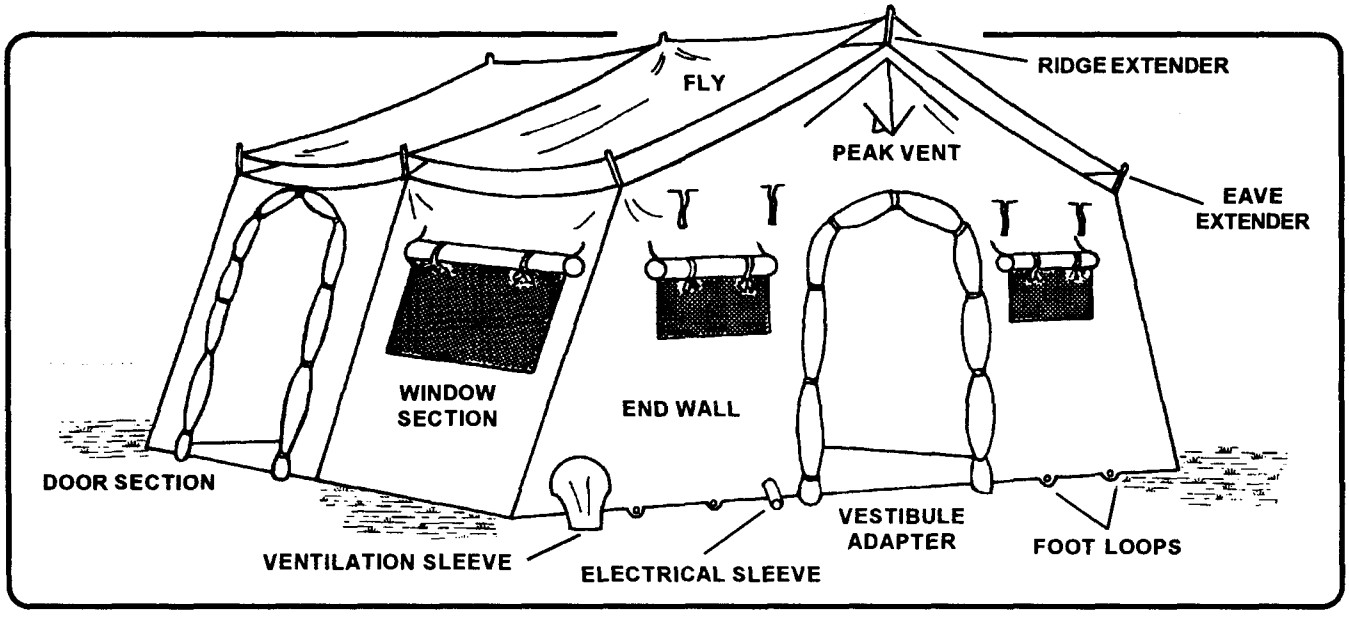


Figure 10-2. TEMPER tent

FIELD KITCHEN MODULAR

The FKM is issued to all hospital units except the MASH. Each FKM is designed to support up to 250 personnel, to include organic unit personnel and patients, with A-, B-, medical B-, or T-Rations.

Description

Because the FKM is modular, it can be consolidated with other FKM modules to feed larger units. In cold regions, entrances to the tents should have vestibules with doors attached to cut down on air exchange (Figure 10-3, page 10-3). The FKM and SC can be made into a complex by connecting vestibules (Figure 10-4, page 10-3). Equipment can be arranged to provide preparation and cooking areas and serving lines. FKM equipment is transported by a 5-ton truck with a 1 ½ ton trailer. The basic items of issue for the FKM are in Table 10-1, page 10-4.

Set Up

The following are steps for setting up the FKM:

- Set up the temper according to TM 10-8340-224-13&P.
- Set up the two worktables.
- Remove the four small locking bolts from the legs of the griddle stand assembly, unfold the legs, and replace the locking bolts. Position the griddle stand and level it using the level adjustments.
- Repeat the above steps for the steam table assembly.
- Assemble the exhaust assembly and position it between the griddle and steam table stands.
- Assemble the steam top and place it on top of the steam table assembly.
- Place the oven on top of the burner base and install the burner in the rack. Repeat the steps above for the second oven.
- Place the pot cradle on top of the burner base and install the M2 burner unit. Repeat these steps for the second pot cradle assembly.
- Assemble the storage and drying rack.
- Place the storage cabinet assemblies in the desired position.
- Position the heater cabinet with the drain hose.
- Attach the can opener to the appropriate worktable.
- Arrange the meal carriers and remaining accessories in accessible locations.

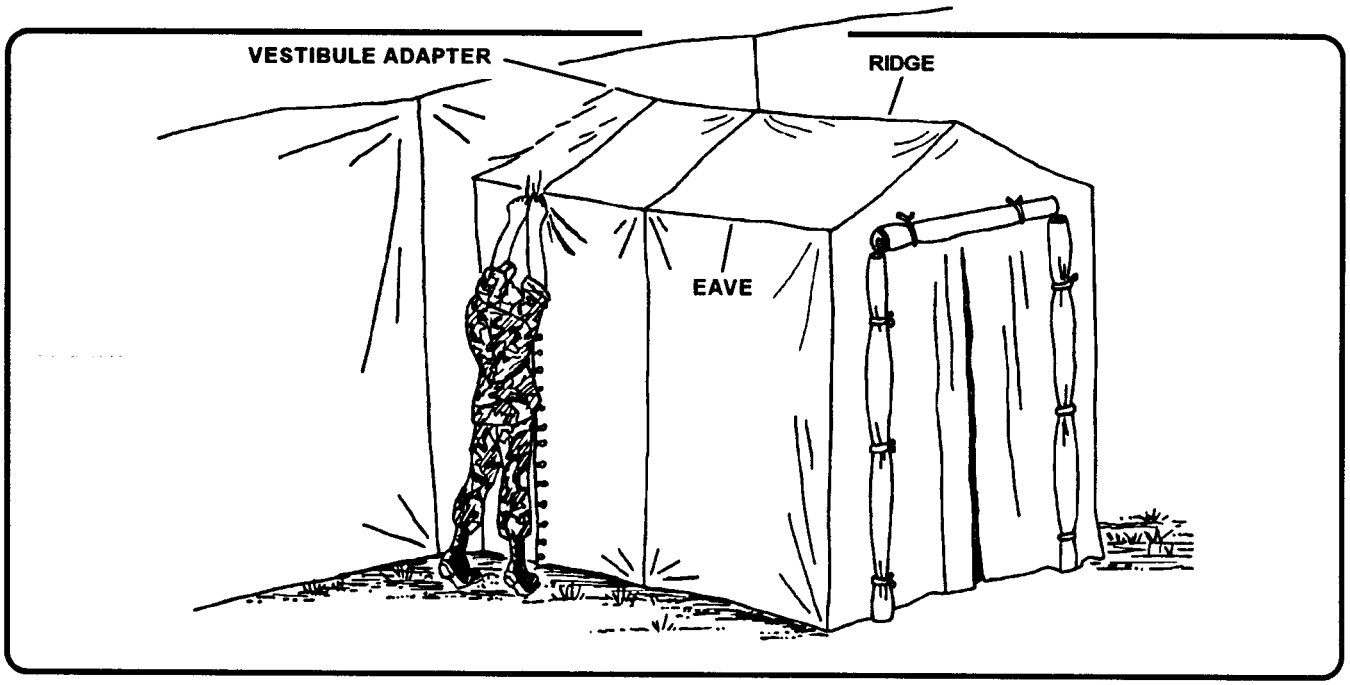


Figure 10-3. Vestibule section laced to the adapter

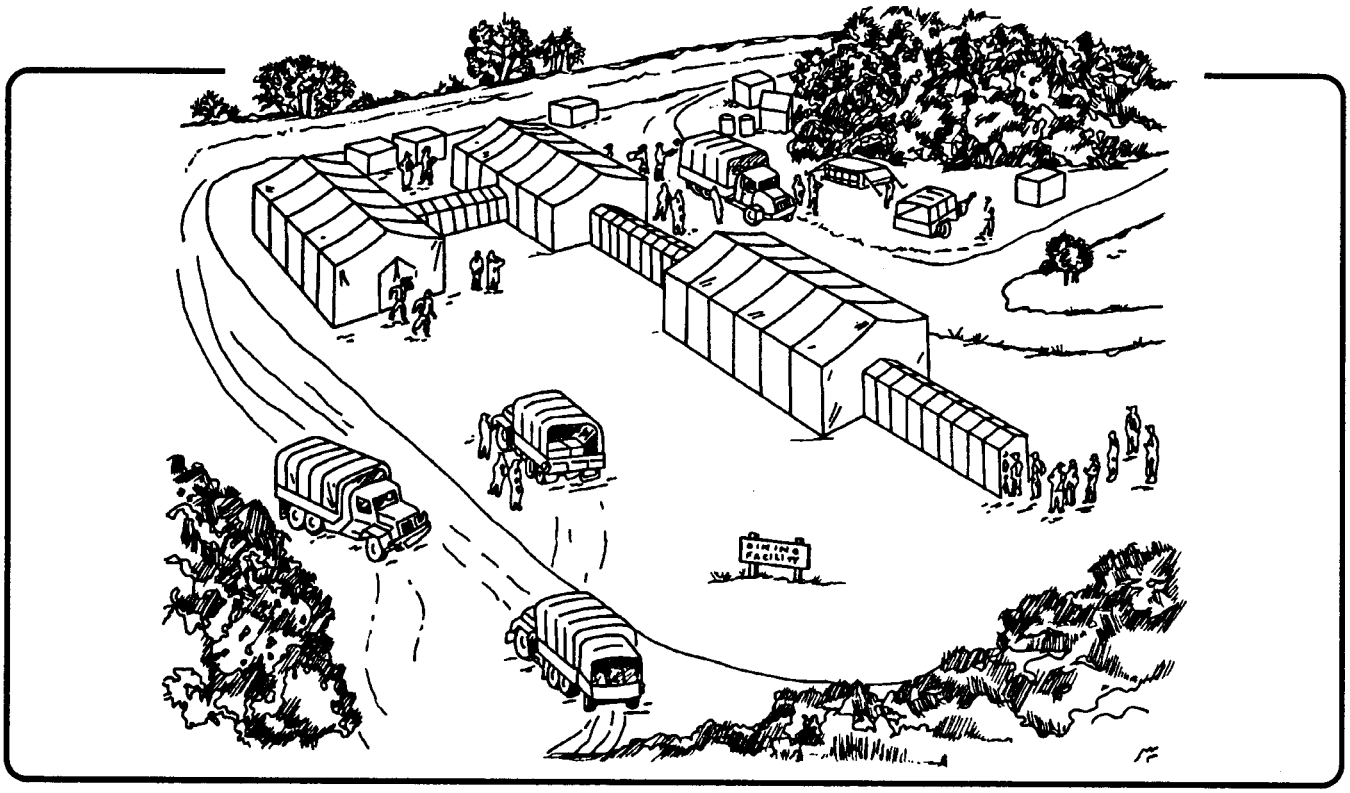


Figure 10-4. TEMPERs connected by vestibules

Table 10-1. Basic items of issue for the FKM

NOMENCLATURE	QUANTITY
Antiseize, compound	1
Bag, drinking water and storage	2
Base, rack assembly	2
Beverage dispenser, 5-gallon	17
Biscuit, cutter	1
Board, food slicing and chopping	2
Brush, wire	1
Burner, rack assembly	2
Burner unit, M2/M2A	6
Butcher's steel	1
Cabinet storage assembly	2
Can, friction, top	1
Can, gasoline, 5-gallon	5
Can opener, hand, tray pack and round cans	2
Can opener, table mounted	2
Can opener, tray pack	2
Can, water, plastic, 5-gallon	5
Cleaner, burner, slot	1
Colander, SS, 16-quart	1
Cover, full size	3
Cover, half size pans	6
Cover, stock pot	4
Dipper, no 56	2
Fire extinguisher	3
First aid kit	1
Fork, 15-inch	3
Fork, 21-inch	3
Generator, preheater	6
Griddle assembly (base, top 3 guard and grease chute and plug)	1
Hammer, hand, 16-ounce	1
Ice, pick	1
Knife, boning	2
Knife bread	1
Knife, cooks	2
Knife, paring	2
Knife, slicing	1
Ladle, 2 oz	2
Ladle, 8-ounce	2
Lantern, gasoline	3
Lifter, tray pack, serving	1
Lifter, tray pack, extracting	1
Lubricating oil, general	1
Meal carrier, insulated, remote squard (each with three inserts and three covers)	8
Measure, liquid, 2-quart	2
Measuring spoon set	2

Table 10-1. Basic items of issue for the FKM (continued)

NOMENCLATURE	QUANTITY
Nozzle, spout, can, gasoline	1
Oven assembly (oven, base, rack, four shelves, and two exhaust caps)	2
Pad, bakery	4
Pan, baking, rectangle	10
Pan, roasting and baking, bottom	5
Pan, roasting and baking, top	5
Pan, serving line, 4-inch full	3
Pan, serving line, 4-inch half size	6
Peeler, potato	2
Pin, rolling, wood, 23- by 3 3/4-inches	1
Plate, splash, pot	2
Pliers, slip joint	1
Pot cradle assembly (cradle, base, and rack)	2
Pot, stock, 10-gallon	2
Pot, stock, 15-gallon	2
Pump, inflating	1
Rack assembly, storage and drying	1
Roll, cutlery	1
Scraper, baker	1
Screwdriver, flat	1
Screwdriver, Phillips	1
Server, pie and cake	1
Sifter, flour, hand	1
Skimmer	2
Spatula	2
Spoon, serving, slotted, 15-inch	8
Spoon, food service, basting	4
Spoon, food service, 21-inch	4
Steam table assembly (base and three inserts)	1
Stone, sharpening	1
Tent, extendable, modular (16- by 20-foot) utility (see separate list for components)	1
Tentage repair kit (modified)	1
TM 10-7360-204-13&P (1)	1
TM 10-7360-208-13&P (1)	1
Tongs, food service, SS, 12-inch	3
Tool, chest	1
Trash barrel, plastic, 32-gallon with lid	2
Turner, food	3
Wrench, combination	1
Whip, wire	1
Worktable with shelf	2
Wrench, adjustable, crescent, 8-inch	1

Configurations

One of the best features of the AMFFS is its flexibility. The FKM and the SC can be set up separately with or without vestibules and vestibule doors, or they can be consolidated into varying configurations. For ease of operation, it is often desirable to attach the FKM and the SC by a vestibule.

Components

Major components of the FKM include grills, steam tables, ovens, tray-pack heaters, pot cradles, storage cabinets, and racks and work tables.

Griddle, oven, and pot cradle. The griddle (Figure 10-5), the oven (Figure 10-6), and the pot cradle assembly, with M2 burners, are provided for roasting, baking, grilling, boiling, and maintaining serving temperatures of hot foods.

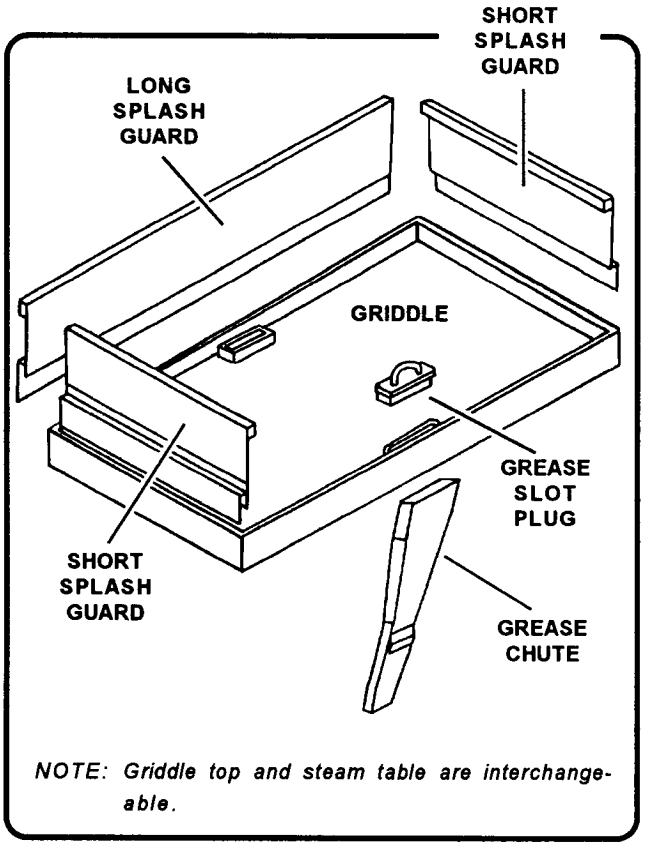


Figure 10-5. Griddle top assembly

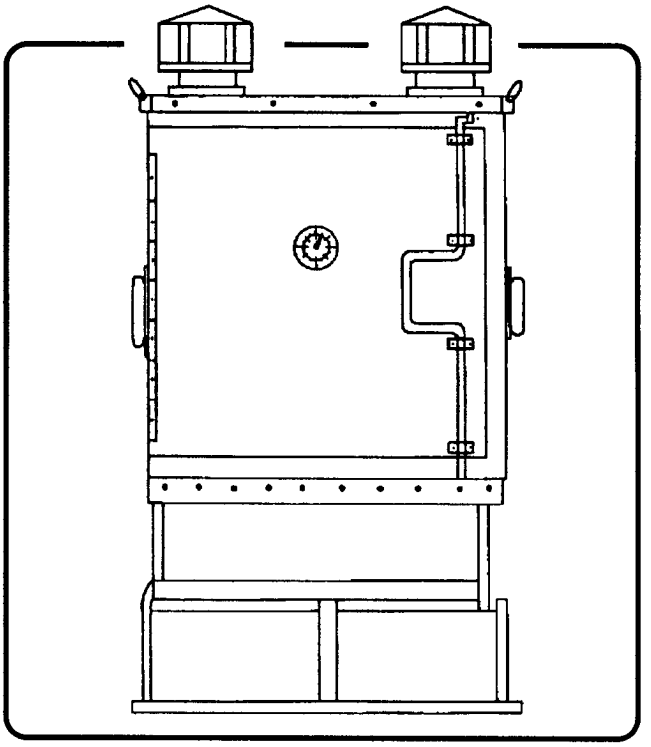
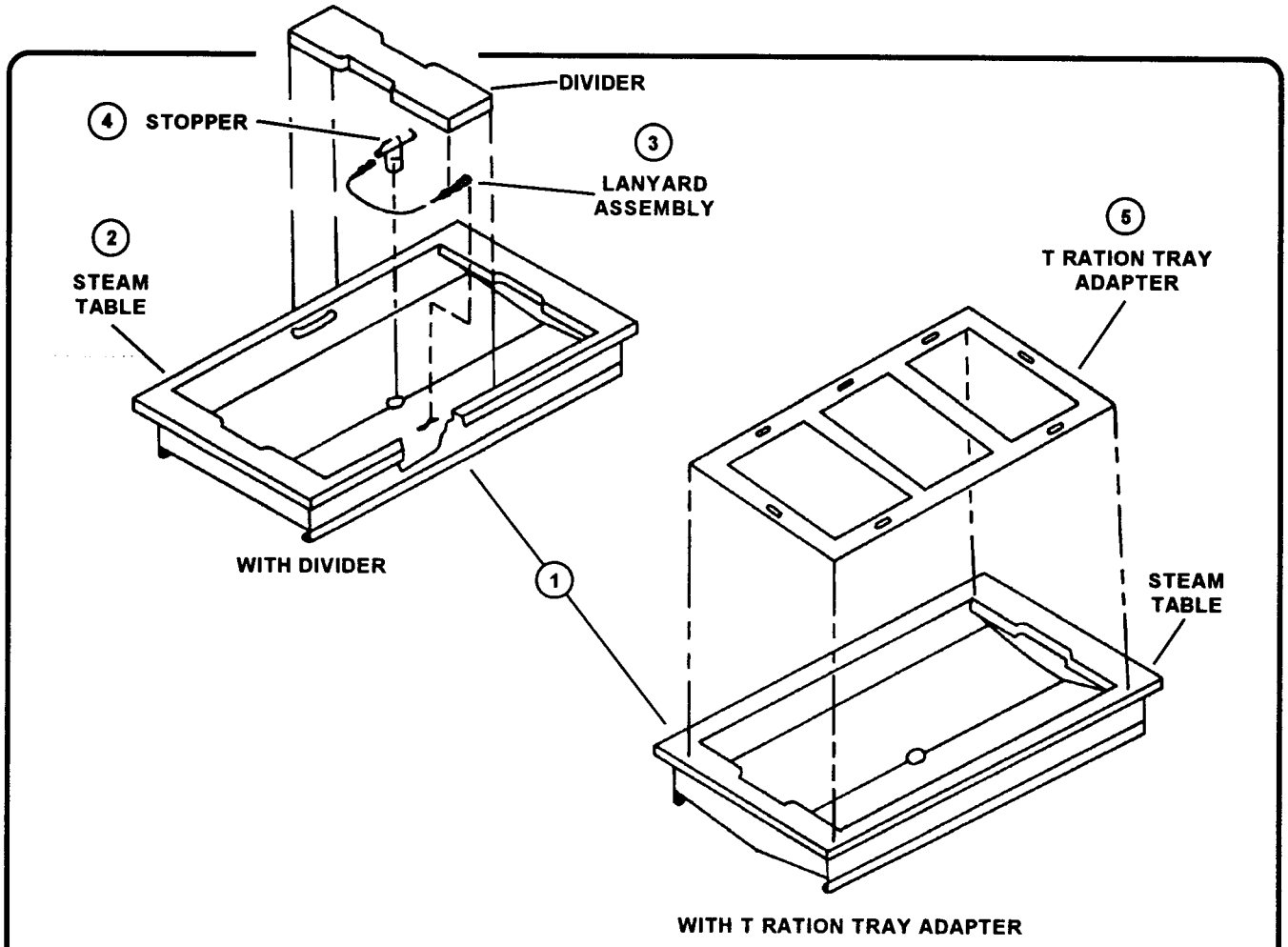


Figure 10-6. Oven assembly

Steam table. The steam table (Figure 10-7, page 10-6), with M2 burner, is used to keep hot foods hot on the serving line throughout the serving period.

Steam table adapters. The FKM comes with three adapters to aid serving procedures. There are one-hole, two-hole and four-hole adapters. They are used with baking and roasting pans, line pans, tray packs and plastic inserts for serving. When the one-hole adapter is used with two baking and roasting pans, the adapter is placed all the way to one end of the steam table. The two-hole adapter can be used with a baking and roasting pan and tray packs, plastic inserts, or line pans.

Worktables, serving tables, and storage racks. These tables are used for mixing, assembling, and chopping ingredients; serving line counter space; and cleaning pots and pans in the SC. The storage rack can also be used to transport and to store rations.



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UNSABLE CODE	U/M	QTY INC IN UNIT
C-6	1	PAFZZ		5-13-2827	81337	GROUP 010103 Steam Table Top Assembly; Knock-Down, Field	EA	1
C-6	2	MFOOZ		5-13-2829	81337	Steam Table	EA	1
C-6	3	XBFZZ		5-13-2830	81337	Lanyard Assembly	EA	1
C-6	4	XBFZZ		5-13-2828-10	81337	Stopper	EA	1
C-6	5	PAFZZ		SF-F-224	81337	Adapter, Tray Rack, Steam Table	EA	1

Figure 10-7. Steam table top assembly, knock-down, field

Food storage cabinets. These cabinets (Figure 10-8) are used mainly to store food and to maintain pastries and desserts.

Heater tank assembly. The heater tank assembly (Figure 10-9), filled with water and with the M2 burner in place, heats up to 24 tray packs.

Insulated food containers. These containers hold hot foods and maintain serving temperatures prior to serving.

Insulated beverage dispensers. These dispensers have a 5-gallon capacity and are designed to maintain beverages, hot or cold, as required, for both on-site and remote site feeding.

Additional kitchen components. These components consist of gasoline and water cans, preparation and serving utensils, and other minor equipment required for food preparation and serving.

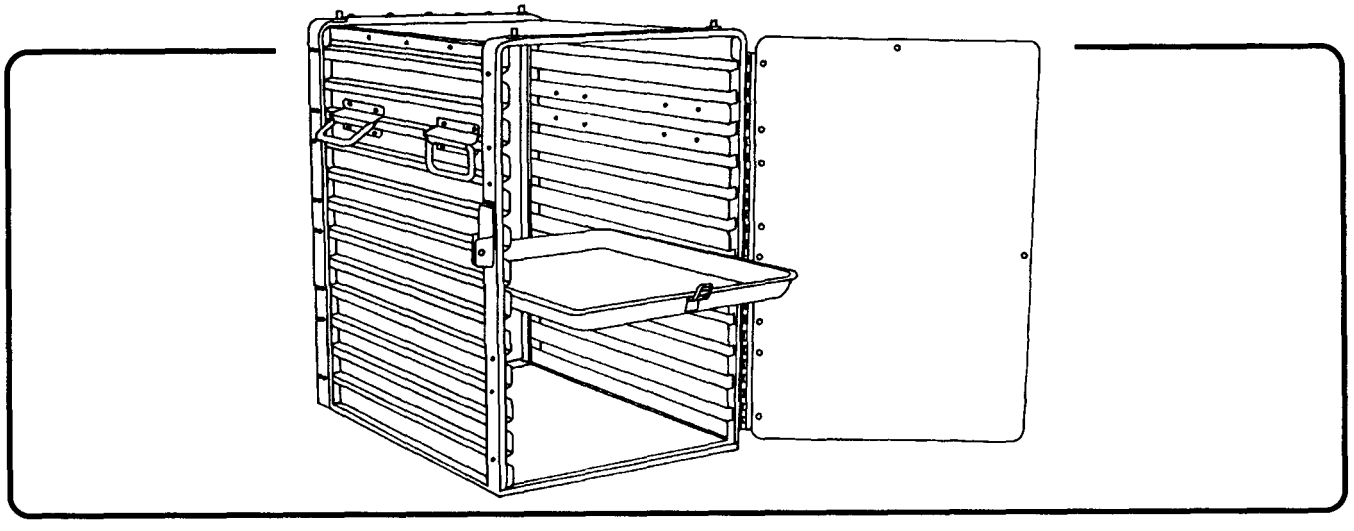


Figure 10-8. Food storage cabinet

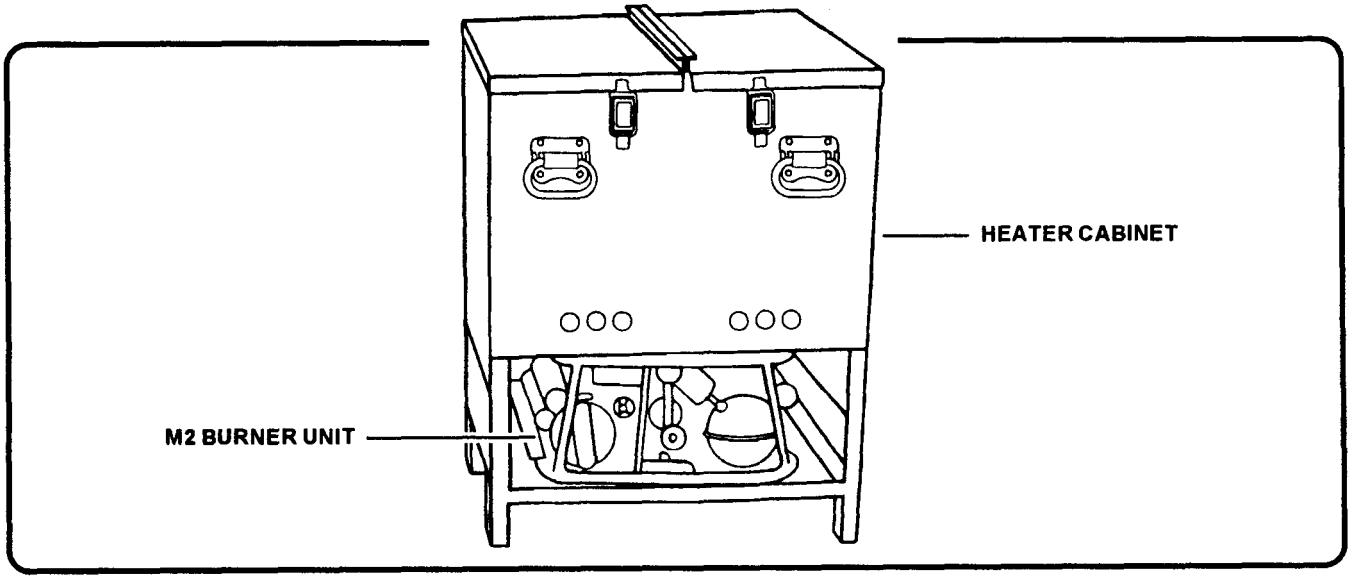


Figure 10-9. Heater tank assembly

TEMPER

The TEMPER is provided in three configurations for use in field hospitals. They are 16 feet by 20 feet, 32 feet by 20 feet, and 48 feet by 20 feet. The 32-foot by 20-foot and the 16-foot by 20-foot TEMPERs are used with the SC. The 48-foot by 20-foot TEMPER is used with the FKM. The fabric for one 8-foot section is provided with doorways on each side and screened roof vents with flaps. The fabric for the other section is provided with windows on each side and one stove pipe opening. The roof vents are designed to remove excess kitchen heat and/or fumes. For cold weather operations, the TEMPER is equipped with a cotton liner and, if needed, an additional insulated liner. The TEMPER has a tent fly to reduce solar heating in hot environments and to permit the roof vents to be opened in inclement weather. The TEMPER frames and fabric can be hooked together, in 8-foot sections, to form a shelter of any length.

Setting Up and Dismantling

The first step in setting up the FKM is to erect the 16-foot by 20-foot TEMPER. This tent consists of an outer fabric with attached ridge and eaves guy lines, foot stops, and sections of an aluminum frame assembly. The tent has four doors, one on each side for serving and one in the center. There are two large screened openings in the roof section with a movable outer cover. The sides and ends have large screened openings with foul-weather curtains and a see-through plastic covering for light.

Inspection, Installation, and Operation

Inspect, install and operate the TEMPER as discussed below.

Inspection. When you receive the shipping container, inspect it carefully for any damage that may have occurred during transport. Damaged shipping containers indicate damage may have occurred to the enclosed tent. Inspect the unpackaged tent compartments to ensure that all components are present. Report any missing components to the proper authority.

NOTE: *During installation, carefully inspect all components for holes, tears and cuts; broken or missing stitching; and mildew or evidence of abrasion or wear. Inspect attaching and connecting hardware for damaged or unserviceable items. Report damaged or unserviceable items to the proper authority.*

Installation. Certain procedures must be followed when setting up the TEMPER. Personnel requirements and site selection are briefly discussed below.

Site selection. Select the site for erecting the TEMPER according to the fictional requirements and convenience to other elements of the installation. If possible, select a site which is fairly level with good clearance. If drainage is questionable, dig drainage ditches around equipment for water to run out of the area. Clear the area of rocks, stumps, or debris that might damage the shelter fabric. Further guidance for site selection is provided in Chapter 5. Detailed instructions on setting up and striking the TEMPER are in TM 10-8340-224-13&P.

Personnel requirements. Under average field conditions, four to six soldiers can set up the TEMPER (two arches) and have it ready for use in about 30 minutes.

Operation. The two types of sections available are the door and window sections. These sections are also available in either a desert, tropical, or temperate version. All sections are in 8-foot lengths and use the becket lace method with 2-inch wide Velcro on the weather seal to ensure that the connections are weather tight and light sealed. They are designed to keep heavy winds from creating openings or gaps.

Sectionalized liner. Two types of sectionalized liners are the end section liners and the intermediate section liners. These liners are secured by tie tapes. They use Velcro fasteners to attach additional sections. The liners are alight color and can be laundered in standard field laundry equipment.

Sectionalized fly. The size of the fly sections are compatible to the roof surface area. The fly sections are connected by the same method as the tent sections.

Fabric partition. The partition allows the interior tent area to be divided into functional areas. The partition includes a doorway (flap opening) and provisions for being secured to the floor.

Transition section (vestibule). This section provides a protective passageway from one tent to another while also providing for blackout protection.

Operation in Extreme Cold

Erect the tent, hang the arctic liner, and install the tent liner. Ensure that all windows, doors, and weather seals are properly installed. Place heaters along the base of the TEMPER using duct work. If you are using a large number of sections, alternate the heat ducts. The Army's 120,000 BTU space heaters work well in subzero temperatures. Place a ground cloth on the ground and then erect the tent. Pack snow around the base of the tent to prevent cold air from leaking into crevices. Becketing hooks help when untying frozen laces in cold weather or when wearing insulated gloves. Be sure to provide some way for the gases from the M2 burners to escape when using the cold weather kit with the TEMPER. For example, make an opening at the top of the tent through places where the liner meets. Open the tent vent at that point as well.

NOTE: *Carbon monoxide danger is greatest when winds are calm or still. It is reduced when winds are moving. Ensure that food service personnel rotate kitchen and outside duties and follow all safety precautions in TM 10-7360-204-13&P.*

Maintenance

To erect the TEMPER properly, certain maintenance procedures must be followed. These procedures are discussed below.

Tools and equipment. *No* special tools or equipment are required by operator or crew personnel for maintaining the TEMPER. However, in arctic regions, the becketing hook is essential, especially in untying frozen laces. A pin puller is also essential when tent pins are frozen in the ground. Both items can be manufactured locally. See Figure 10-10. A 2 ½-pound sledge hammer is also useful in arctic regions.

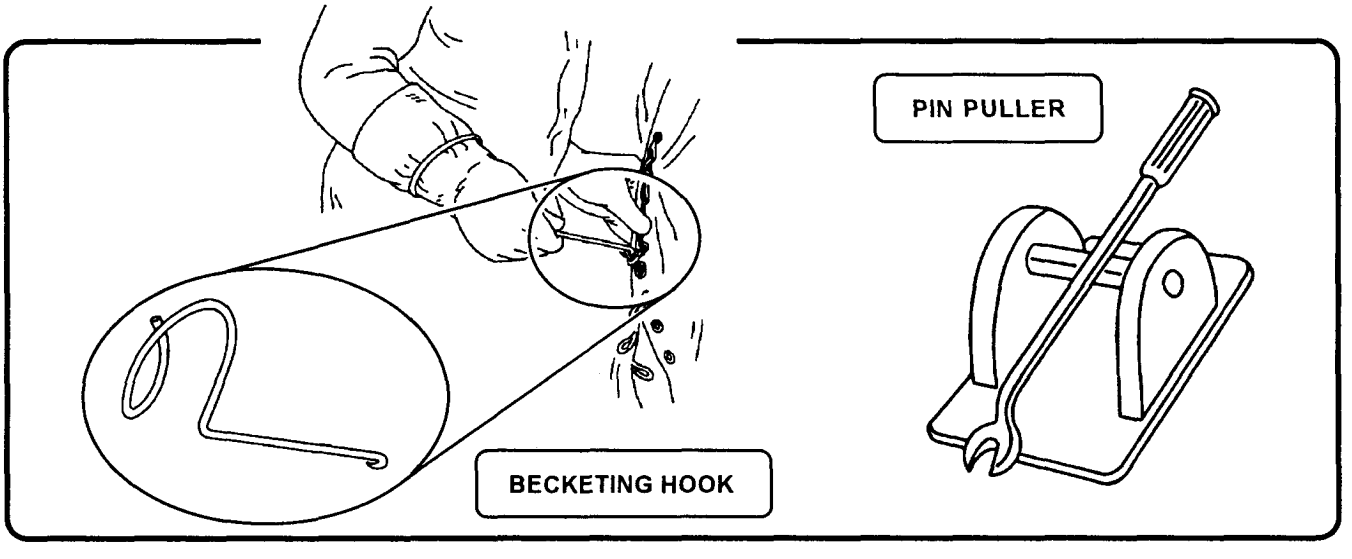


Figure 10-10. Becketing hook and pin puller

Inspection. To ensure that the TEMPER is ready for use at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. Defects discovered while the shelter is being used will be noted for correction as soon as its use is discontinued. Stop use immediately if a deficiency is noted which would damage the shelter with continued use. Record deficiencies and shortcomings together with the corrective action taken on DA Form 2404 as soon as possible.

SANITATION CENTER

The SC consists of equipment required to clean and sanitize the food service equipment, patient and staff eating utensils and trays. One SC will be issued to each FKM and MKT (in the MASH). The SC and SC set-up procedures are in Chapter 9 and the operation instructions are in Chapter 12.

FOOD CONTAINER, INSULATED, HOSPITAL WARD

The FCIHW is a lightweight litter-borne food transport system (on a wheeled gurney or is two-person portable) used to protect food, maintain temperatures, and transport and serve complete regular and/or modified solid and liquid meals prepared from A-, B-, medical B-, and/or T-Rations. It is used in field medical units required to provide food service to patients unable to go to a central feeding and dining area.

Function

The basic unit (Figure 10-11) consists of two, four-sectioned wall units, two accessory boxes, and a beverage and utility unit. It can transport 20 complete regular and five special diet meals. A supplemental litter-borne carrier will be used to transport liquid diet components separately, as required, using nine additional 1.5- to 2-gallon beverage containers. Required trays, flatware, and glasses are prepositioned on each ward. A ward serving line is set up by supporting FCIHW transporters on litter stands or wheeled gurneys. After the meal service, the FCIHW will be loaded with soiled utensils, dinnerware and meal refuse. It is returned to the sanitation center for cleaning and sanitizing.

Transport

The capacity of each transport unit, coupled with the ward census, may permit service of multiple wards from one transporter. FCIHW units will be mounted on a standard North Atlantic Treaty Organization (NATO) litter for movement to ward locations. The basic unit (with or without the use of a wheeled gurney) will be transported to ward locations by two unit personnel. A four-person litter team or a wheeled gurney may be required to transport the supplemental carrier or rack when it is fully loaded with liquid components.

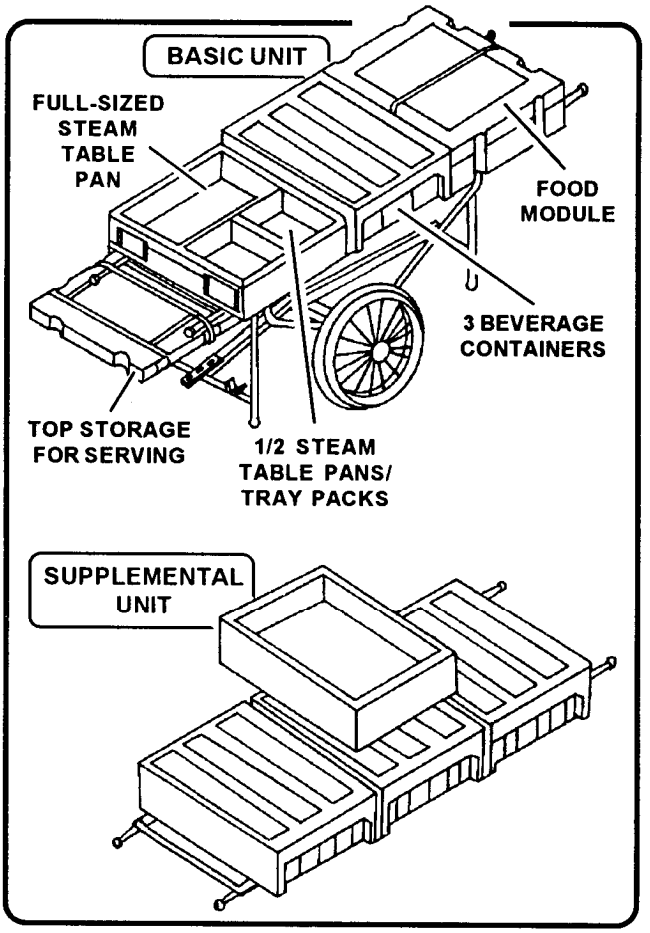


Figure 10-11. Food container, insulated, hospital ward (FCIHW)

PART FOUR
SAFETY AND SANITATION

CHAPTER 11
SAFETY

PROMOTING SAFETY AWARENESS

Safety in field operations (as elsewhere) may be called common sense in action. Class I and food service personnel can prevent many accidents by using common sense as they work. Managers should provide safety guidelines through daily meetings and SOPs. Guidelines should be developed to stop unsafe acts and working conditions and careless use of equipment. Soldiers must be taught how to recognize unsafe equipment and how to fix or replace it. More guidance on safety is included throughout this manual and in AR 385-10, AR 385-40, and FM 21-11.

HANDLING RATIONS AND SUPPLIES

Rations come in different size, type, and weight containers. Teach personnel the right way to lift heavy items. Important considerations for lifting and handling heavy items are-

- Get a firm grip on the container, not on the metal bands or strapping.
- Get a firm footing, keeping your body weight even.
- Bend your knees, keeping your back straight and the load close to your body.
- Use your thighs and shoulder muscles to lift the load.
- Walk normally, making sure that you can see where you are going. Make sure that things that can trip you are out of the way.
- Keep the load close to your body and ease it to its resting place.
- Do not attempt to carry a lit M2 Burner by yourself.
- Stack rations correctly. Put heavy boxes on the bottom.
- Wear work gloves when you open wooden cases. Remove all protruding nails and dispose of the empty cases promptly.

OPENING TRAY PACKS

Be very careful when you open tray packs, especially when using hand-held can openers. Since hand-held can openers leave very sharp edges on the pans you can be seriously cut when opening a tray pack. Use mounted T-Ration openers when possible. Discard hand-held openers after several uses; they dull very quickly. Do not use knives or other sharp implements to open corners that the fully modified can opener misses. A P38 opener is included in each module for use when the hand-held can opener is not available. Also, be sure to tilt heated, swollen cans slightly to the right or left when you open them so that the juices that squirt from the pan do not burn you.

COOKING AND SERVING FOOD

Food service personnel must always be alert when they cook or serve food. Burns, collisions, and falls are common accidents in field kitchens. If food service personnel are in a hurry while cooking and

serving food, accidents are more likely to occur. Training can curtail unsafe acts, unsafe working conditions, and careless use of equipment. Below are some precautions against burns, injuries from handling knives, collisions, and falls.

Burns

Most food service equipment used in the field is fueled with gasoline. Figure 11-1 lists some precautions that must be constantly monitored and enforced to prevent burns.

WARNING

Gasoline is used in the operation of field kitchen equipment. Death or severe burns may result if you do not observe all safety precautions.

Handling Knives

Many food service accidents are caused the mishandling of knives by food service personnel. Figure 11-2, page 11-3, list some safety precautions for the safe handling of knives in the kitchen.

Collisions and Falls

Food service personnel who hurry when they serve food may bump into someone and spill hot food on themselves and others. Also, they may spill food. Sometimes little spills are not seen until someone slips and falls. The following hints will help food service personnel to avoid collisions and falls:

- Do not run or hurry when carrying hot food.
- Clean up spills immediately.
- Keep footgear in good condition.
- Warn others when you are passing through with hot food.
- Keep field range doors closed.
- Always watch where you step.
- Keep aisles and walkways clear.

- Train all personnel in fire prevention, suppression and emergency evacuation procedures.
- Never let untrained personnel use fuel-fired equipment. Ensure all personnel are trained or certified to operate the M2 burners, M59 field ranges, immersion heaters, generators and other equipment as the commander directs.
- Ensure that M2 burners are never placed on wooden floors.
- Keep an operable fire extinguisher in all required areas (gasoline storage, lighting/ preheating, kitchen, sanitation, mess kit laundry).
- Do not smoke within 50 feet of the gasoline storage area.
- Clean up spilled fuel promptly. Vapors from spilled fuel can catch fire or explode if they come in contact with a flame or heat from a hot burner. Fuel is also a contaminant to the wholesomeness of food products.
- Operate burners and ranges according to the operator's manual instructions.
- Use hot pads when handling hot items.
- Do not crowd the cooking area.
- Turn the handles of pots and pans pointing to the back or side of the range.
- Know where you will put a hot pot before you pick it up.
- Be careful not to spill grease on or around open flames.

Figure 11-1. Safety precautions to prevent burns

- Keep knives sharp.
- Use the right knife for the job.
- Cut away from your body.
- Keep knives in racks when they are not being used or cleaned.
- Do not palm vegetables and fruits when you cut through them.
- Do not leave a knife or other sharp-edged tool lying on a worktable. It might get covered with vegetables or other foods and be a hazard to the person cleaning the table.
- Do not try to catch a falling knife. Always step back and let it fall.
- Do not leave knives laying around to be washed later. As soon as you are through using a knife, clean it and put it away.
- Do not soak knives. Remove them from the water immediately.
- Do not carry knives when your hands are full.
- Do not use knives to open cans.
- Never run while holding a knife.
- Wash knives separately from other utensils.

Figure 11-2. Safety precautions for using knives

CLASS I HANDLING

Accidents cost money through the loss of man-hours and damage or destruction of food and equipment. The resulting loss of personnel, subsistence and equipment could prevent Class I supplies from being issued to supported units in a timely manner. Detailed information on safety is in DOD Regulation 4145.19-R-1. Figure 11-3, page 11-4, gives some general rules that should be included in the Class I safety program.

PROVIDING TRAINING

Commanders establish procedures to identify all personnel performing safety or OSHA tasks in their jobs and ensure that their job descriptions clearly show these responsibilities. All supervisory and nonsupervisory personnel need safety training as discussed below.

Supervisory

Supervisory personnel should be trained to recognize and eliminate hazards and to develop other required skills to implement the Army's safety program at the working level.

Nonsupervisory

Nonsupervisory personnel should receive specialized job, safety and health training. This training should include OSHA criteria and the hazards associated with any materials or operations in the workplace.

WORK SCHEDULES

Supervisors should monitor work schedules to ensure food service and Class I personnel receive proper rest and sleep periods. Research indicates accident rates and severity of accidents both increase when personnel are tired.

HANDING AND LIFTING

- Wear gloves when handling crates or sharp or rough materials.
- Wear combat boots or safety shoes at all times.
- Wear helmets or hard hats in areas where Class I supplies are being lifted or hoisted.
- When possible, use MHE to move heavy supplies.
- When supplies are lifted by hand, use proper lifting techniques to prevent back injuries.

LOADING AND UNLOADING

- Position bridge plates and mobile ramps correctly and do not exceed load capacities.
- Chock rear wheels of trucks and trailers and use safety jacks when trailers are disconnected from their tractors.
- Check the truck flooring for breaks and weakness before loading and unloading.
- Remove loose straps and protruding nails from containers before unloading.
- Never block aisles, doorways, and windows.

USING TOOLS AND MHE

- Use the right tool for each job. Use nail pullers for opening boxes, use strap or wire cutters for cutting straps or wire, and use hammers for driving nails.
- Ensure that only properly trained personnel use tools and equipment.
- Follow safety precautions especially when using power tools.
- Follow MHE safety precautions at all times.
- Use only MHE with the rated load capacity for the supplies being moved.
- Maintain and service MHE per the organizational and operator's maintenance manuals.
- Refuel MHE only in designated areas and only with the engine off.
- Park MHE only in an approved area.
- Use only electric-powered MHE inside a warehouse.

USING STORAGE AREAS

- Always have and maintain adequate lighting.
- Clean up spills immediately.
- In fixed facilities, use yellow 3-inch stripes to mark railings and stair risers. Use yellow and black 3-inch stripes to mark pit and platform edges and obstructions.
- Use corner markers painted with yellow and black 3-inch stripes to prevent MHE from cutting corners too closely.

Figure 11-3. General rules for Class I safety program

USING STORAGE AREAS (CONTINUED)

- Install door latches or locking devices on freezer rooms to permit the door to be opened from the inside. Also, install bells which can be activated inside freezer areas. These should be checked at least weekly to ensure they are operable. Mount an axe marked with reflecting paint in each freezer room. Also, emergency lighting should be mounted above exits.
- Do not park gas-powered refrigeration units on asphalt surfaces. Gas degrades asphalt surfaces, causing the unit to tilt.

PALLETIZING SUBSISTENCE

- Use only containers, pallets and dunnage that are in good condition.
- Stack pallet loads with a 4-inch clearance on all sides. The clearance between stacks will permit air circulation.
- Limit the height of the stacks based on floor load limits and the sturdiness of the containers. A minimum of a 2-foot clearance will be maintained between the top of the stack and a unobstructed ceiling. When pallets do not exceed 15 feet high and a sprinkler system or light/heating fixtures are present, maintain an 18 inch safety clearance below the sprinkler/fixtures. If pallet heights exceed 15 feet, maintain a 36 inch safety clearance below sprinklers/fixtures.
- When a space must be left on the pallet due to the configuration of the load, load the pallets with a four-point level top. Leave spaces only in the center. Place partially loaded pallets on the top of a stack or place the supplies on a rack.

PREVENTING FIRES

- For interior storage, post **NO SMOKING** signs in areas where smoking is not permitted.
- Keep combustibles away from heat sources.
- Collect trash daily and place it in proper refuse containers.
- Clearly mark fire aisles and exits and ensure that they are not blocked.
- Ensure that portable fire extinguishers are readily available and in good working order. Assign an operator to each extinguisher for use in case of fire and to inspect it at least once monthly.

Figure 11-3. General rules for Class I safety program (continued)

CHAPTER 12
FIELD KITCHEN SANITATION

RESPONSIBILITIES AND STANDARDS

The FOS must ensure that established sanitation standards are followed in the areas of personal hygiene, cleaning, and maintaining equipment, dishwashing, waste disposal, and inspecting, storing, and handling food. Storage considerations, insect and rodent control, water supply purity, and sanitation in other areas of field operations are in FM 21-10 and FM 21-10-1. The unit's field sanitation team advises on sanitation standards and helps ensure that these standards are maintained. Class I storage and sanitation standards are detailed in Chapter 6 of this manual. A food service sanitation video titled *Food Service Sanitation* is available from TASC (catalog number TVT 10-110). Part I is garrison operations and Part II covers field operations. Commanders should ensure that the FOS has access to the shower and laundry facilities for all the food service personnel. The field standard is one shower per week, and in hot arid climates, two per week. Food service personnel should, however, maintain high personal standards of hygiene at all times to prevent a foodborne illness impact. Clean uniforms should be worn at all times.

PERSONAL HYGIENE

The safety of food depends largely on the health and hygiene of the people who handle it. Everyone who works in the field kitchen should maintain high standards of personal hygiene. The standards discussed below must be enforced.

Food Handlers Certificates

Local medical authority may require food handler certificates for food service workers. Remember, it is possible to have a health examination one day and to be sick the next day.

Inspection

The FOS or shift leader must inspect all food handlers each day as they report for work. Send personnel who exhibit signs of illness to the medical unit for an examination. Personnel are responsible for reporting any symptoms of infection or disease before they begin work or at the time a problem develops. The FOS's inspection should include:

- Infected cuts, sores, bums, boils, rashes, or other skin or wound infections.
- Unclean hands and fingernails. Fingernails should be trimmed with no nail polish.
- Diarrhea (known or suspected). Ask workers.
- Signs of respiratory illness (coughing, sneezing)
- Excessive jewelry. Plain wedding band or medical alert device only.
- Unclean or improperly maintained clothing.

Hygiene Standards for Food Service Operations

Food handlers can transmit germs in many ways. They can pick up germs by picking their nose, scratching, using the latrine, eating, and smoking. Individuals responsible for handling or preparing food should practice the procedures shown in Figure 12-1, page 12-2, to assure proper sanitation and personal hygiene.

- Hands and arms should be washed thoroughly and often with soap and water. At a minimum, hands must be washed-
  - Before beginning duty.
  - After using toilet facilities.
  - After servicing burner units or handling gasoline cans.
  - After handling soiled or contaminated equipment or utensils.
  - After smoking.
  - Before preparing food.
  - After preparing one food item, but before preparing another.
  - After performing custodial duties, including handling garbage or other refuse.
  - After moving or unloading rations.
- Wear clean garments and maintain personal cleanliness.
- Wear required headgear properly to keep hair away from foods and food contact surfaces.
- Strictly prohibit the use of tobacco by personnel preparing or serving food, or while engaged in any activity in food preparation areas.
- Do not clean latrines, work with garbage cans, drains, grease traps, or perform other KP duties during periods of food preparation.
- Do not permit unauthorized personnel in food preparation, storage, or sanitation support areas.
- Avoid unnecessary hand contact with food. Handle food with clean utensils, such as tongs, scoops, spoons, or forks.

Figure 12-1. Proper sanitation procedures

Field Handwashing Facilities

Locate handwashing devices at appropriate places such as the bivouac area, outside the latrines, near the kitchen and dining area, and at other locations as needed.

WATER TREATMENT

Water for drinking and cooking should come only from approved sources. In an emergency, water for washing food, heating insulated food containers, and dishwashing can be obtained from unapproved sources if suitable disinfectants are used. TB MED 577, Chapter 3, paragraph 3-2b(1) states: "Emergency Situation. No standards apply when personnel are cut off from supply lines and treated water is not available from Quartermaster supplies. Each individual should select the clearest, cleanest water with the least odor, and then treat the water using individual water purification procedures. Such procedures are limited to disinfection using iodine tablets, chlorine ampules, boiling (FM 21-10 Chapter 2, Section IV) ." This paragraph is directed toward the individual soldier, not collective unit operations. Food service operations need fuel, rations, and water, all from approved sources. Disinfect water before using it for preparing food, drinking, or dishwashing. If the water is in a man-made container, such as a tank or pipe, first test it for previous disinfection. Use MREs or other operational rations when potable water is not available to minimize the potential for water and foodborne illness.

Testing for Chlorine

To test for chlorine, use the chlorination kit (NSN 6850-00-270-6225) recommended by AR 40-5 and authorized by CTA 50-970. Figure 12-2, page 12-3, shows the steps to take for testing chlorine in water.

Disinfecting Water in 5-Gallon Cans

A 5-gallon can of water can be disinfected using chlorine ampules. Follow the procedures in Figure 12-3, page 12-3, to make enough solution for two 5-gallon cans and disinfect the water can.

1. Determine the desired chlorine residual in parts per million as determined by the medical authority.
2. Test at the point of consumption for required chlorine residual.
3. Flush the spigots and rinse the color comparator with the sample water.
4. Fill comparator and add one crushed DPD comparator tablet.
5. Cover the comparator top and rotate back and forth (do not shake) allowing the tablet to dissolve. If chlorine is present, the sample water will change to a shade of pink.
6. Hold the comparator to the light, compare color chart on the right to the water color on the left, and read chlorine residual in parts per million where the colors match.
7. If residual meets medical authority standard, the water is fit for consumption or other use.
8. If residual is lower than the medical authority standard, re-chlorinate using calcium hypochlorite ampules, bulk calcium hypochlorite, or liquid bleach as appropriate for amount of water being treated and availability of products.
9. After treatment, wait 10 minutes and recheck for chlorine residual. If it meets requirements, wait an additional 20 minutes before using water.

Figure 12-2. Steps to test for chlorine

1. Test water for the desired chlorine residual in parts per million.
2. If you need to raise the chlorine residual in accordance with medical authority standards, break the chlorine ampule into the canteen cup. Hold the ampule in both hands with the etch mark pointing toward the canteen cup and your thumbs behind the etch mark. Then push the ampule with your thumbs.
3. Add water to the cup until it is about half full and stir until the ampule dissolves.
4. Pour half of the solution into each of two 5-gallon cans. Add water to the cans, close the tops, and shake the cans several times.
5. After 10 minutes test for chlorine residual parts per million. If it meets medical authority standards, then wait an additional 20 minutes before drinking the water.
6. If Chlorine residuals are not met, prepare a second chlorine solution. Add one quarter canteen cupful of solution to each can. Wait 10 minutes. Read the chlorine residual. If the required residual is not met, add the remaining chlorine solution. If the chlorine residual is still inadequate after this second disinfectant cycle, contact preventive medicine before continuing or using the water.

Figure 12-3. Steps for disinfecting water in 5-gallon cans

Disinfecting Water in 400-Gallon Water Trailers

Water in 400-gallon water trailers can be disinfected by using calcium hypochlorite. Follow the procedures shown in Figure 12-4.

Disinfecting Water by Boiling

Disinfect water temporarily by boiling it in any suitable container. Bring the water to a rolling boil. Boil water for 15 minutes to ensure disinfection. Remember, boiling does not leave any residual disinfecting power. Store the water in a clean, covered container, and use it as soon as possible.

FOOD UTENSILS AND POT AND PAN WASH LINE

In field kitchens not equipped with a SC, all dishwashing is done with a pot and pan wash line. A mess kit laundry is only used when mess kits are used in place of paper products. It consists of three 32-gallon corrugated steel cans with immersion heaters. A fourth can is used as a waste receptacle. Mess kit laundry lines are established as shown on page 12-8.

RATIONS TRANSPORT

Use soap and water to clean trucks used to carry rations and ice. Do not put rations on the truck bed. Put ice and perishables in an ice chest; ensure that all other items are on dunnage. Cover the top, sides, and back of the trucks to keep out dirt. Protect rations from dirt and weather before, during, and after unloading.

TRASH MANAGEMENT

FM 21-10 outlines procedures for waste disposal. They apply to operations under the AFFS. Commanders will determine, based on the scenario and federal, state, local, or host-nation laws, whether to burn, bury, backhaul, or use dumpsters to dispose of waste from field kitchens. Inform all personnel of the policy on garbage disposal in an area of operations. Waste must be removed from the kitchen area at least daily. Accumulated waste will attract rodents and insects. Proper disposal of kitchen waste is also essential in limiting the battlefield signature your unit leaves the enemy. Dispose of liquid and solid wastes as discussed below.

Liquid Waste

Dispose of liquid waste in a soakage pit or trench that is equipped with a grease trap that strains out solid matter and grease. The soil absorbs the liquid waste. Figure 12-5, page 12-5, shows how to build a grease trap and soakage pit. Two pits are needed so that each pit can rest every other day. In porous soil, a soakage pit 4 feet (1.2 meters) square and 4 feet (1.2 meters) deep will take care of 200 gallons (760 liters) of liquid per day. If the ground water level is close to the surface or if there is rock or clay near the surface, have a soakage trench dug. Figure 12-6, page 12-5, shows how to build a soakage trench with a grease trap. Due to environmental concerns, liquid or solid grease may require separate disposal.

1. Test for the desired chlorine residual in parts per million.
2. If you need to raise the chlorine residual level in accordance with medical authority standards, then add three MRE spoonfuls (or 22 ampules) of calcium hypochlorite to a 1/2 canteen cup of water. Stir for about one minute or until water and calcium hypochlorite mix to a milky solution.
3. Put the solution in the water trailer. If the trailer is full before you add the chlorine solution, mix the solution by either stirring it with a clean pole or by towing the trailer for 10 minutes.
4. Test the water again to make sure it has enough chlorine.
5. Wait an additional 20 minutes before drinking the water

Figure 12-4. Steps for disinfecting water in 400-gallon water trailers

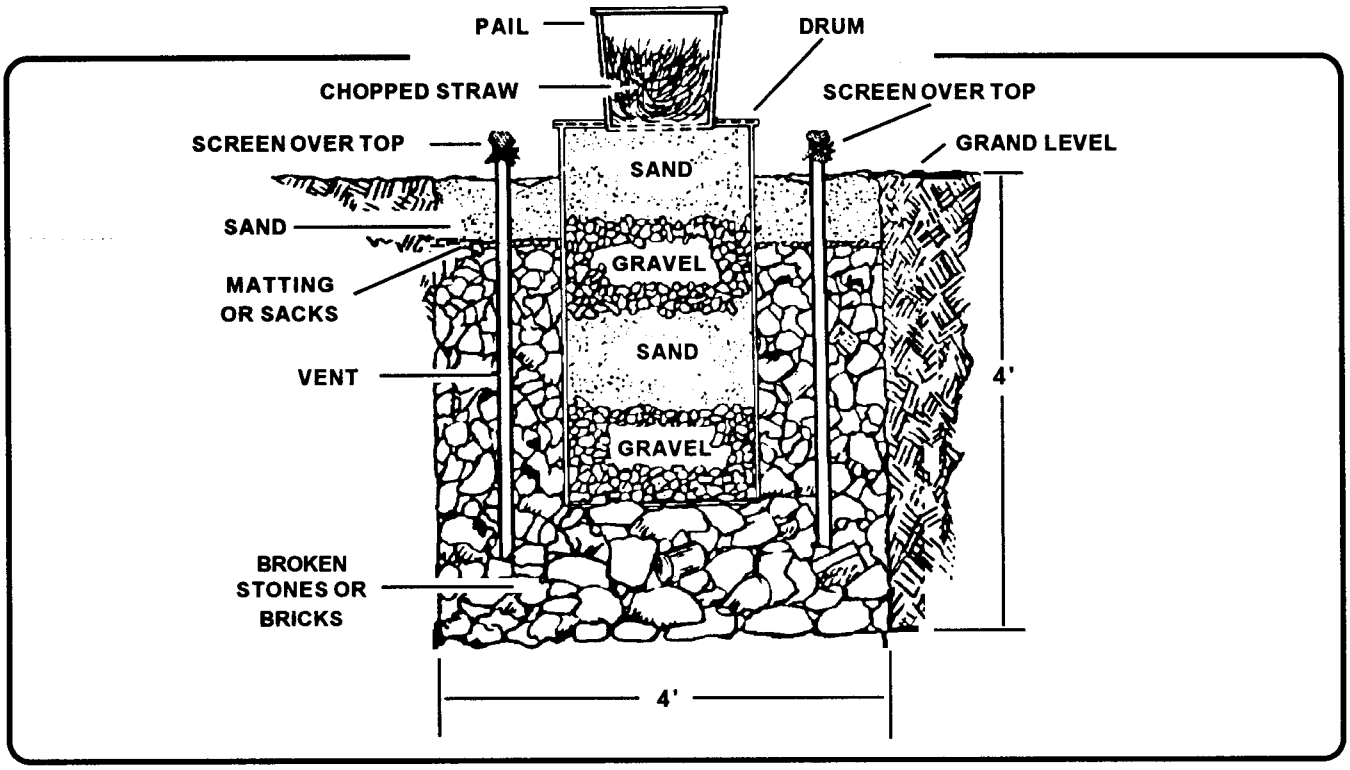


Figure 12-5. A grease trap and soakage pit

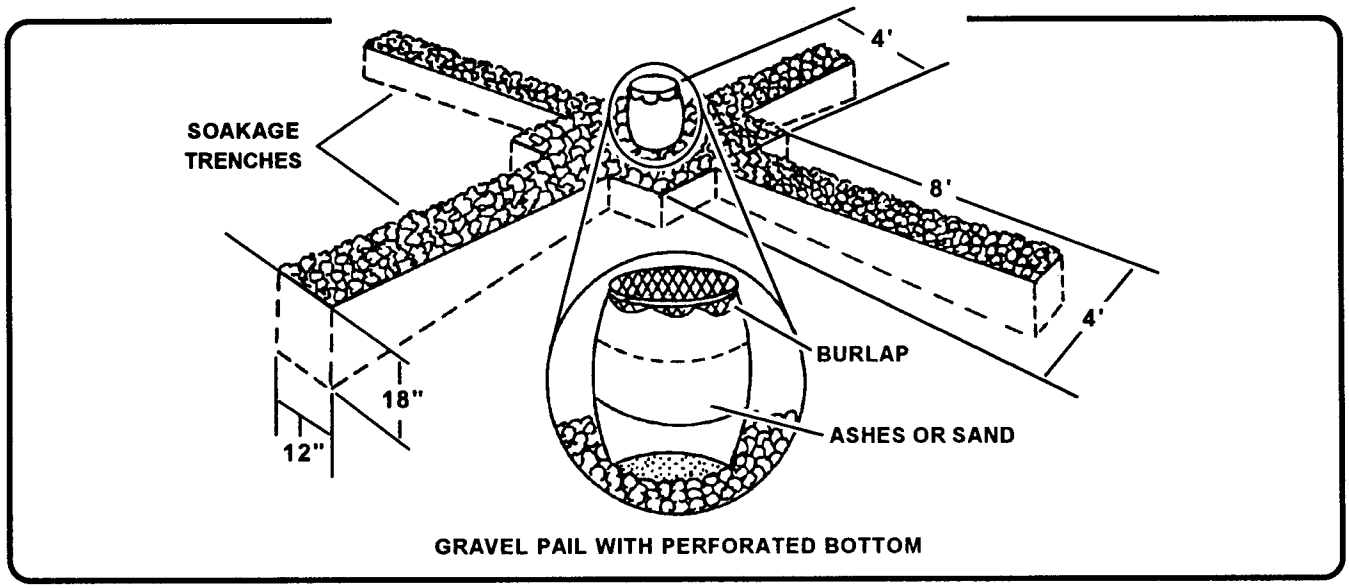


Figure 12-6. A soakage trench and grease trap

Solid Waste

Bury, burn, or backhaul solid waste. These procedures are described below.

Burying. During peacetime, most state laws prohibit burying trash. However, during wartime, if the unit will be at a site for less than one week, bury solid waste in pits or trenches. These pits or trenches must be at least 27 meters (90 feet) from the dining area and at least 27 meters away from any water source used for cooking or drinking. Use the garbage pit if the unit will beat the site for only one day. If the unit will be at the site for two days to a week, use a garbage trench. Be sure cans are flattened and boxes are broken up before they are dumped. T-Ration cans should be nested one inside the other.

Burning. During peacetime, most state laws prohibit burning of trash. During wartime, if the unit is going to be at the site for more than one week, burn solid waste in an open incinerator. Use an inclined incinerator or a cross-trench incinerator. Incinerators will not burn wet garbage, so the liquid waste must be separated from the solid waste. This must be done by straining the garbage with a coarse strainer, such as an oil bucket, a can, or a 55-gallon drum with holes in the bottom. Pour the liquid through a grease trap into a soakage pit or trench. Burn the solids that are left. Garbage that will not bum must be buried or hauled to a disposal site. Field incinerators must be at least 45 meters (150 feet) from the kitchen and dining areas so that the odor will not bother the cooks and the diners. Figure 12-7 shows how to build inclined and cross-trench incinerators.

NOTE: *Incinerators make smoke. Do not use an incinerator if it will possibly disclose your location to the enemy.*

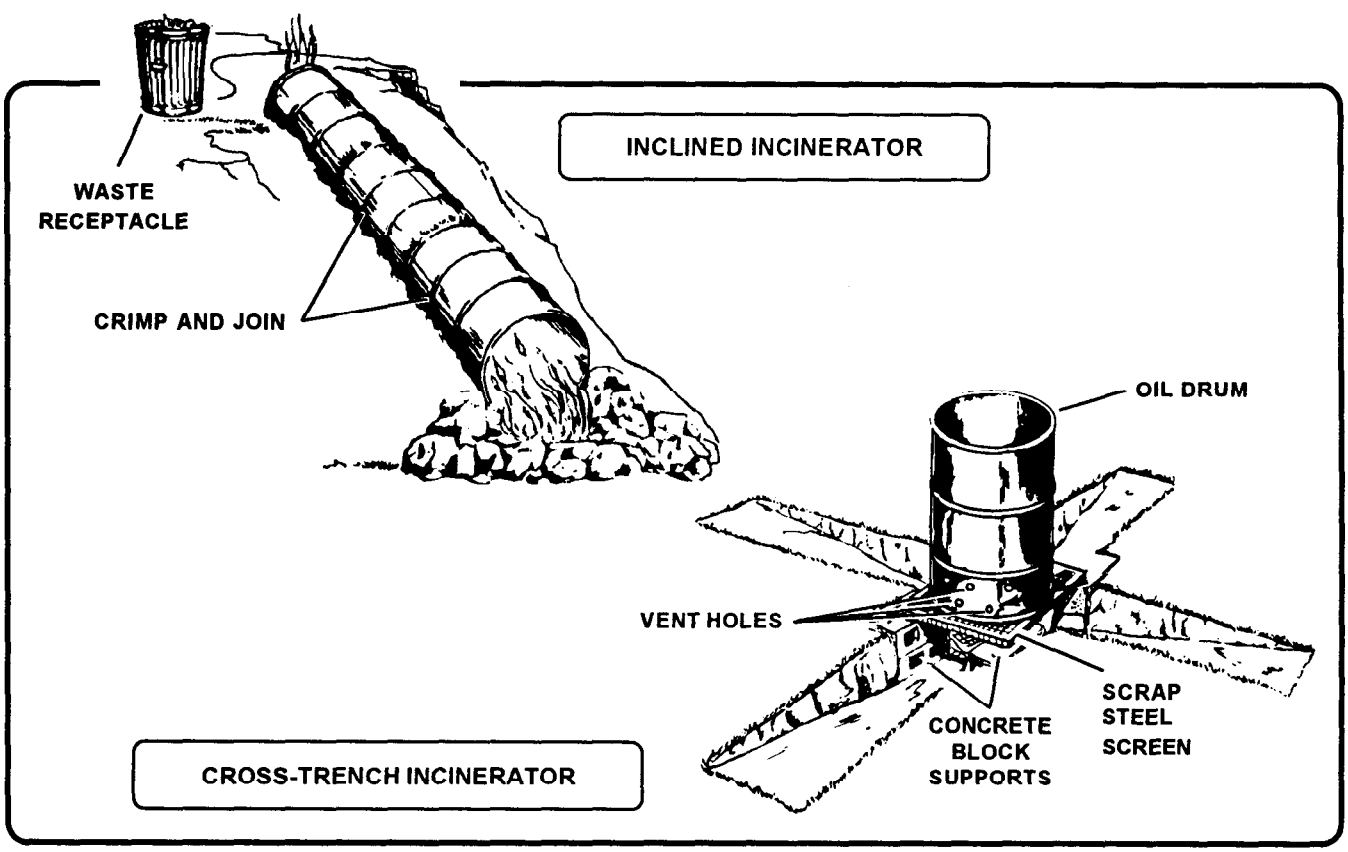


Figure 12-7. Inclined and cross-trench incinerators

Backhauling waste. When the operation plan calls for returning waste to a designated disposal point, the FOS must arrange for transportation support. Waste should be bagged or boxed when possible. Excess boxes and T-Ration pans must be nested to conserve space.

SANITATION CENTER OPERATIONS

When fully deployed, the SC will provide the primary means to wash and sanitize field kitchen components. To set up the dishwashing operations follow the procedures in Figure 12-8.

Washing Procedures

Follow the procedures below when washing pots and pans in the field.

Scraping. Scrape all food particles from pots and pans as soon as possible after use. Use a long-handled scraper (NSN 7330-00-205-1950) or a rubber scraper.

Prewashing. Use the fourth sink in the food preparation and service set for hospitals as a prewash sink. Water temperatures must be about 80 degrees Fahrenheit. After food scraps and particles are removed, items to be cleaned and sanitized are placed in the prewash for removal of heavy food particles, grease and burned-on food. Use a long-handled brush for this also.

Washing. Fill the wash sink with 20 gallons of warm water and heat it to 110 degrees to 120 degrees Fahrenheit (hot to touch). Add 12 ounces of hand-dishwashing compound, NSN 7930-00-281-4731. Stir vigorously to produce suds. Then thoroughly wash the item in the wash solution using a long-handled brush. Remove it from the wash solution and shake it vigorously to remove the excess solution. Change the wash solution when contaminated with food particles and grease. It is important that the wash solution temperature be kept between 110 degrees and 120 degrees Fahrenheit to soften greasy film.

1. Turn the handle on the top right-hand side of the sink clockwise to close the drain. Fill each sink with 20 gallons of water.
2. Use hand-dishwashing compound (NSN 7930-00-281-4731 (50-pound bags)) in field dishwashing procedures at the rate of 12 ounces per 20 gallons of water.
3. Use the same detergents for both field dishwashing and for hand-dishwashing operations. Never use machine dish-washing compounds for field dishwashing.
4. Maintain the temperature for the wash solution between 110° F to 120° F.
5. Maintain the first rinse temperature at 120° F to 140° F, this temperature will break down the soap residual for the final rinse.
6. Maintain the final rinse temperature at least at 170° F (77° C).
7. Use proper scraping and washing; they are important steps in field dishwashing.
8. Change the wash solution when it becomes contaminated by food particles and grease. Contamination is evident when there are no suds or a thin grease film develops on the water's surface. Change the rinse water whenever there is grease, suds or food particles on the surface. Drain the sink by turning the handle at the top right of the sink counterclockwise.

Figure 12-8. Procedures for setting up dishwashing operations

Rinsing. Two sinks are used for rinsing. Rinse dishes as discussed below.

First rinse. Use the second sink for rinsing detergent and abrasives off the equipment. Keep the water between 120 degrees and 140 degrees Fahrenheit at all times. Change the water as necessary.

Second rinse. Use the third sink for sanitizing. Submerge the item for 30 seconds in water that is at least 170 degrees Fahrenheit or higher. Then vigorously shake the item to remove as much water as possible. It is important to keep the rinse water at the proper temperature. Change the water when a grease film appears on the surface.

Air drying. Air-dry the equipment on the storage rack. Do not use towels or napkins.

Cleaning up. Drain the wash water. Wash the sinks using hand-dishwashing compound, hot water and a brush. Follow with a hot water rinse.

Safety Precautions

Observe all safety precautions including those discussed below. Ensure that–

- There is a fire extinguisher in the fueling area, lighting areas and in the M2 burner unit area of operation.
- Each area is 50 feet from the next area and 50 feet from any open flame.
- An operating pressure of 6 to 20 pounds is maintained.
- When the M2 burner unit is in the rack, it is as far to the rear of the rack as possible. The edge of the sink will become very hot if the burner is not placed all the way to the rear. Some models of the SC are equipped with a heat retaining flap that is lowered over the rack opening after the burner unit is in place. *THIS FLAP BECOMES EXTREMELY HOT. DO NOT TOUCH IT WITH YOUR BARE HANDS. USE A HOT PAD!*
- Heavy rubber gloves (if available) or tongs should be used when handling pots and pans in the wash cycle.

POT AND PAN WASH LINE AND MESS KIT LAUNDRY LINE

Two methods of washing and sanitizing field kitchen components is the pot and pan wash line and the mess kit laundry line. Figure 12-8, page 12-9, provides step-by-step procedures for proper cleaning and sanitizing using this method. The mess kit laundry is setup about 15 meters (50 feet) from the kitchen. Hand dishwashing compound (NSN 7930-00-281-4731) should be used for dishwashing. One mess kit laundry line can handle mess kits for up to 80 people. If more people are being served, more laundries need to be set up. The water must be replaced after being used by 80 people during the operation. For water conservation, do not change all cans at the same time.

Dispose of the wash water, clean the 32-gallon can, refill it with fresh water, and rotate it in the line for use as the final rinse.

Use the first rinse as the wash water and the final rinse as the first rinse.

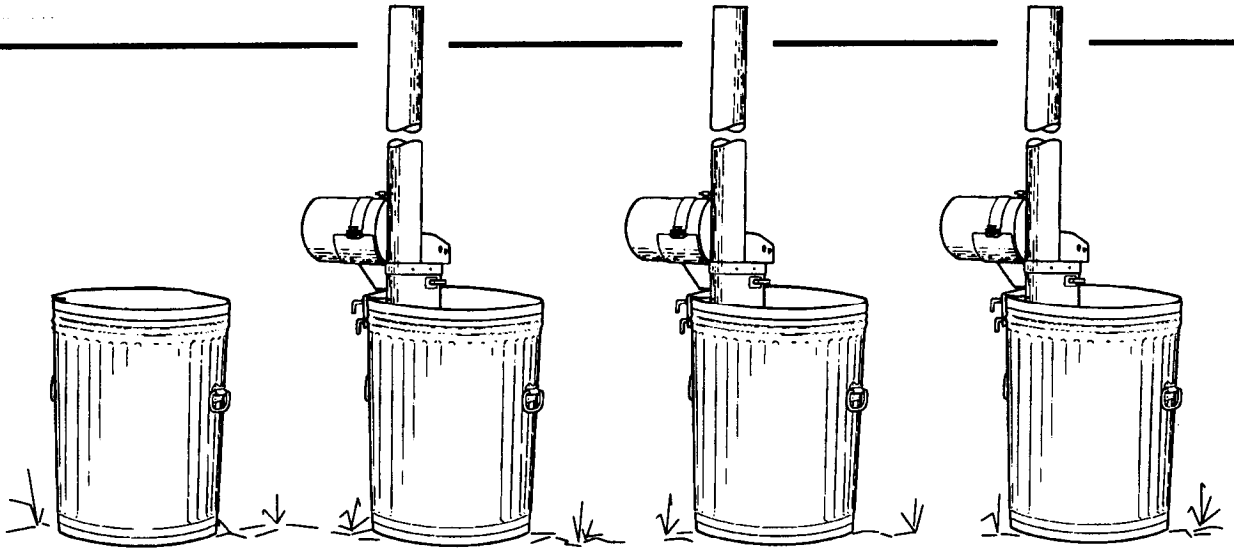
NOTES: *1. Pot and pan wash line is used when paper products are used in lieu of the mess kit. The wash line is set up the same as the mess kit laundry line. The wash line is used to clean all food service equipment. The water is to be changed and rotated the same as the mess kit laundry line, except the main objective is to change the water as often as necessary to maintain sanitary standards (It is not based on the number of personnel subsisted).*

2. Do not use machine-dish washing soap or compounds.

CHEMICAL DISINFECTING METHOD

Disinfectant, food service (chlorine-iodine type), NSN 6840-00-810-6396 (4.77-ounce pouch) is intended primarily for use in the field where the rinsing solution cannot be kept at the proper temperatures. When food service disinfectant is dissolved in water (between 75 and 110 degrees Fahrenheit), it releases both iodine and chlorine gas, which disinfect the utensils. If the compound is dissolved in too warm water (above 130 degrees Fahrenheit), the gases

are released too rapidly and the disinfecting action is soon lost. Figure 12-9, page 12-10, provides a step-by-step procedures for proper cleaning and sanitizing using this method. Make a chlorine-iodine solution for rinsing the washed equipment by dissolving the contents of one package of food service disinfectant in a container (canteen cup), and pour the mixture into the 20 to 25 gallons of warm rinse water. Stir thoroughly to dissolve. Make a fresh solution for every 100 people and never reuse a solution. Disinfect the utensils by swishing them in the chlorine-iodine water for at least one minute.



1. Scrape food scraps from the utensils or mess kits into the waste can, pit, or trench. Prewash items if you can.
2. Wash utensils or mess kits using a long handled brush in a wash can filled with hot soapy water.
3. Prerinse the utensils or mess kit in a can of water (120° F to 140° F), and dip them a few times to remove the suds. Shake off excess water.
4. Rinse them in a second can of water (170° F or higher) for at least 30 seconds. This will sanitize them.
5. Shake off excess water and let them air dry. As soon as they are dry, close them to keep dirt out. Let pots and pans and other utensils air dry upside down in a place where they will not get dirty.

Figure 12-8. Procedures for using mess kit and pot and pan wash line

1. Scrape food scraps into a waste can, pit, or trench. Prewash items if you can.
2. Wash the items in hand-dishwashing compound solution.
3. Rinse the items in clean water.
4. Disinfect the items by swishing them in a disinfectant solution for at least one minute. Make a fresh solution for every 100 people. Do not use the solution again.

   NOTE: The water temperature must be between 75°F and 110°F.
5. Let the items air dry in a place where they will not get dirty. Close mess kits after they dry.

Figure 12-9. Procedures for washing and sanitizing dishes with disinfectant solution.

PART FIVE
NUCLEAR, BIOLOGICAL, AND CHEMICAL OPERATIONS

CHAPTER 13
PROTECTION FROM CONTAMINATION

PERSONNEL PROTECTION

Generally, food is not prepared or served in an environment contaminated by NBC agents. It is important to continue operations only after ensuring adequate individual protection. Field kitchens must be moved to uncontaminated areas and decontaminated before food service can be resumed. It is important to remember that striking and loading the field kitchen is more difficult and takes longer when soldiers are wearing chemical protective clothing. The tactical situation and the priorities for decontamination will determine how long MREs are used.

In exceptional situations, it may be necessary to serve food in a contaminated environment. The decision to feed in a contaminated environment rests with the commander. Provisions must be made to partially decontaminate personnel and ensure that food does not contact contaminated terrain or material. The method of feeding troops in such an environment depends on the type and extent of contamination and on the availability of protective shelters. Troops in an area contaminated by chemical agents with no detectable vapor hazard or in an area where they are under the constant threat of NBC attack must be fed on a rotating basis. Feed about 25 percent of the troops at a time. The other 75 percent should remain masked. Take care at all times to avoid contaminating food.

If the troops are in a contaminated area where there is also a vapor hazard, feed them inside a shelter equipped with an overpressure system. The overpressure system fills the shelter with pressurized air that has been filtered to remove NBC contamination. The M20 simplified collective protection equipment includes a built-in overpressure system. Since this shelter has a limited capacity, the commander and the FOS must plan to feed the troops in shifts. Entering and exiting this shelter is a complicated procedure. FM 3-4 describes how it is done. STP 21-1-SMCT contains more information on how to survive and conduct operations in a contaminated environment.

FOOD PROTECTION

Food must be protected from NBC contamination. Procedures for subsistence protection must be a part of operational plans and SOPs at all levels of food service and Class I operations. Consuming contaminated food may cause illness, injury, or death. Food stored outdoors should be under overhead cover as mustard or VX agents will damage or degrade most protective wraps. Some food items may be decontaminated and consumed. However, decontamination is often a difficult and time-consuming process. Subsistence must be stored in ways to provide maximum protection in the presence of NBC contaminants. Planning for storage may mean the difference between having edible or non-edible subsistence. Foods that are packed in cans, bottles, airtight foil, or film wraps, as well as food packaged in sealed boxes or multilayered wrappings may be stored outdoors or

in partially protected areas. Foods not packaged in this manner must have covered storage inside if possible to protect it from NBC contamination.

Nuclear Contamination

The two types of nuclear contamination are induced radiation and fallout. Induced radiation is not normally a food service problem as blast or heat will normally destroy material stored in the induction zone. Food may be contaminated by fallout miles away from the blast site. Overhead cover is essential or items may become so heavily contaminated that decontamination becomes difficult or impossible. Food that is packaged in cans or other sealed containers is not in danger of contamination by fallout as long as it remains packaged. Foods not packaged in this way, such as fresh fruits and vegetables and fresh meat, can be protected from fallout by putting them in sealed containers. Insulated food containers and refrigerators are excellent protection from fallout. Containers, such as sea and/or MILVANS, trucks with containerized cargo areas, and trucks with covered cargo beds also offer some protection. If this type of protection is not available, place a canvas tarp or plastic sheet over the items. This will make it easier to decontaminate them.

Biological Contamination

The two types of biological agents are pathogens and toxins. Stringent sanitation in preparing and serving food will reduce contamination by pathogens. Since pathogens may be spread by insects and rodents, insect and rodent control is especially important. Toxins are poisonous substances produced by pathogens and other organisms. To protect food from toxins, store it in sealed, airtight containers. Decontaminate the containers before opening them.

Chemical Contamination

Chemical weapons release toxic chemicals. Food may be protected from chemical contamination by placing it in a sealed, airtight container. Containers must be decontaminated before the food can be consumed. If the unit commander determines that the food must be decontaminated, follow the procedures on page 13-5.

Note: *Chemically contaminated food is difficult to decontaminate. Due to limits in the ability to detect contamination that is bound to other materials, the use of such food will always pose a major risk.*

FOOD INSPECTION

Food or water that may be contaminated by nuclear fallout or biological or chemical agents must be inspected. The Army veterinary services has the sole responsibility for monitoring and recommending food decontamination or disposition procedures and preventive medicine handles water. If food or water becomes contaminated, it must not be consumed unless it is first decontaminated or approved for consumption. Food or water that is free from contamination may be contaminated by equipment or personnel, so they must be inspected as well.

DETECTION METHODS

It is essential that every soldier, especially if he is involved in food service, know how to detect NBC contamination. Methods of inspecting food, water, personnel, and material for signs of NBC contamination are described below.

Nuclear

The radiac meter AN/VDR-2 is used to monitor food, water, personnel, and material for possible contamination by induced radiation or fallout. This instrument, commonly known as a Geiger counter is shown in Figure 13-1, page 13-3. To inspect food, personnel, or material for nuclear contamination, follow the step-by-step directions in the operator's manual. Background radiation will produce a signal even in the absence of contamination. An audible signal (clicks through the headphone) provides the most sensitive indication in changes in the quantity of radiation present. Read the meter to determine the level of radioactivity. Food is contaminated if it produces a

reading greater than two times that of the surrounding environment in an uncontaminated area. These Geiger counters are not sensitive enough to detect unacceptable levels of radioactivity in water. Use water only from an approved source.

Biological

Most Army units have no capability to detect the presence of biological agents in food. The supporting medical unit is responsible for inspecting food for biological agents. Inspect the food for obvious signs of spoilage, such as slime, discoloration, and odor. Keep in mind that contaminated food may look, smell, and taste normal. If food is suspected of being contaminated by biological agents, request a veterinary inspection. Use water from an approved source for preparing food and for drinking. If no water from an approved source is available, disinfect the available water before using it. Water disinfection procedures are described in Chapter 12.

NOTE: *Biological warfare agents intended to attack humans produce no outward changes in food or material.*

WARNING

Disinfection is not effective against all agents. Use water from an unapproved source only when there is no alternative. Food and water may be contaminated by contact with sick food handlers or unsanitary equipment. Inspect food handlers at the beginning of each shift, and inspect food service operations to be sure that proper sanitation is being practiced. See Chapter 12 in this manual for more information on food service sanitation.

Chemical

The first action to take when chemical agents are present is to stop breathing, put on your mask and sound the alarm. Next, evacuate troops in the area. Most chemical agents will change the taste, smell, or appearance of food. Food may become very poisonous without any change in appearance, taste, or smell. *Never taste food to test for chemical agents.* Use the M8A1 automatic chemical agent alarm (Figure 13-2, page 13-4) and the M256 chemical agent detector kit (Figure 13-3, page 13-4) to detect the presence of toxic chemicals; however the M8A1, M256, M8, and M9 papers cannot be used to determine contamination of foodstuffs. The CAM is being fielded as the primary Army Chemical Agent Monitor. Also, the unit should have chemical agent paper (M8 and M9) to detect and identify agents on containers, personnel and equipment. Operating instructions for the chemical agent alarm are in TM 3-6665-225-12. Operating instructions for the chemical agent monitor kit are in TM 3-6665-307-10. Chemical agents in water can be detected with the M272 detector kit. Maximum allowable concentrations are in TB MED 577.

DISPOSAL

Generally, food and water in airtight containers can be consumed after the containers have been decontaminated. Discard unprotected food and water except in extreme emergencies. Decontaminate unprotected food and water only when there is no practical alternative. All disposed contaminated items must be marked and treated as NBC hazard.

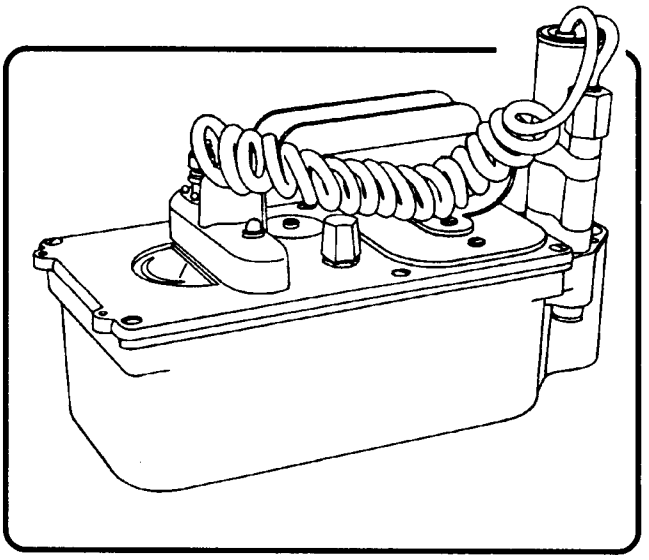


Figure 13-1. Radiac meter

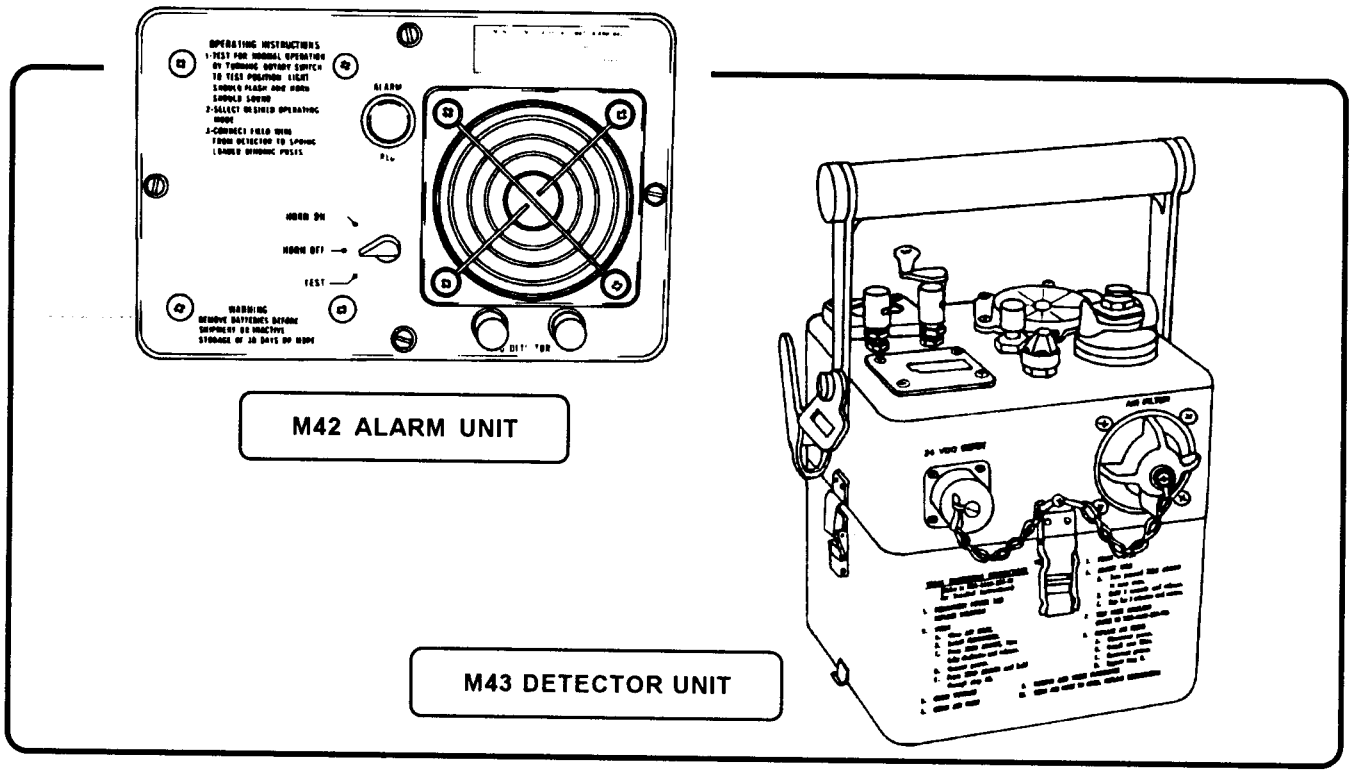


Figure 13-2. M8A1 Automatic chemical agent alarm

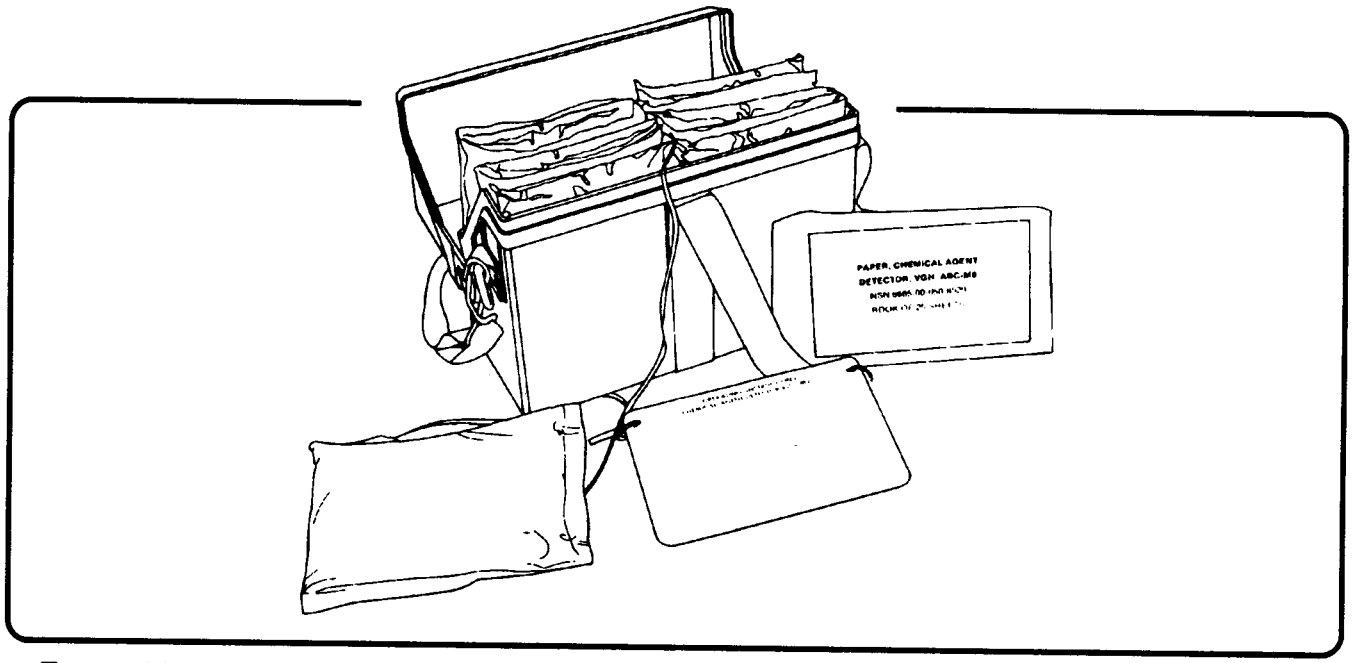


Figure 13-3. M256 chemical agent detector kit with ABC M8 chemical agent detector paper

DECONTAMINATION

Methods of decontaminating subsistence are described below. Dispose of foods that cannot be decontaminated according to local laws or military regulations. If food preparation equipment or food service personnel have been exposed to NBC agents they must be decontaminated. Personnel are decontaminated with the M258-series decontamination kit. Food service equipment should be decontaminated by power driven decontamination equipment or by steam cleaners. A hot water and soapy wash must follow to insure all decontaminates are removed before food products can be prepared.

Nuclear

There are certain procedures to follow when food and water have been contaminated by radioactivity. These procedures are described below.

Food. Except in rare cases of induced radiation, rations in cans or other sealed containers are not in danger of radiological contamination. It will often be impossible to decontaminate meat, fish, etc., due to absorption of the radioactive salts found in fallout.

Normally, the contamination will be limited to the outer surface. Decontaminate by removing the outer packaging or by washing or scrubbing the container under uncontaminated running water. Water runoff from decontamination operations must be captured and treated as a hazard.

Food that is not protected in sealed containers must be suspected of contamination until it is checked. If the unit Commander determines that the food must be decontaminated, move all foods from the contaminated area to a clean area.

Decontaminate potatoes and hard-skinned fruits and vegetables by washing or scrubbing them under uncontaminated running water and then peeling or scraping them and washing them again.

Brush all visible dirt from meat and fish; washing is not recommended. A thin layer may be stripped from the surface of meat or fish. After the outer layer is removed from the food, check it with a radiac set. If the dose-rate reading has become lower, the contamination probably was confined to the surface of the food. Clean the knife and remove a second layer. The cutting away process may be continued, within reason, until the dose-rate reading is near that of the surrounding environment.

Since prepared food in open containers probably will be contaminated, bury or dispose of it as determined by designated medical personnel. Dispose of radiologically contaminated wash water and trimmings the same way.

Food that has been contaminated by induced radiation probably will be made inedible by blast and fire damage. Any foods not destroyed yet contaminated by induced radiation can only be decontaminated by aging. Usually, this requires less than 14 days. Carefully monitoring these foods will determine the progress of radioactive decay during aging.

Water. If you suspect water is contaminated, contact the water supply specialist in charge of the water point being used. Normally, he is in the supporting DS supply company (S&T company in an MSB). He is responsible for quality control for potable water.

Biological

Decontaminate containers contaminated with toxins like those contaminated with chemical agents. Be sure to decontaminate the exposed threads of jars with screw caps before the caps are removed. Do not use water from unapproved sources for drinking or preparing food unless no other water is available. If water from unapproved sources must be used, disinfect it as described in Chapter 12. ***NOTE:*** *Disinfecting water does not ensure that it is safe to drink. If the water is contaminated by toxin, disinfection will not work. Also, some pathogens cannot be destroyed by disinfection.*Food contaminated by pathogens can be made safe by peeling or paring or by heating. VSP can provide guidance.

Peeling and paring. Decontaminate potatoes and hard-skinned fruits that can be peeled or pared. First, disinfect the surface of the food by using disinfectant bleach. After disinfecting the surface, peel or pare,

wash and cook the food thoroughly before serving. In general, most biological agents can be neutralized by thorough cooking.

Heating. Heat is the best way to decontaminate biologically contaminated food. Thorough cooking reduces contamination to a safe level. Decontaminate foods by one of the heat methods in Table 13-1. The type of food and the amount of contamination determines which procedure to use. Make sure that the heat completely penetrates the food for the time shown.

Chemical

Decontaminate food items that have been exposed to chemical agents as shown in Table 13-2. FM 3-5 and FM 8-10-7 provides more detailed guidance. Discard food that is unprotected or poorly protected and that has been exposed to chemical agents unless no other food is available. Foods with a low water content and a high fat content, such as butter, lard, ham, cheese, bacon, fatty meat, and fish, absorb so much mustard and nerve agents that decontamination is impossible. Discard these items. Destroy food exposed to liquid agents (nerve and mustard) or arsenical. In an emergency, you may decontaminate other food that has been exposed to chemical agents as described in Table 13-2. Do not try to decontaminate water that has been exposed to chemical agents. Seek help from your supporting water supply point.

Table 13-1. Heat methods of decontamination

METHOD	DESCRIPTION
Cooking	Cook items in a pressure-type cooker (autoclave) at 15 lbs pressure at 250° F for 15 minutes or cook in a low-pressure cooker at 228° F for one hour.
Baking	Bake items such as bread or related items in a preparatory stage for 40 minutes at 400° F. Bake meat at 325° F for about two hours.
Boiling	Boil certain items for at least 15 minutes as an expedient method when no other method is available.

NOTE: Foods, such as butter and ice cream, will not withstand any of the above treatments, and they must be destroyed. Meats that may be contaminated by biological agents will be cooked until well done.

Table 13-2. Treatment of food tainted with toxic chemicals

AGENT	TYPE OF FOOD	PROCEDURE
Irritant agent	Dry provisions.	Aerate.
*Mustard agent (vapor) or *Nerve agent (vapor)	Food having a high fat content (butter, lard, ham, cheese, bacon, fatty meat, and fish).	DO NOT USE. DISCARD
	Other food.	Trim away fat and grossly contaminated areas. Wash food with water or a solution of 2 percent sodium bicarbonate. Then air for 48 hrs.

**DO NOT attempt to decontaminate food that has been exposed to mustard or nerve agent in a liquid form.*

PART SIX
TRAINING

CHAPTER 14
RESPONSIBILITIES

FOOD ADVISOR

Food advisors, technicians, and senior or chief food operations management NCOs (military or civilian at all levels regardless of component) collectively and individually assist commanders, Class I personnel, the FSO, and the FOS. The food advisor is one of the few food service personnel who has access to the commander and the staff. One of the most important contributions he can make to the food service program is to see that the training needs of food service and Class I personnel are met. This includes assistance from establishing FSO training and OJT programs to gaining quotas for training schools or advising on local civilian training opportunities. The installation food advisor also provides this support to units without assigned food advisory personnel. He must make FSOs and FOSs aware of observations and possible training needs. He should ensure that OJT and common skills training are being scheduled. The food advisor and the FSO should make unannounced visits to the facility or training site to ensure that training is actually being conducted.

When field training operations are planned, the food advisor must ensure that Class I and food service planning are included. As a subsistence staff officer, he ensures that the commander and staff are aware of the problems associated with food supply, distribution, preparation, serving, and accountability. He must also advise on tactical, environmental stewardship, and resource management considerations. Examining each of these areas in the planning stages of the operation will help the staff solve them before the unit deploys to the field.

Due to large amounts of fuel, water, and subsistence used and the wastes (liquid and solid) generated by field kitchens, environmental protection training is a must for all food service personnel. The food advisor must ensure that each level of food service supervisor is aware of his responsibilities in the implementation of the Army's environmental stewardship program.

AR 30-21 provides policy guidance on accounting procedures during field training operations and deployments. The food advisor and the FOS must train food service personnel to maintain proper records and how to submit the reports required by AR 30-21. Training must be ongoing and must be accomplished prior to field operations. It is not sufficient to wait until the unit is deployed before becoming concerned with the requirements for accountability for subsistence in the field.

The FSO participates in the development of unit training schedules. The FOS and food advisor must keep FSOs informed of food service training needs to receive the required training emphasis. The FOS must assess the adequacy of the training program as relates to the needs of his food service team and

recommend additions to and deletions from training plans. FM 25-2 explains how training schedules are developed. It will include time for individual and collective training. Food service training requirements should be addressed in the training schedule. The G3, the S3, or the Director of Plans, Training, and Security publishes the schedule.

Sometimes it is hard to find the funds or time for training, but training pays in the long run. Remember that trained people–

- Need less supervision.
- Develop better work habits.
- Take more pride in their work.
- Prepare better meals.
- Give better service.
- Waste less food.
- Are safer workers.

SCHOOL QUOTAS

Quotas for attendance at service schools may be requested through channels to the MACOM or the CONUSA according to the provisions of AR 614-200. The inability to obtain a quota to attend a resident school does not relieve individuals from the responsibility to continue their food service training. Schooling is available through enrollment in the nonresident training program of the U.S. Army Training Support Center. Training can also be obtained by enrollment in local community colleges. Individuals can enroll in a nonresident course by submitting a DA Form 145 to the-

Army Institute for Professional Development
US Army Training Support Center
Newport News, Virginia 23628-0001

SPECIFIC TRAINING RESPONSIBILITIES OF FOOD ADVISORS

The food advisor has differing levels of responsibility for training individuals within the food program. These responsibilities (as relates to the FSO, FOS, and cooks) are outlined in the following paragraphs. The importance of continuous training cannot be over-emphasized. Each successful operation or deployment can be traced to the successful training that proceeded it.

Food Service Officers

The food advisor must take a direct role in the training of FSOs. This is normally an additional duty assigned to officers who have little or no training or experience in this field. These officers are trained by food advisors with support from the FOSs with whom they work. The FSO receives assistance through classes, demonstrations, solicited comments, or ideas and advice. The food advisor must ensure that they know the basics of food service operations. The FSO must be informed of environmental stewardship requirements for food service operations. The food advisor must ensure that he is aware of Army, state, and local environmental and resource management regulations. Sanitation training requirements are outlined in TB MED 530. They must also be able to audit food service records and identify the causes of and remedies for deficiencies. An exportable training support package, complete with lesson plans and handouts, is available to assist the food advisor in providing this training. Copies may be requested from ACES.

Food Operations Sergeants

Training in food service is a continuous process. The food advisor should be aware of the formal training requirements which are a part of the career progression pattern for MOS 92G. He can then make FSOs and commanders aware of the training needs of their NCOs. The food advisor can advise the commander on schools and training requirements for food service personnel. Since the FOSs are busy with daily food service operations requirements at the unit level, they may not always be aware of recent developments. The food advisor must inform these NCOs of changes in policy and doctrine, new publications, and equipment. The installation menu board provides an excellent opportunity to update FOSs on new developments. The food advisor must ensure

that the FOS is able to train first-line supervisors to fulfill their training responsibilities to junior personnel. The food advisor must also assist the FOS in establishing and implementing an ongoing OJT program for assigned food service personnel.

First or Senior Cooks

First-line supervisors are responsible for training those they supervise. Although they may be quite proficient in their jobs, they may not yet know how to train others. The food advisor and FOS assist by providing train-the-trainer training, as required. This should be an integral part of the unit OJT program. They can also help them learn by insisting that they use FM 25-100 and FM 25-101, read and understand trainer's guides for their MOS, and by recording each trainee's progress. The FOS must monitor subordinate's training to ensure that the trainee's needs are met. Since dining facilities have a vital peacetime mission, food service personnel sometimes miss out on common skills training routinely provided to other unit personnel. The food advisor must review training records and ensure that each unit's cooks participate as required.

FOOD OPERATIONS SERGEANT'S RESPONSIBILITIES

The FOS, with the food advisor's help, develops a comprehensive food service training program for his personnel. The FOS keeps a card file or notebook to show who has been trained and the subjects covered. There are several types of food service training. The FOS works with the FSO and the food advisor to get service school training for assigned personnel.

RESOURCES

Training resources (in addition to this manual) are listed in FM 10-23-2. The food advisor should ensure that FOSs and first-line supervisors are aware of and use trainers guides. The FSO and FOS must also ensure that soldiers have access to required STPs and FMs. They must also know what formal training is available and how to get it. Each unit's NCOs must be involved in the training of their subordinates.

CHAPTER 15
ON-THE-JOB TRAINING PROCEDURES

OBJECTIVE

The FOS is responsible for the conduct of the unit's food service training program. The OJT program is a primary means of training that continues to gain in importance. In OJT, the FOS and senior members of his staff train workers during working hours. OJT is used most often to teach newly assigned soldiers how to do a specific job. It can also be used to train experienced soldiers in a new technique or position. OJT is necessary for any soldier starting a new job, no matter what his previous jobs have been. OJT also provides a vehicle to train workers in the Army's environmental stewardship program objectives. Energy conservation and resource management are essential elements in environmental stewardship and must be reinforced at each opportunity.

ADVANTAGES AND DISADVANTAGES

The primary advantage of OJT is that the soldiers work while they are learning. They give immediate feedback on what they learn and get immediate feedback of the results. They are being taught by the same people with whom they will be working. Therefore, they learn a specific job according to established standards. There are also disadvantages in OJT. Often there is either too much or too little supervision or there are no uniform standards of instruction. At times, trainees may be unfairly compared with more experienced workers, or the trainer may not have the ability, time, or patience to teach. Trainers must be careful to avoid teaching bad habits when demonstrating techniques or performance standards.

PROCEDURES

Before OJT can begin, each part of the job must be broken down so that it can be presented logically. The soldier follows a schedule that covers the necessary training. Table 15-1, page 15-2, provides a sample OJT program outline that includes some of the subjects that can be taught on field feeding. Remember that there are many more subjects that must be taught or reinforced. The FOS (with assistance from the food advisor) should develop an outline that includes subject, scope, and references for the training program. Remember that some workers will need more training than others. However, they should not be singled out as it may lower their self confidence. The worker who learns quickly may have a smug attitude. These attitudes can affect the morale of the entire staff. The best way to avoid either of these problems is to use the training program as a refresher course. Then the trainer can spend more time helping those who need it. The outline should be reviewed and approved by the food advisor prior to implementation.

ROTATIONAL ASSIGNMENTS

Along with OJT, give soldiers rotational assignments and cross training. In this way, workers will receive training in more than one area. Figure 15-1, page 15-4, is a recommended outline for training.

PERFORMANCE STANDARDS

Performance standards tell soldiers how well they must be able to do a job. The 92G STPs have tasks and job standards for soldiers at each level. The standards give the sequence in which the steps in the task must be done. Use these standards as a training tool. They are clear-cut so that both workers and supervisors can understand them. They specify what soldiers must be able to do at each grade level before they can be promoted to the next grade. Each

supervisor should maintain a leader book to record training accomplishments of those he supervises. See FM 10-23-2 or FM 25-101 for additional guidance.

Set an Attainable Standard

The standard should be what a first-class worker can do in a specified time by using the one best way. If the SOP does not give the standards for organizing the training program, get them from the food advisor.

Make Allowances

Newly assigned workers may not be able to meet all of the requirements of the standard. However, explain to them that as soon as they learn the job, they will be expected to meet the time limits of the standard.

Inspect Completed Work

Inspect the trainee's work. If he does a good job, tell him. If not, make sure he gets more instruction to help him do a better job the next time.

Keep the Standard Unchanged

Once a standard is set and is in use, do not change it. At times, there may be an exceptional worker who will produce more than is required by the standard. However, the average worker will not, so do not change the standard.

Table 15-1. Subjects to be covered in an OJT program

SUBJECT	PURPOSE AND SCOPE	REFERENCES
Importance of safety rules	Basic principals of safety as they relate to all phases of food preparation.	AR 385-10 AR 420-90
Causes of accidents	Correct attitudes toward accidents • Unsafe conduct: - Failure to follow instructions - Improper use of equipment - Failure to control temper - Horseplay in kitchen • Unsafe conditions: - Wet floors - Obstructed work aisles - Poor location of equipment - Exposed hot pipes or electrical wires	AR 385-10 AR 420-90
Prevention of accidents	Methods of eliminating safety hazards • Personnel training: - Instruction - Motivation - Discipline • Engineering revisions: - Establishment of traffic lanes - Isolation of hazardous equipment	AR 385-10 AR 420-90

Table 15-1. Subjects to be covered in an OJT program (continued)

SUBJECT	PURPOSE AND SCOPE	REFERENCES
Importance of good personal hygiene	Basic principles of hygiene and their application to health • Bacteria: - How bacteria may enter foods - Conditions needed for growth • Health habits: - Rest - Exercise - Posture - Recreation • Grooming: - Hair - Teeth - Skin - Hands - Feet - Bathing - Clothing	TB MED 530
Importance of sanitation	State and local sanitation laws and Army requirements. • Storage of food: - Raw - Cooked • Storage of dry materials: - Flour - Cereal - Sugar • Potentially Hazardous Foods: - Temperature Danger Zone (41° F to 140° F) - Basic Microbiology	TB MED 530
Sanitation in the field	Waste disposal requirements, methods and expedients used to dispose of kitchen wastes in the field, necessity for pure water and water discipline.	FM 21-10
Food conservation	The need for economy in the use of, the causes of waste, and the importance of waste control; established procedures to reduce food and plate waste; and discussion of serving methods and their effect on food conservation.	Chapters 2, 3, 5, 7, 12, & 13, this FM

Table 15-1. Subjects to be covered in an OJT program (continued)

SUBJECT	PURPOSE AND SCOPE	REFERENCES
Gasoline lantern	Operation, care and maintenance, including troubleshooting and safety measures of the gasoline lantern.	Appendix A, this FM
Immersion heaters	Operation, care and maintenance, including troubleshooting and safety measures of the immersion heater.	Chapter 9, this FM TM 5-4540-202-12&P TM 10-4500-200-13
Field ranges/M2 burner unit	Description, capabilities, operation, care and maintenance, including safety measures of the M59 gasoline field range outfit and M2 burner unit.	Chapter 9, this FM TM 10-7360-204-13&P
MKT	Familiarization with the MKT and the various forms and records reguired to operate and maintain the MKT. Physical and functional descriptions of the major components of the kitchen. Information is also provided for the operation and maintenance of the accessories and auxiliary components.	Chapter 8, this FM TM 10-7360-206-134

PREPARE THE TRAINEE

- Put the trainee at ease.
- Demonstrate the task. Show the trainee where to put ingredients, utensils, and equipment so that they can be easily reached.

PRESENT THE OPERATION

- Demonstrate the job step-by-step.
- Be patient and be thorough so that details are not missed.
- Go slowly enough for the trainee to follow the demonstration.
- Ask questions to make sure that the trainee understands the operation.
- Review frequently to make sure that the pace is not too fast.

HAVE THE TRAINEE TRY THE OPERATION

- Ask the trainee to demonstrate the operation and to explain each step. Ask questions about what, how and why a step is done. These questions reinforce the learning process.
- Correct errors with tact.

FOLLOW UP THE TRAINING

- Let the trainee function independently.
- Tell the trainee to come to the trainer for help or materials.
- Give further instruction if necessary.

Figure 15-1. Sample outline for training personnel

PERSONNEL SELECTION

Select the personnel to be trained and those to do the training. Trainees and trainers are discussed below.

Trainees

During the first interview with a trainee, find out what he knows. Watch him as he works and judge the products he prepares to determine what he knows. Compare what he knows to what he is expected to know. Then determine what he needs to be taught. Consider how long a trainee can be expected to stay in his present position, his main duty, how much training he needs and how much education and experience are required for the level of instruction.

Trainers

Personally conduct the OJT or have a member of the staff do it. If the staff does the training, make sure that the trainer is skilled in teaching and work methods. Just because someone can do a job well does not mean he can teach someone else to do the job well.

SCHEDULE DEVELOPMENT

Many factors influence the development of a training schedule. Some of them are discussed below.

Training Time

This is one of the most critical factors in developing a training schedule. The extent of training needs must be considered. Allow time for the trainee to gain a workable knowledge of the procedures, methods and techniques of the subject to be trained. The trainee must learn to identify common errors and shortcomings and how to avoid or correct them. Schedule the training so that it will not interfere with the mission work load. If it takes 48 hours to train a subject, schedule training during a two-week period. Do not schedule training during non-duty hours if possible.

Unit Requirements

Consider the trainee's unit requirements for training, his other duties and his days off. Coordinate with unit commanders and personnel officers before scheduling training.

Facilities and Materials

If a classroom is needed, make sure that one is available. Make sure that there is a lesson plan for each block of instruction. The lesson plan can be informal notes or a more detailed plan. Use training aids and handouts and make sure that any equipment needed will be available.

Supervisory Responsibilities

If the FOS delegates training responsibility to another trainer, the training methods, program and schedule must be coordinated with that person. Review the training outline with the trainer. Determine the time, methods of instruction, review and corrective actions. Be available to help the trainer. Make sure that training plans, policies and procedures for the course are followed. Check the menus to be used, the work schedule and assignments. Also, the FOS must check on the trainee's progress and make sure that everyone follows safety and sanitation procedures.

APPROACH TO TRAINING

The objective of all trainers should be to have a staff that works as a team to prepare and serve quality food. The trainer must recognize the importance of training and must be able to convey this to the trainee. If the training program is to be successful, the trainee must want to learn. Good leadership, sound instructional methods, and effective communication help to motivate the trainee. The FOS must constantly supervise training to make sure that it does not become so routine that trainees lose interest.

SUGGESTIONS TO TRAINERS

The role of the trainer is critical. He influences the student's attitudes and acceptance of the subject being taught. The following paragraphs are some suggestions for trainers to follow.

Win the Respect of the Trainee

Be tactful, loyal, and enthusiastic. This will win the respect of the staff and of the trainee.

Know the Subject

Be knowledgeable in the subject so that it can be taught to others. Teach only relevant material. If you have training aids and films, use them to stress teaching points.

Be Considerate

Be sure that personal interest and enthusiasm do not cause training to be too intense. If training is too intense, the trainees may become tired, bored, and discouraged.

Use a Positive Approach

At the start of the training program, stress to the trainee the need for a positive approach and an optimistic attitude. Place him in situations where problems are not likely to occur. Assign him tasks that can be done with little chance of error.

Be Professional

Talk directly to the trainee, but not over his head. Do not use condescending speech or actions. Check each trainee for cleanliness, appearance and state of health.

Develop the Confidence of the Trainee

Split tasks among the trainees. When trainees can perform small portions of a task successfully, assign them complete tasks.

Evaluate Yourself

Strive to become a more efficient teacher. Frequent and objective self-evaluations are good ways to measure how good a teacher you are. Put yourself in the trainee's place; it will help in evaluating teaching effectiveness.

FOLLOW-UP

When planning OJT, plan to follow up on its effectiveness. The trainer should do the follow up. If the FOS is not the trainer, he should also do a follow up. Stress the important points that were discussed in the OJT sessions. Remember, not all problems are the fault of the program. Ways to follow up on OJT are discussed below.

Methods

Two methods of following up on training are to interview the trainee and to observe him at his work site. Check to see if he is using the skills he learned in OJT.

Refresher Training

If the trainee needs more training, schedule refresher training sessions. Do not use the same methods and materials used in the previous training. Instead, plan new methods and use new materials, such as handouts and task summaries, to train the basic job skills.

Review

Review the overall OJT program. Establish good communications with the trainees and discuss any problems they may have. Make sure that trainers are effective.

RELATED TRAINING

Safety, personal hygiene, and sanitation are important parts of food preparation. These areas of related training are discussed below.

Safety

Safety cannot be overemphasized. The OJT program must stress safety rules; the need for

safe use, care and maintenance of equipment; and what to do in case of an accident. Also, it must stress common causes of accidents and their prevention.

Personal Hygiene and Sanitation

Spoiled or contaminated food can cause illness. The Public Health Service has reported about 40 percent of communicable diseases are associated with the improper handling of food or poor personal habits of food service personnel. Stress the importance of personal hygiene and sanitation to the trainees. Remind more experienced workers of this also. Food should be handled only by healthy individuals. The FOS must ensure that daily personnel inspections are conducted (and done properly). Food service personnel must be continually instructed to maintain high standards of sanitation. All food service personnel must realize their responsibilities for the health and well-being of the people for whom they prepare food.

APPENDIX A
LIGHT SOURCE

GASOLINE LANTERN

One source of artificial light for the field kitchen is the gasoline lantern (NSN 6260-00-170-0430). It is a one-mantle lantern with a heat-resistant globe or globe quadrants. It will hold 1 1/2 pints of gasoline. The lantern can stay lighted for 8 to 10 hours on a full tank. The lantern can be carried or hung by the bail. The main parts of the lantern (Figures A-1, and A-2, page A-2) are the mantle, burner assembly, frame assembly, fuel valve and pump assembly.

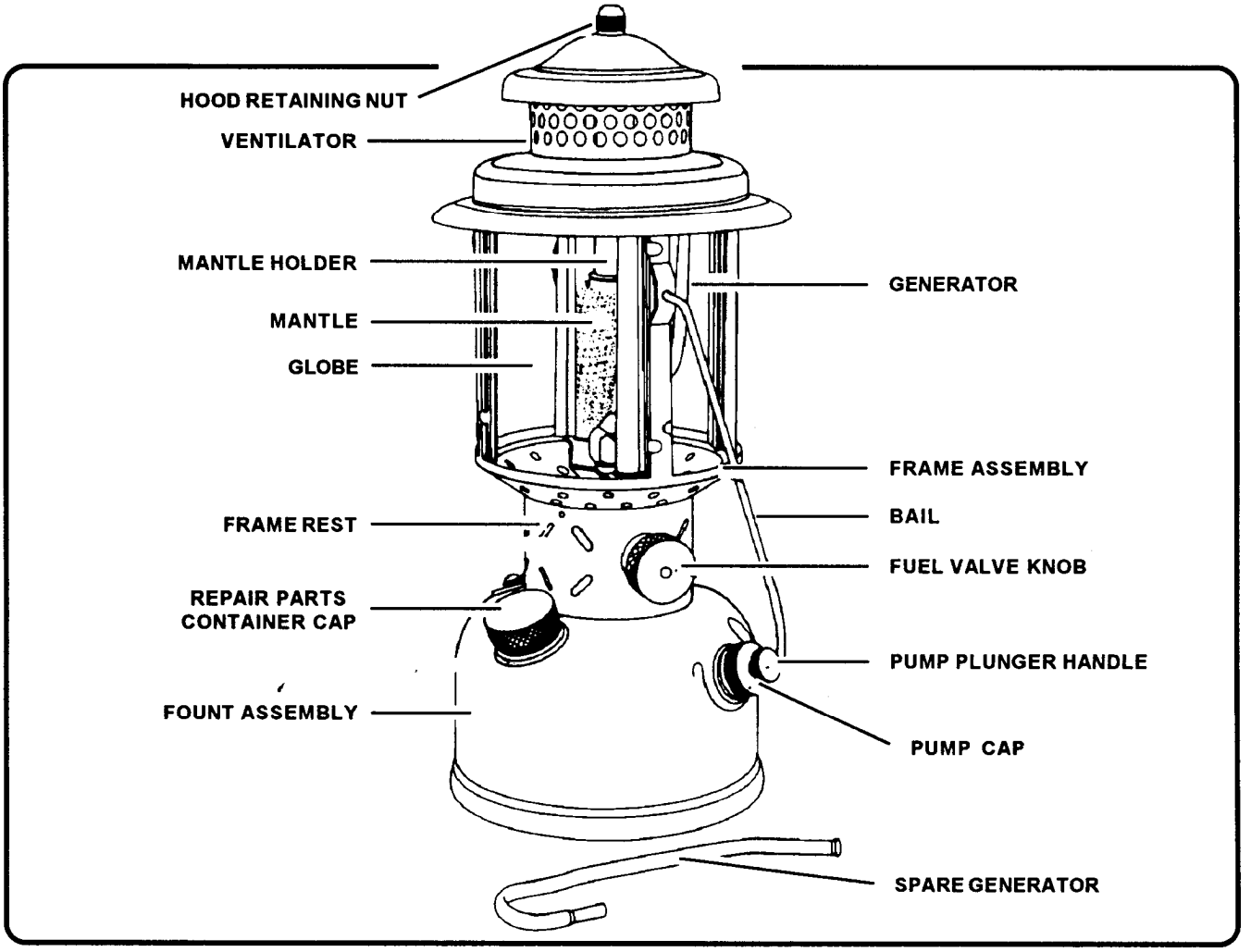


Figure A-1. Front view of gasoline lantern

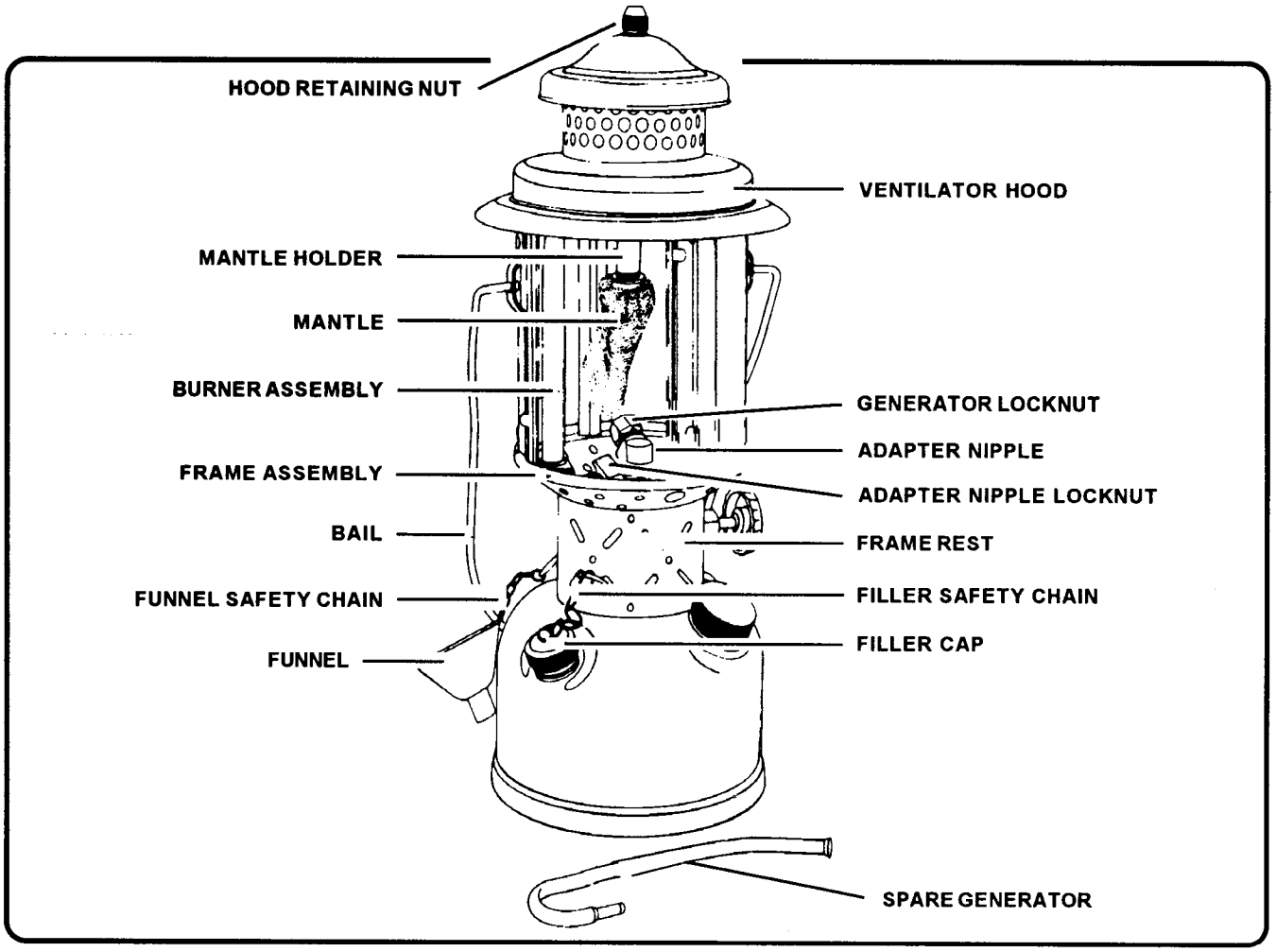


Figure A-2. Rear view of gasoline lantern

Mantle

The mantle is a piece of rayon that acts as a wick. It must be handled carefully as jarring it or jabbing it with the finger or a match will break it. An excessive flow of gas vapor will also break it. (Usually this happens when you light the lantern.)

Burner Assembly

The burner assembly mixes the fuel and air to start the combustion. One end of the fork-shaped burner tube is open. It serves as an air intake passage. When the generator is attached, the assembly is known as the burner-generator.

Frame Assembly

The frame assembly is mounted on top of the frame rest. It is made up of the frame bars and frame bail bars which hold the globe quadrants in the lantern. The lighter hole is in the frame assembly.

Fuel Valve

The fuel valve controls the flow of fuel from the lantern fount to the generator. To open the valve, turn the knob counterclockwise. To close it, turn the knob clockwise. Most of the time the lantern is used with the fuel valve open all the way.

Pump Assembly

The pump assembly (Figure A-3) is made up of the pump leather, cushion spring, plunger, and pump barrel. The pump barrel is built into the fount. The pump leather, cushion spring, and plunger are inside the pump barrel. The pump assembly builds up and keeps the necessary operating pressure on the fuel in the fount.

FORMS AND REPORTS

The person who uses and maintains the gasoline lantern must complete various forms and reports. The forms and their uses are listed below.

DA Form 285

Complete this form if there is an accident with the lantern.

DA Form 2404

Use this form to record any shortcomings or deficiencies when the lantern is inspected.

DA Form 2407

Fill this form out to request maintenance from a direct support activity.

DD Form 314

Use this form to schedule and record regular inspection and services.

SF 368

Fill out this form when a lantern is defective.

RECEIPT OF THE LANTERN

You may receive used or new lanterns. If you receive a lantern that has defects or does not work properly, use SF 368 to return it to the source of supply. Follow these procedures when you receive a lantern.

Uncrate

Open the carrying case and take out the extra generators from the upper tray of the case. Take out the upper tray and lift the lantern out of the carrying case. Be careful not to damage the globe.

Remove Packaging

Take all seals, preservatives, masking tape and cushioning from around the lantern and extra generators. Take the special tools and repair parts from the repair parts compartment of the lantern (Figure A-1, page A-1) and from the wrapped box.

Inspect

Inspect the new or used lanterns as follows:

New lanterns. Check the lantern for possible damage incurred in shipping or uncrating. Make sure that all parts are attached securely and assembled correctly. Check the tools and repair parts with the list of functional parts included.

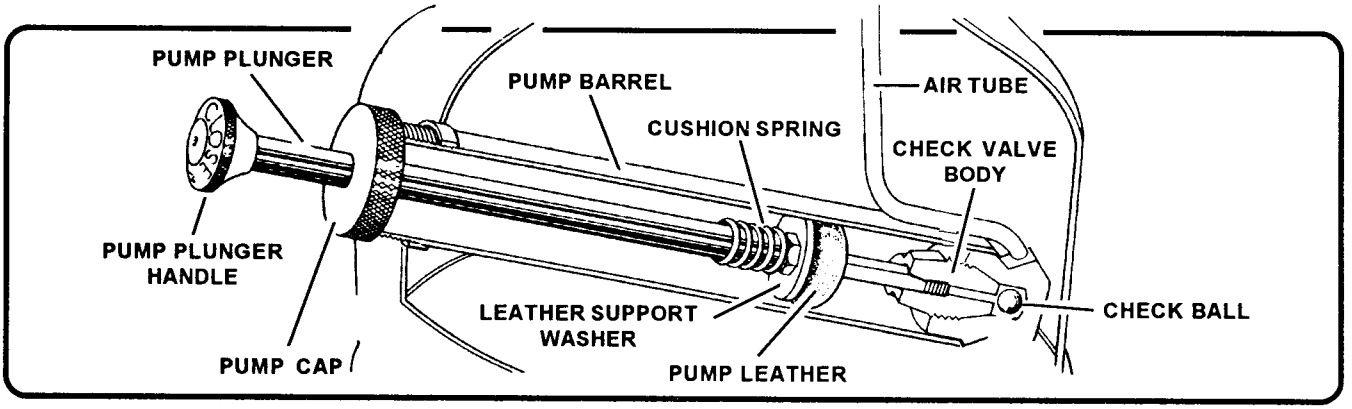


Figure A-3. Cutaway view of the pump assembly

Used lanterns. Check the globe for cracks, chips, or broken edges. Check the pump leather to be sure it is properly mounted and lubricated. Check the fuel valve assembly and the pump assembly for proper operation. Check all openings in the ventilator hood and the burner tubes to make sure they are clean and free of foreign matter. Make sure the fount is clean.

Maintain and Test

When you receive a used lantern, you must perform before-operation services as outlined in the following paragraph. Also, fill the fount with gasoline and light the lantern to test it for proper operation.

BEFORE-OPERATION SERVICE

Before-operation service is primarily an inspection to make sure no one has tampered with the lantern since the last after-operation service. When you complete the service, report the findings to your supervisor. You should–

- Inspect the lantern for loose, damaged, or missing parts.
- Make sure the lantern is always placed where there is the least danger of damage from moisture, dust, or corrosion.
- Clean the lantern.
- Make sure the ventilator hood openings are clear.
- Make sure that the pump leather is properly lubricated and in good condition.
- Make sure the filler cap gasket is on and in good condition.
- Make sure that the fuel valve, pump plunger, and check valve are in good working condition.
- Tighten all nuts and caps finger tight.
- Make sure the generator is in good condition, dry and clear of dirt.

SAFETY

Gasoline is a very dangerous fuel. Death or severe burns may result if you fail to observe safety precautions. To prevent injuries and fires, follow these safety rules when you use the lantern:

- Keep the lantern away from flammable material.
- Take off the protective cap that covers the tip and take out the screw in the flared end before you install a new generator.
- Tighten the generator locknut finger tight first. Then tighten it with the special wrench that comes with the lantern.
- Hold the lantern upright while you tighten the locknut to keep from twisting the generator out of shape.
- Pump the fount no more than 15 to 25 full strokes before you light the lantern.
- Carry the lantern upright to keep the mantle vertical.
- Keep the lantern in the cardboard carrying case when you move or store it. Do not jar the lantern. Cushion it with cloth, old inner tubes, or some other soft material when you have no case and must move it in a vehicle.
- Make sure there is good ventilation when you use the lantern.
- Keep a good gasket in the filler cap for a tight seal.
- Do not fill the lantern near an open flame.
- Take the globe or globe quadrants off before you light the lantern in an enclosed area.
- Do not let unburned vapor and air accumulate. They form an explosive mixture.
- Keep the lantern upright when you light it.
- Do not release pressure when the lantern is lighted or near an open flame. Let the lantern cool before you release pressure.
- Allow lantern to cool before releasing pressure and adding fuel.

OPERATION

Before you light the lantern, you must install the mantle and fill it. You must also service the lantern during operation and shut it off when you are finished with it. The steps you must

follow to operate, service, and shut off the lantern are discussed below.

Install the Mantle

Follow the steps below to install the mantle:

- Unscrew the hood retaining nut on the top of the lantern. Remove the ventilator hood and globe from the frame of the lantern.
- Take off any remnants of the old mantle or string which may be attached to the mantle holder.
- Slip a new mantle over the end of the mantle holder. Distribute the mantle fabric evenly about the mantle holder so that the mantle touches no part of the lantern except at the point where it is attached.
- Tighten the drawstring firmly to the groove in the mantle holder and wrap it around itself one time. Tie the drawstring with a square knot. Cut off the excess string.
- Unscrew the filler cap partially from the lantern to release any pressure in the fount. Apply a match flame to the bottom of the mantle. Let the mantle burn until the rayon is burned off and only the white ash is left.
- Install the globe, ventilator hood, and hood retaining nut. After the mantle has burned, allow it to cool for two or three minutes. Tighten the filler cap finger tight.

Fill the Lantern

Follow the steps below to fill the lantern:

- Unscrew the filler cap. Make sure that the gasket is on and in good condition.
- Make sure the lantern is cool before adding fuel.
- Turn the valve fully clockwise to close the fuel valve.
- Strain the gasoline through a clean cloth or a fine mesh strainer, if possible. Use a funnel and fill the fount with gasoline to about three-fourths full. (Leave space for air.)
- Put on the filler cap and tighten it. Do not use a wrench or pliers to tighten the cap.

Light the Lantern

Follow the steps below to light the lantern:

- Let out any pressure in the fount by partially unscrewing the gasoline filler cap. When the air has been let out through the drilled hole in the edge of the filler cap, tighten the filler cap finger-tight.
- Make sure that the fuel valve is closed. Turn the pump plunger handle counterclockwise two full turns to open the air-check valve inside the pump barrel.
- Pump 15 to 25 full strokes into the fount to build up the air pressure. Hold your thumb firmly over the small hole in the end of the pump plunger handle on the downstroke. Lift your thumb on the upstroke.
- Push the pump plunger handle down as far as it will go so that the plunger returns to its normal place inside the pump barrel.
- Close the air-check valve by turning the plunger handle fully clockwise. Tighten the valve firmly with your fingers.
- Hold a lighted match under the mantle. If a globe is mounted on the lantern, put a lighted match through the large opening in the frame. When the lighted match is under the mantle, turn the fuel valve one-quarter turn counterclockwise to open the valve slightly. The mantle should light as soon as the gas vapor reaches it, which may take 15 seconds.
- After the mantle starts burning brightly, gradually open the fuel valve as far as possible, about three full turns counterclockwise.
- Pump several strokes to build the pressure if the light dims. You need to build up fuel pressure to keep the light bright.

Service the Lantern During Operation

During operation, watch the lantern while it is lighted and check for signs of trouble. Stop using the lantern right away if you see something that may damage the equipment. Table A-1,

page A-7, is a troubleshooting chart you can use. Also, you should do the following:

- Check to make sure that the ventilator hood openings are clear.
- Visually inspect the lantern for loose, damaged, or broken parts.
- Keep the lantern away from flammable material.

Shut Off the Lantern

When you shut off the lantern, follow the procedures below.

- Turn the fuel valve clockwise as far as it will go.
- Wait for the mantle to cool before you try to relight it.
- Let out the pressure on the fuel by partially unscrewing the gasoline filler cap. When the air has been let out through the drilled hole in the edge of the filler cap, retighten the filler cap finger tight.

AFTER-OPERATION SERVICE

Service the lantern as soon as you finish using it. Inspect it for problems that may have developed while the lantern was being used. Correct the problems identified in the user maintenance paragraph. Also, follow the procedures given below:

- Clean the lantern.
- Make sure that the pump leather is properly lubricated and in good working condition.
- Inspect the lantern for loose, damaged, or broken parts.
- Make sure the filler cap gasket is on and in good condition.
- Make sure the fuel valve, pump plunger and check valve are working properly.
- Tighten all nuts and caps finger tight.
- Inspect the generator to see that it is in good condition, dry and clear of dirt.
- See that the lantern tools are in serviceable condition and that they are clean and stored properly.
- Store the lantern where there is the least danger of damage from moisture, dust or corrosion.

USER MAINTENANCE

The user must keep the lantern in good working condition. You must maintain the pump plunger, pump leather, the burner assembly, the globe quadrant, the generator and the fuel valve. Maintenance of these components is discussed below.

Pump Plunger

Replace the pump plunger (shown in Figure A-3, page A-3) when it is worn or defective. Follow the procedures below to replace the pump plunger.

- Unscrew the pump cap from its connection at the fount assembly and draw the plunger out from the pump barrel.
- Install the new pump plunger with the pump leather attached into the pump barrel. Make sure that the square chamber in the center of the plunger is keyed onto the air stem (square shaft).
- Push the plunger into the barrel as far as it will go and tighten the pump cap finger tight.

Pump Leather

If the pump leather is cracked or brittle, place a few drops of light oil on it. If oil fails to soften the leather, replace it as described below.

- Tighten, finger tight, the pump plunger handle clockwise.
- Unscrew the pump cap from its connection at the fount and draw the pump plunger from the pump barrel.
- Unscrew the retaining nut from the end of the pump plunger and lift off the lower washer.
- Take off the damaged pump leather from the pump plunger and install the new pump leather.
- Replace the leather support washer and the retaining nut on the end of the pump plunger. Tighten the nut firmly. Place a few drops of light oil on the pump leather and knead the oil into the leather with your fingers.
- Insert the pump plunger into the pump barrel. Slide the plunger forward until the pump cap rests on the connection on the fount. Tighten the pump cap securely.

Table A-1. Troubleshooting chart for gasoline lanterns

PROBLEM	CAUSE	REMEDY
Dim light	Low air pressure	Build up pressure
	Lack of fuel	Refill fount
	Generator tip clogged	Clean tip
	Generator tube clogged	Replace generator
	Burner tube clogged	Clean out deposits
Loss of air pressure	Air check valve leak, check ball stuck	Place a few drops of penetrating oil on check ball
	Leak between fuel valve and fount	Tighten valve in fount
	Leak between fuel valve and adapter nipple	Tighten adapter nipple
	Leak at generator locknut	Tighten locknut
	Leak at fillercap	Tighten fillercap or replace fillercap gasket
Mantle burns yellow flame	Clogged burner tube	Clean tube or replace burner assembly
Unable to pressurize fount	Dry pump leather	Oil or replace pump leather

Burner Assembly

The burner assembly gets clogged at times. This causes the lantern to burn with a dim, yellow flame. When this happens, the open, fork-shaped tube must be cleaned. To clean the burner assembly, follow the steps below.

- Take off the hood retaining nut (Figure A-1, page A-1) that holds the ventilator hood to the burner assembly and lift the hood off the burner assembly stud.
- Lift the globe from the frame assembly.
- Unscrew the locknut on the adapter nipple as far as the frame permits. Lift the burner assembly slightly until the square opening in the base fits the square portion of the adapter nipple.
- Unscrew the burner assembly by turning it counterclockwise. Do not apply pressure on the two ends of the burner tube. Use the base of the burner assembly for leverage.
- Lift the burner assembly, with the generator attached, from the top of the fuel valve and out of the frame assembly.
- Unscrew the generator locknut that holds the generator to the adapter nipple. Lift the generator off the seat on the adapter nipple. Take the tip of the generator off from the top of the burner assembly.
- Clean the burner tube by inserting a soft wire up through the opening.
- Install the burner assembly by reversing the steps above.
- Light the lantern. If you still have trouble, replace the burner assembly.

Globe Quadrant

The lantern may have either a single cylindrical globe or globe quadrants. If globe quadrants are broken or cracked, replace them. If a globe is broken or cracked, replace it with quadrants using the quadrant globe conversion kit. To replace any defective globe quadrants, follow the steps below.

- Take off the hood retaining nut and the ventilator hood.
- The damaged quadrants up and out of the channels.
- Clean all the quadrants with soapy water. Dry them with a clean, dry cloth.
- Slide the used or new quadrants down between the channels.
- Put on the ventilator hood and the hood retaining nut. Tighten the nut finger tight.

Generator

As a rule, the generator will operate for 100 to 200 hours. Inspect it after 50 to 75 hours of operation and clean it if necessary. A gradual dimming of the lantern light usually means there is carbon in the generator or that there is a clogged tip. Normally only the generator tip will need cleaning. If the tube is badly clogged, install a new generator.

Removal. To remove the generator, follow the steps below.

- Unscrew the hood retaining nut and take off the ventilator hood and globe.
- Unscrew the generator locknut at the bottom of the generator with the special wrench that comes in the wrench assembly.
- Lift the generator from its seat on the adaptor nipple and slip the generator tip from the opening in the burner assembly. Slide the locknut over and off of the generator tip.

Cleaning. To clean the generator, follow the steps below.

- Unscrew the generator tip, using the special wrench that comes with the wrench assembly.
- Insert the pricker needle into the tiny hole at the front of the tip. Use care to keep from bending the needle. Blow through the tip from the back to remove carbon particles. Check to make sure that the tip is clean by looking through it toward a bright light. Screw the cleaned tip back on to the generator.

Installation. Reverse the steps in the removal procedure for the generator.

Fuel Valve

If the fuel valve is not working correctly, follow the steps below.

Test the fuel valve. First, remove the generator. Make sure that pressure is in the fount. Then open the fuel valve one-fourth turn counterclockwise. Look at the opening at the top of the nipple when the fuel valve is working as it should. If you see no mist or vapor, open the fuel valve fully counterclockwise. If you see no mist or vapor with the valve fully opened, you should service or replace the valve.

Replace the valve stem packing. After extended use, the fuel valve stem packing on the lantern may shrink and cause a leak. To stop the leak, tighten the valve packing nut a few turns to hold the packing in firm contact with the valve stem. If this does not stop the leak, replace the packing according to the procedures below.

- Unscrew packing nut from connection on fuel valve body.
- Turn fuel valve knob counterclockwise as far as it will go and take out the valve stem.
- Remove knob screw that holds knob to stem and slip knob from valve stem.
- Slip packing nut off valve stem and slide off packing gland and packing.
- Slide new packing down against the retaining ring and put in the packing gland, packing nut and valve knob.
- Insert valve stem (assembled) into body of valve and turn valve knob clockwise as far as it

will go. Tighten packing nut on connection on valve body.

UNIT MAINTENANCE

Operators must perform organizational maintenance on the gasoline lantern. Maintenance procedures for the burner-generator, the frame assembly, the globe and quadrant globe conversion kit, the fuel valve, the valve stem and the air-check valve are discussed below.

Burner-Generator

If the burner-generator has been cleaned and still does not work properly, it must be replaced. Replace it as follows:

- Remove the hood retaining nut, hood and globe or globe quadrants. If the mantle is attached to the mantle holder, remove the mantle.
- Unscrew the locknut at the bottom of the generator. Lift the generator off the seat on the adapter nipple. Take off the top of the generator from the fuel-air mixing chamber on the burner assembly.
- Unscrew the locknut on the adapter nipple as far as the frame permits. Lift the burner assembly slightly until the square opening in the base fits the square opening portion of the adapter nipple.
- Unscrew the burner assembly by turning it counterclockwise. Do not apply pressure to the fork-shaped tube of the burner assembly. Use the base for leverage. Remove the burner assembly from the top of the fuel valve.
- Unscrew the locknut from the adapter nipple and remove the adapter nipple from the burner assembly.
- Take the preservative material from the new burner assembly. Examine the assembly for visible defects.
- Place the adapter nipple through the top opening in the burner frame and screw the locknut on the threaded end of the adapter nipple.
- Install the new burner assembly by reversing the steps for removing the burner.

Frame Assembly

A bent or damaged frame may cause the globe or globe quadrants to break or to fit improperly or it may cause damage to other parts of the lantern. Replace the frame assembly as follows:

- Remove the hood retaining nut, hood and globe.
- Loosen the locknut on the adapter nipple and unscrew the adapter nipple from the top of the fuel valve. Lift the burner assembly from the frame assembly with the generator attached.
- Lift the frame assembly off the top of the frame rest.
- Install the new frame assembly by reversing steps for removing the assembly.

Quadrant Globe Conversion Kit

If the single cylindrical globe is damaged, replace it with the quadrant globe conversion kit. The kit is made up of four globe channels and four globe quadrants. Install the kit as follows:

- Take off the hood retaining nut and hood. Lift the single cylindrical globe out of the frame assembly.
- Place the side of the channel which contains the tabs against the inside of the frame bars and frame bail bars.
- Crimp the tabs firmly around the frame bars and frame bail bars with pliers.
- Check all channels and tabs to make sure that they are mounted properly and securely.
- Place the globe quadrants into globe channels. Let them slide down and rest on the bottom of the frame assembly.
- Put on the ventilator hood and hood retaining nut after all quadrants have been placed. Tighten the nut finger tight.

Fuel Valve

Follow the steps given on page A-8 to remove, service, and install the fuel valve. If the fuel valve has just been tested, skip this procedure.

Valve Stem

Replace a worn or damaged valve stem as follows:

- Turn the valve knob counterclockwise as far as it will go.
- Remove the knob screw that holds the valve knob to the valve stem. Slide the knob off the stem.
- Unscrew the packing nut from the connection on the fuel valve body and slide the nut from the stem.
- Slide the valve stem from the fuel valve body.
- Slide the packing gland, packing and retainer ring from the valve stem.
- Remove the clamp ring from the valve stem.
- Install a new valve stem in the fuel valve by reversing the steps above.

Air-Check Valve

Remove and service a worn or defective air-check valve as follows:

- Unscrew the pump cap from its connection and from the fount assembly. Draw the plunger out from the pump barrel.
- Unscrew the air stem (square shaft) from the air-check valve body. Remove the air stem from the pump barrel.
- Insert a screwdriver with a 1/2-inch blade down the pump barrel into the slotted opening of the air-check valve body. Turn the screwdriver counterclockwise until the air-check valve body is loose. Remove the air-check valve body from the pump barrel.
- Inspect the check ball in the air-check valve for proper operation. If the check ball is stuck, place a few drops of penetrating oil on the ball. This should loosen the ball.
- Install the air-check valve into the pump barrel. Tighten the valve securely.
- Insert the air stem into the pump barrel. Tighten the stem securely in the air-check valve.
- Install the pump plunger into the pump barrel. Make sure the square chamber in the center of the plunger is keyed onto the air stem. Push the plunger into the pump barrel as far as it will go and tighten the pump cap finger tight.
- Check the operation of the air-check valve. If air pressure is lost, remove the valve and install a new air-check valve.

APPENDIX B
SAMPLE STANDING OPERATING PROCEDURES FOR FIELD KITCHEN MAINTENANCE

This SOP is a sample to be used as a tool in constructing a Field Kitchen Maintenance SOP. It is an excellent guide in coordinating maintenance functions ensuring uniformity and proper procedures for performing PMCS on food service equipment.

OFFICE SYMBOL (30)

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Field Kitchen Equipment Maintenance SOP

1. Purpose: This SOP establishes the objectives, responsibilities and maintenance procedures applicable to the care and maintenance of field kitchen equipment.

2. Mission: The mission of the G4 Food Service Office is to:

a. Provide assistance and training in the care and maintenance of field equipment.

b. Ensure 100 percent mobilization of serviceable field equipment in support of all deployments and training exercises.

3. Responsibilities:

a. G4 Food Service will:

(1) Ensure 100 percent of the field kitchen equipment in the division is serviceable and combat ready.

(2) Offer the commanders assistance in training personnel in the proper care and maintenance of equipment.

(3) Conduct evaluations on field kitchen equipment when requested by the commander.

(4) Conduct quarterly assistance visits of field kitchen equipment to aid the commander in weak area(s) of maintenance.

(5) Conduct evaluations for cleanliness and serviceability of field kitchen equipment within 72 hours after the completion of the field training exercise.

(6) Evaluate field kitchen equipment during field training operations.

b. Commander will:

(1) Ensure field kitchen equipment is 100 percent mission capable by periodically inspecting maintenance, serviceability and parts on order.

(2) Request assistance in continuous training and evaluations.

(3) Request and schedule evaluations of the field kitchen equipment within 72 hours after the completion of an exercise.

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(4) Ensure personnel are properly trained in the proper use, care and maintenance of field kitchen equipment.

c. Food Operations Sergeant will:

(1) Ensure 100 percent serviceability of field kitchen equipment.

(2) Ensure personnel are trained adequately to care for and maintain field kitchen equipment IAW the required manuals.

(3) Ensure DA Forms 2404 and 2408-14 and DD Form 314 are completed and maintained IAW most recent Maintenance Management Update. If under ULLS, ensure the automated maintenance forms are completed and maintained IAW the most recent Maintenance Management Update. (ULLS replaces the DD 314 and the DA 2408-14 for determining deferred maintenance.)

(4) Request assistance from the G4 Food Service Office.

(5) Ensure all items of equipment on the supply hand receipt are signed for properly by the FOS.

d. Food Service Personnel will:

(1) Care for and maintain equipment before, during and after field training exercises.

(2) Inspect equipment continuously IAW with TMs and note all deficiencies on DA Form 2404.

(3) Ensure DD Form 314 or ULLS is maintained IAW current Maintenance Management Update.

(4) Ensure equipment is 100 percent serviceable, cleaned and free of rust within 72 hours after the termination of the exercise.

(5) Seek assistance from the G4 Food Service Office through the appropriate chain of concern.

e. Units will:

(1) Use all MTOE Field Kitchen Equipment during field training exercises. Deploy as you would go to war, train in peacetime as you would go to war.

(2) Use Immersion Heaters or Sanitation Center when preparing A-Ration meals.

(3) Do NOT use field expedients, such as fabricated griddles, butane fired or charcoal grills, or any other unauthorized equipment during field training exercises. The Commander, FSO and

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FOS are responsible for soldiers injured or equipment damaged as a result of unauthorized or altered equipment.

4. Maintenance:

a. Field Range M-59:

(1) Each two M-59 cabinets require one TM 10-7360-204-13&P in the TO&E room.

(2) Each M-59 Range requires a DA Form 2404 indicating the deficiencies found on equipment. Deficiencies, missing and unserviceable parts must be annotated with document number provided by the PLL clerk.

(3) The M-59 Ranges must be numbered. Numbering the ranges ensures proper identification on the DA Form 2404 (Encl 1). This allows the FOS to get the needed part to the proper place when the equipment is deployed out of the BSA.

(4) Each M-59 Range must be cleaned with hot soapy water and/or dry cleaning solvent P-D-680, NSN: 6850-00-664-5685. NOTE: Do not use around open flame or excessive heat and avoid long or periods of exposure to bare skin. Ensure that this, and all contaminants, are disposed of properly in an approved container. Do not use abrasive cleaners or wire brushes. A commercial type nylon pad may be used to remove corrosion or caked-on grease.

(5) Each M-59 Range must be free of rust, burnt grease and food particles. Note: When all rust is removed, the cradle rails and hinges must be lubricated IAW page 3-1, paragraph 3-2 of TM 10-7360-204-13&P.

(6) All component parts must be cleaned and free of dirt.

(7) Lightly coat exposed surfaces of cabinet and pot handles with P14 Preventive Compound, NSN: 8030-00-251-5048, to prevent rust.

b. M-2 Burner Unit:

(1) All units are required to have DA Forms 2404 indicating the deficiencies found on equipment. Deficiencies, missing and unserviceable parts must be annotated with document number provided by the PLL clerk.

(2) All M-2 burner units will be modified with safety valve device. Each unit must be numbered IAW Encl 1.

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(3) Each fuel tank on the M-2 burner unit will be modified with 1/4 inch flat washer to raise the tank position to prevent the tank from dragging on the M-59 Cabinet and ground.

(4) The M-2 burner unit must be cleaned and all rust removed. The top and bottom shield on the burner unit will not be painted. If mixing chamber or fuel tank is painted, use aluminum paint, NSN: 8010-00-664-7468.

(5) The top and bottom shields will be cleaned with hot soapy water, rinsed and let air dry. The shield has a protective coating, therefore no abrasive compound or material can be used.

(6) Each M-2 burner unit will have two (2) spare generators. Note: It is important to remove the plastic caps on the spare generators before placing the unit into operation. The heat from the burner unit will melt the caps on the generator making the generator inoperable.

(7) Each M-2 burner unit will have the caution and operational decals. When the M-2 burner is stored, it must be free of gasoline. Drain fuel tank by removing drain plug and standing tank with drain down and slightly tipped to allow fuel to drain out of tank. During draining of fuel, remove filler cap on fuel tank. Do not drain fuel while smoking or in proximity of an open flame.

(8) Clean the mixing chamber and air shutter assembly in cleaning solvent P-D-680 and wipe dry. Lubricate air shutter after cleaning.

(9) The burner is cleaned with a wire brush and slot cleaner. Use the slot cleaner in a rocking motion to prevent possible damage to the slot, clean each slot carefully and remove all carbon and foreign matter. Wash burner with hot soapy water, rinse with clean boiling water and air dry.

(10) Coat the Burner and unpainted parts with P-10, Grade (10) Lubrication oil IAW TM 10-7360-204-13&P. Apply a light coat of antiseize compound to threads of burner bolt before replacing.

(11) The air pressure gauge will be changed when damaged or glass becomes cracked.

c. Accessory Outfit:

(1) One (1) accessory outfit must be available for every one to four M-59 Ranges. The accessory kit tool box is to be numbered IAW Encl.

(2) Each accessory outfit must have a DA Form 2404 listing items missing from the outfit. The kit tool box and all items in the accessory kit must be serviceable and clean.

(3) Each accessory outfit will have one set of heat protective gloves, NSN 8415-01-092-3910.

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(4) Baking racks must be cleaned with hot soapy water. Gentle rubbing with a scouring pad can remove stubborn foreign material.

d. Immersion Heaters:

(1) Each immersion heater requires a DA Form 2404 indicating the deficiencies found on equipment. Deficiencies, missing and unserviceable parts must be annotated with document number provided by the PLL clerk.

(2) One (1) TM 5-4540-202-12&P updated for every four immersion heaters should be on hand.

(3) Each fuel can must present a camouflaged pattern and numbered IAW Encl 1. The immersion heater should be painted 6 inches (OD Green) down, measuring from the top of the flue compartment. Use only authorized paint for this purpose (TM 5-4540-202-12&P, Page 3-7, Para 3-4(b)).

(4) All immersion heaters must be cleaned and free of rust. Clean inside of flue chamber with brush (TM 5-4540-202-12&P Appendix E, Item 9). Pick up heater body and dump residue. The next usage of the heater will burn out balance of residue. Do not use solvent or cleaning compound on interior of heater body as it will leave a greasy film.

(5) Clean outside of immersion heater by hand with a scouring pad, or extra fine sandpaper to remove rust, corrosive products, oil, grease, or dirt. If heaters are to be stored, lightly coat heater body with Corrosive Preventive Petroleum, NSN 8030-00-251-5048 to prevent rust. Scrub with P-D-680 to remove petroleum and clean with hot soapy water prior to next use.

(6) Remove the burner assembly from the burner compartment and remove all rust and carbon build-up. Wipe dry. Wrap burner assembly with barrier paper and store. Wipe clean prior next use.

(7) Ensure the igniter assembly has a wick and retainer spring.

(8) Check the fuel tank to ensure it is serviceable, clean and free of rust. With fuel valve removed, flush tank with a small amount of fuel then coat interior of empty tank with P-10 Oil, NSN 9150-00-111-3199 to prevent rust. Flush tank with a small amount of clean fuel prior to next use. This will eliminate smoking. Use approved disposal container to discard mixture.

(9) The instruction and information plate (Caution, identification) on the fuel tank and heater must be readable.

(10) Immersion heaters must be numbered IAW Encl 1 to this appendix.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

(11) Smokestack sections are to have all soot removed. Wash exterior with brush and hot water, dry thoroughly. When dry, put a coat of preservative lube oil, NSN 9150-00-231-2341 on them.

(12) Each section of pipe must have two (2) rivets in the top and bottom pipe. Wash the exterior of the pipe with a brush and soapy water. Rinse and thoroughly dry. Remove soot from interior of pipes by running sand or fine gravel through the sections.

e. Corrugated Cans (32 Gallons):

(1) Corrugated cans must be camouflaged. The camouflage should cover only the outside of the can up to 1/2 inch from the top of the can. (Do not let paint touch the rim of the can)

(2) All corrugated cans used in conjunction with the immersion heater must be clean and free of rust. Trash cans will also be camouflaged and have the word "Trash" labeled on the center of the can.

f. Insulated Food Containers (IFC):

(1) The insulated food container requires a DA Form 2404 indicating the deficiencies found on the equipment. Deficiencies, missing or unserviceable parts must be annotated with a document number by the PLL clerk.

(2) Insulated food containers must be camouflaged. Note: The rubber gaskets and the base of the food container where the rubber gasket sits will be free of paint.

(3) All food containers must be free of food particles and cleaned with hot soapy water. Never immerse the food containers in water. Allow the containers to air dry.

(4) After washing the gaskets from the food containers, put them back on the container with the flat side down and let them dry that way. Replace the rubber gaskets. NOTE: Do not store the rubber gaskets independently of the food container or they will loose their shape and not properly seal the IFC.

(5) The containers should be stored on a shelf or on a pallet in a dry area. The food containers should be stored with lids closed but unlatched. The latches and handles on the food container should be serviceable.

(6) The data and instruction plate on the insulated food container must be readable. When painting ensure the data plate is covered.

(7) Containers will be numbered IAW Encl 1.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

g. Ice Chest:

(1) The ice chest requires a DA Form 2404 indicating the deficiencies found on the equipment. Deficiencies, missing or unserviceable parts must be annotated with a document number by the PLL clerk.

(2) The ice chest is required to be camouflaged and numbered IAW Encl 1.

(3) The ice chest authorized with the mobile kitchen trailer (MKT) will not be painted.

(4) The ice chest must be cleaned inside and out with warm water and mild detergent. Rinse thoroughly. Let air-dry with the lid open. The rubber gasket inside the chest must be clean and serviceable. Keep ice chest open to air dry.

(5) The 200 lb and 400 lb ice chests are to be cleaned in the same manner as (3) above.

h. Water Trailer, Water Cans, Water Sterilization Bag:

(1) The water trailer requires a DA Form 2404 indicating the deficiencies found on the equipment. Deficiencies, missing or unserviceable parts must be annotated with a document number by the PLL Clerk.

(2) The water trailer must be cleaned on the inside and out. The water trailer will be inspected quarterly in garrison and when not being used. It should be inspected before filling. When in the field, the water trailer must be checked twice daily by qualified personnel. The chlorine percentage should be marked on the side of the trailers with the time, date and parts per million. PMCS will be performed IAW appropriate TM's and unit SOP's. The water trailer is to be certified semiannually by the supporting Preventive Medicine Office. This inspection will be annotated on the DD Form 314 or hand written on the latest ULLS report.

(3) Water trailer must be camouflaged IAW TB 43-0209.

(4) When the water trailer is being stored, all water will be drained from trailer.

(5) The water trailer should be checked for serviceability IAW TM 9-2330-267-14&P. All shortcomings should be annotated on DA Form 2404. Check trailers surface for excessive cracks, signs of use other than water, such as: gasoline, non-potable water, etc.

(6) Water cans should be serviceable and clean. Water must be drained from cans when storing.

(7) All water cans must be stenciled in 2 inch black letters or OD green "Potable Water" IAW Encl 1.

(8) There should be a minimum of eight (8) water cans on hand per MKT trailer.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

(9) It is required to have a minimum of three (3) days sanitary supplies and food service disinfectant on hand. (NSN 6840-00-810-6396).

(10) The water sterilization bag must be cleaned and checked for holes. Wash in warm soapy water and rinse in clear hot water.

(11) When storing, scrub inside of water sterilization bag with a chlorine solution. Use a one-half mess kit spoonful or 1 MRE spoonful of calcium hypochlorite, NSN 6810-00-255-0471. Hang until completely dry, fold and wrap in kraft paper, NSN 8135-00-160-7752. Store in new fiberboard box, NSN 8115-00-428-4124, in clean, dry place.

(12) Do not store water sterilization bag while it is wet.

i. Mobile Kitchen Trailer (MKT):

(1) The MKT requires a DA Form 2404 indicating the deficiencies found on the equipment. Deficiencies, missing or unserviceable parts must be annotated with a document number by the PLL clerk.

(2) When preparing the MKT for the travel mode, it is important the equipment is cleaned and placed on the trailer IAW Applicable TM.

(3) All procedures previously noted in this SOP are applicable to the M-2 burners on the MKT, Sec 4b, 1-11.

(4) Gasoline will not remain in the M-2 burner units during storage or the travel mode.

(5) All procedures previously mentioned in this SOP pertaining to the M-59 Range are applicable to the ranges on the MKT, section 4a, 1-7.

(6) When parts are missing on any piece of equipment, they should be listed on the DA Form 2404 with a document number or ULLS. When the part arrives, it should immediately be placed on the equipment and the DA Form 2404 will be initialed to show has been completed. Once told the part is not on hand through PLL, initiate a DA Form 2408-14 or ULLS which justifies deferred maintenance. If the parts have not arrived within 30 days, the food operations sergeant should recheck the PLL.

(7) All cabinets and tables must be free of food, grease, food particles and dirt. Recipe cards, cleaning supplies, foods, etc. will not remain on the MKT during storage. Food contact services will be sanitized using a disinfectant of at least 50 Parts Per Million (PPM).

(8) All components on the mobile kitchen trailer should be free from dirt, grease and rust.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

(9) When in the field, the MKT should be stripped once each day for cleaning (recommend after the breakfast meal). Upon returning to garrison, the MKT will be thoroughly cleaned and all supplies removed and stored elsewhere. Reference: TM 10-7360-206-13.

(10) Lubrication must be performed IAW Reference: LO 10-7360-206-12, Trailer Chassis Lubrication: TM 9-2330-213-14. The lubrication will be annotated on the DD Form 314 or the ULLS when completed.

(11) The interior surface must be cleaned daily, to include the vents and any other areas where dirt and grease have accumulated.

(12) Each MKT is required to have an updated TM 10-7360-206-13 on hand.

(13) The travel covers and roof fabric should be serviceable and free of dirt. Turn-in procedures for repair of holes, tears, broken zippers etc. are shown at Encl 2 to this appendix.

(14) All procedures previously noted in this SOP pertaining to the Insulated Food Containers are applicable to those on the MKT, Sec 4f, 1-7.

j. Kitchen Company Level Field Feeding-Enhanced (KCLFF-E):

(1) All procedures mentioned in this SOP pertaining to the M-2 burner unit are applicable to those utilized with the KCLFF. (Section 4b, 1-11).

(2) The interior and exterior of the beverage dispensers must be cleaned. All temporary labels on the container will be removed.

(3) The spigot will be thoroughly washed and rinsed with clear hot water to loosen any hardened matter.

(4) Cooking pots and all utensils used must be free of burnt food deposits, dirt and grease.

(5) Heater cabinet will be cleaned with hot soapy water and be free of any rust.

(6) All meal carriers will be cleaned with hot soapy water.

(7) The pot cradle assembly will be cleaned with hot water.

(8) The work table including legs and bottom will be washed thoroughly with hot soapy water.

(9) Ensure the tray pack lifter and server are cleaned with hot soapy water, rinsed and air dried.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

(10) All information previously mentioned in this SOP pertaining to the accessory kit are applicable to the accessory kit of the KCLFF, Sec 4c, 1-4.

(11) Each KCLFF is required to have an updated TM 10-7360-209-13&P on hand.

(12) The KCLFF equipment will be numbered IAW Encl 1.

k. Lanterns and Fire Extinguishers:

(1) Each team authorized and/or utilizing lanterns must have a list of part numbers on hand for ordering. Part number listings are found enclosed with each new lantern.

(2) There should be a minimum of three lanterns on hand. Each lantern is required to be numbered with 2 inch numbers stenciled and "centered" on the bottom of the lantern.

(3) DA Form 2404 must be maintained on each lantern denoting any shortcomings. The DA Form 2404 must be maintained IAW current Maintenance Management Update.

(4) Each lantern is required to have spare parts (6 mantles, 1 gasket, filler-cap, 1 leather pump, 1 packing preformed valve stem and pricker).

(5) A minimum of four fire extinguishers will be on hand.

(6) There should be a minimum of three (3) five gallon fuel cans on hand. Fuel cans must be serviceable. Gaskets should fit properly and fuel caps should be free of rust.

(7) Number fuel cans IAW Encl 1 for water cans using the below information. The tops of all fuel cans must be marked as follows:

Nomenclature.	MOGAS	- Automotive Gasoline.
	DF	- Diesel Fuel.
	AVGAS	- Aviation Gasoline.
	JP	- Turbine Fuel.
Color Code.	Red	- MOGAS.
	Yellow	- Diesel.
	Olive Drab	- AVGAS/JP.

Stenciling will be done in Yellow paint.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

l. M1948 Kitchen Tent:

(1) The updated Technical Manual (TM) 10-8340-205-13 will be on hand.

(2) The DA Form 2404 and DD Form 314 or ULLS must be maintained IAW Maintenance Management Update.

(3) The M1948 tent with fly-proof screen must be serviceable and clean.

(4) Poles and pegs must be complete and in serviceable condition.

(5) A wood mallet or steel hammer should be on hand.

m. Publications, SOPs and Loading Plans:

(1) All PLL will be established to requisition and retain parts for the field kitchen equipment.

(2) The hand receipt listing equipment and/or components must be on hand when evaluated by the G4 Food Service Office.

(3) Equipment authorized to be used should be IAW the Table of Organization and Equipment (TOE).

(4) A sample copy of all documentation required to open a field account should be affixed in document protectors at the front of a hard back binder. Each unit operating a field kitchen should also have an approved (signed by the Food Advisor in your chain or the Division Food Advisor) field kitchen SOP on hand. FM 10-23, Chapter 4 on Unit Preparation lists required SOPs to be developed.

(5) Each unit field kitchen must have a loading plan. The loading plan must be realistic and readable. The loading plan for the KCLFF should be IAW FM 10-23 Chapter 5 and/or unit SOP.

(a) The system comes with an M-59 field range, IFCs, ice chest, beverage dispensers, eight 5-gallon water cans and a heater cabinet.

(b) All accessories can be stored in the KCLFF heater and components for loading purposes.

(c) Remember you and one cook are assigned to operate the KCLFF. However you must be provided full time support from the supported unit.

(d) Appropriate shelter must be provided for the KCLFF during inclement weather. These items are currently in the system and can be ordered: (a) Tent, Command Post, complete; NSN 8340-00-254-5358. (b) Tent, Hexagonal, M-1950, OD, NSN 8340-00-269-1372.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

5. Assistance Visits: Prior to a unit assistance visit by G4 Food Service the following steps are required:

a. The M-59 Ranges must be set up with all component parts. The M-2 Burner Unit will not be left in the cabinet. The cradle with pot will rest on the door of the range when opened.

b. The M-2 Burner Units must be placed in the standing position in front of the M-59 range. The top shield will be removed and positioned in front of the burner unit.

c. All Immersion Heaters will be lined up with the burner assembly centered on top of the fuel tank and the tank positioned on top of the combustion chamber. Stove pipes will be placed on the floor upright next to the Immersion Heaters. Do not connect any pipes. Fuel caps on the fuel tanks must be left opened.

d. The 32 Gallon Corrugated Cans can be stacked no more than three cans high.

e. Empty water and fuel cans must be organized with lids left opened.

f. All publications, SOPs and loading plans will be organized and placed on a table. If publications are not available, there must be a document indicating the publications have been placed on order by the Publications Clerk.

g. The Kitchen Company Level Field Feeding-Enchanced (KCLFF-E) should be placed in an area so that it is easily accessible. Do not leave the M-2 Burner Units in the cabinet.

h. Ice chests are to be opened.

i. Insulated food containers can be closed, but unlatched. The inserts with lids and gaskets will also be stored in the containers.

j. The accessory kit and its components should be laid out neatly on a table.

k. Faucets to beverage dispensers will be left attached.

l. The Mobile Kitchen Trailer must be complete minus the equipment required to remain in the storage room IAW the SOP.

m. When the M1948, GP Medium, or other tent(s) is used in lieu of the MKT, it must be cleaned, folded and stored properly on appropriate dunnage. A 3X5 card will be attached with the following information provided: Name of unit, date last cleaned, date last serviced and date last waterproofed.

n. Gasoline will not be stored in any equipment. Gasoline found in equipment will result in an overall unsatisfactory rating.

OFFICE SYMBOL
SUBJECT: Field Kitchen Equipment Maintenance SOP

NOTE: The DA Form 2408-14 (uncorrected Fault Records) is a record of uncorrected faults and deferred maintenance actions on equipment. Deferred maintenance actions are authorized delays for repair or maintenance. This form is required to be maintained by the food operations sergeant. Do not use the DA Form 2408-14 unless there is an action to be deferred.

o. The Field Dining Equipment Checklist at Encl 3 may be used by commanders and food service personnel to assist in pre-inspection checks.

6. G4 point of contact for this SOP is, Division Food Service, extension

FOR THE COMMANDER:

Encls

ACofS, G4

DISTRIBUTION:
__ plus Div Fd Svc

AUTHORIZATION

Listed below are items authorized to be used in the field according to TOE.

1. M1948 Kitchen Tent
   CTA 50-909 Pg. 19-005
   One tent per Accessory Outfit

2. Accessory Outfit
   AR 310-34
   Field Ranges

3. M-59 Field Range Outfit
   w/M-2 Burner
   AR 310-34 Pg. 64
   1-104 personnel 2 Ranges
   105-232 personnel 3 Ranges
   233-307 personnel 4 Ranges
   308-400 personnel 5 Ranges
   For each additional 80 personnel
   over 400 add 1 Range

4. Immersion Heaters
   AR 310-34 Pg. S4
   4 Heaters per 80 personnel
   assigned to your unit.

5. Insulated Food Containers
   CTA 50-909 Pg. 30
   2 Containers per 25 Individuals
   assigned to your unit

6. Gasoline Lanterns
   CTA 50-970 Pg. 106
   2 Lanterns per Kitchen Tent
   TM 10-7360-206-13 Pg. 2 Chap. 7
   3 Lanterns per Mobile Kitchen
   Trailer

7. 36 Gallon Water
   Sterilization Bag
   CTA 50-909 Pg. 21-001
   1 Bag per 100 personnel

8. 5 Gallon Gas Can
   1 cab per M-59 Field
   Range Outfit

9. 200 lb & 400 lb Chest Ice
   Storage
   CTA 50-909 Pg. 13-006
   1 Ice Chest per
   Kitchen Tent

REFERENCES

AR 30-1 THE ARMY FOOD SERVICE PROGRAM

AR 30-21 THE ARMY FIELD FEEDING SYSTEM

TB MED 530 FOOD SERVICE SANITATION

FM 20-3 CAMOUFLAGE

FM 10-16 GENERAL REPAIR OF TENTS

FM 10-23 ARMY FIELD FEEDING and CLASS I OPERATIONS MANAGEMENT

FM 10-23-2, TACTICS, TECHNIQUES, AND PROCEDURES FOR GARRISON FOOD PREPARATION, AND CLASS I OPERATIONS MANAGEMENT

FM 21-10 FIELD SANITATION

TM 5-700 FIELD WATER SUPPLY

TM 5-4540-202-12&P HEATER IMMERSION

TM 10-7360-204-13&P RANGE OUTFIT

TM 10-7360-206-13 MOBILE KITCHEN TRAILER

TM 10-7360-209-13&P KITCHEN, COMPANY LEVEL FIELD FEEDING

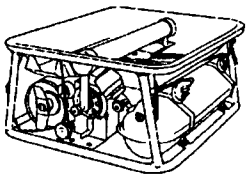
TM 10-8340-205-13 TENT, KITCHEN, FLY-PROOF, M-1948

TC 10-1 OPERATION OF THE GASOLINE LANTERN

MOST RECENT MAINTENANCE MANAGEMENT UPDATE

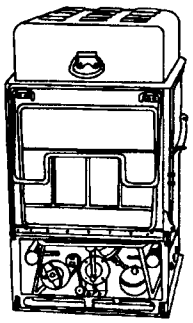
MOST RECENT SUPPLY UPDATE

EQUIPMENT MARKINGS



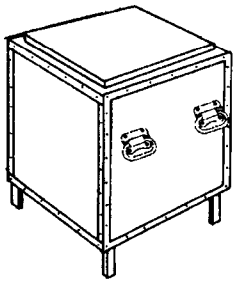
M-2 BURNER UNIT

The M-2 burner unit should be stenciled with 2 inch black numbers 5 inches down (using an imaginary line to determine the beginning of the bottom of the tank) on the bottom of the fuel tank and centered.



M-59 RANGE

The M-59 range cabinet should be stenciled with 2 inch black numbers on the right side of the cabinet measuring 4 inches from the top of the right side of the cabinet (omit lid cover) and 3 inches in from the side of the cabinet.



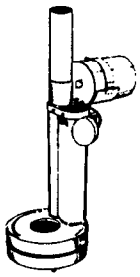
ICE CHEST

The ice chest should be stenciled with 2 inch numbers centered on the top and front of the ice chest. The ice chest should present a camouflaged appearance. (Note: The ice chest issued with the MKT will not be camouflaged.



5 GALLON WATER CONTAINERS

The water containers should be stenciled with 2 inch black letters on the right side (lid facing front) the word "Potable Water".



IMMERSION HEATER

The immersion heater will be stenciled with 2 inch black letters 1 inch to the left and centered from the identification plate.
The fuel tank will be stenciled with 2 inch black letters 4 inches down and centered from the fuel bent cap.

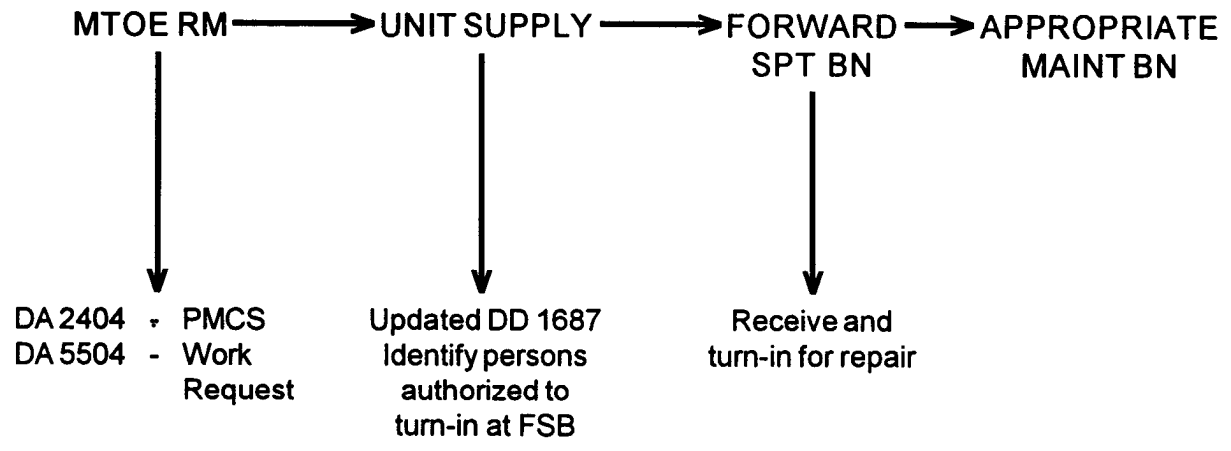
Encl 1

SUPPLY TURN-IN PROCEDURES
(DX)

MTOE RM → UNIT SUPPLY → FORWARD SPT BN → CODE OUT → DRMO

TURN-IN FOR REPAIR
(TRAVEL COVERS, SCREENS, TENTS)

Requirement: Hole 3" or greater circled with white chalk.



Encl 2

INSPECTION CHECKLIST

FUNCTIONAL AREA

PAGE 1 OF 11 PAGES

FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

PROPONENT/PH NUMBER

ACofS, G4, Division Food Service

LAST REVISION

MONTH YEAR

REFERENCES: DA PAM 738-750
Applicable Technical Manuals, Regulations

TASKS:

1. Perform unit level maintenance, inspection and scheduled services on field kitchen equipment and the mobile kitchen trailer (if applicable) in a garrison or field environment.

CONDITION:

1. Applicable equipment and references. Equipment is maintained to perform under all environmental conditions to complete the mission.

STANDARD:

1. Required records are maintained IAW DA PAM 738-750.
2. Necessary publications are on hand.
3. All equipment is mission capable.

Did unit meet the standard(s)? YES____NO____

REMARKS: (Optional)

Encl 3

INSPECTION CHECKLIST

FUNCTIONAL AREA PAGE 2 OF 11 PAGES

FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

Publications:

1. AR 30-1, The Army Food Service Program? DATE:_____ YES___NO___

2. AR 30-21, Army Field Feeding System? DATE:_____ YES___NO___

3. DA PAM 738-750, Maintenance Management update? YES___NO___
DATE:_____

4. FM 20-3, Camouflage? DATE:_____ YES___NO___

5. FM 10-16, General Repairs of Tents, YES___NO___
Canvas and webbing? DATE:_____

6. FM 10-23, Army Field Feeding and YES___NO___
and Class I Operations Management? DATE:_____

7. FM 10-23-1, Commander's Guide to Food YES___NO___
Service Operations? DATE:_____

8. FM 10-23-2, Tactics, Techniques and Procedures for Garrison YES___NO___
Food Preparation and Class I Operation Management? DATE:_____

9. FM 21-10, Field Hygiene and Sanitation? DATE:_____ YES___NO___

10. SB 10-264, Nutrient Value of the Master YES___NO___
Menu Recipes and Food Items? DATE:_____

11. SB 10-495, Standard B-ration? DATE:_____ YES___NO___

12. SPT 10-94G25-SM-TG, Food Service YES___NO___
Specialist Soldiers Manual? DATE:_____

INSPECTION CHECKLIST

FUNCTIONAL AREA — PAGE 3 OF 11 PAGES

FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

13. TB MED 530, Food Service Sanitation? DATE:_____	YES___NO___
14. TC 10-1, Operation of the Gasoline Lantern? DATE:_____	YES___NO___
15. TM 10-412 w/c, Armed Forces Recipe Service? DATE:_____	YES___NO___
16. TM 10-4540-202-12&P, Immersion Heater M-67, if applicable? DATE:_____	YES___NO___
17. TM 10-7200-200-13, Can Gasoline Military 5 Gallon? DATE:_____	YES___NO___
18. TM 10-7360-206-13&P, Maintenance/ Operator M-59 & M-2? DATE:_____	YES___NO___
19. TM 10-7360-206-13. Kitchen, Field, Trailer Mounted (MKT) if applicable? DATE:_____	YES___NO___
20. TM 10-7360-206-23P, Repair Parts and Special Tools List for (MKT) if applicable? DATE:_____	YES___NO___
21. TM 10-8340-205-13, Tent Kitchen Flyproof (M1948) if applicable? DATE:_____	YES___NO___
22. TM 10-8340-211-13, Tent General Purpose, Medium, if applicable? DATE:_____	YES___NO___
23. Military Handbook 740, Dishwashing Operation (Field)? DATE:_____	YES___NO___

This may be requested by faxing a request to the DOD Printing Plant.

INSPECTION CHECKLIST

FUNCTIONAL AREA PAGE 4 OF 11 PAGES

FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

MAINTENANCE PAPERWORK

1. Is DA Form 2404 properly used to inspect and maintain equipment? DATE:_____ YES___NO___

2. Are document numbers recorded on section "C" of DA Form 2804-14 for all missing parts? (DA PAM 738-750, Pg 65, Figure 3-23) YES___NO___

3. Is DD Form 314 properly filled out to include scheduled maintenance one month in advance? (DA PAM 738-750, Pg 17, Para 3-3) YES___NO___

4. Is the loading plan on hand? (FM 10-23-1) YES___NO___

5. Are hand receipts on hand and current? DATE:_____ YES___NO___

6. Is the Field Kitchen SOP reviewed and approved by the Division Food Service Office? (FM 10-23, Chapter 4) YES___NO___

IMMERSION HEATER

1. Are Immersion Heaters rust free? (TM 5-4540-202-12&P, Pg E-2) YES___NO___

2. Are the outside of heaters coated with preservation lubricating oil? (TM 5-4540-202-12&P, Pg 4-10, Para 4-7)? YES___NO___

3. Are there 4 sections of stove pipe for each heater? (TM 5-4540-202-12&P, Pg 2-5, Para 2-3) YES___NO___

4. Are the stove pipes clean and coated with oil to prevent rust? (Div Assistance SOP) YES___NO___

INSPECTION CHECKLIST

FUNCTIONAL AREA

FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

5. Are the heaters missing any parts? (TM 5-4540-202-12&P, Pg 4-6, Ch 4) YES___NO___

6. Is the top 6 inches of heater body painted? (TN 5-4540-202-12&P, Pg 3-6, Para 3-4) YES___NO___

7. Is each heater and fuel tank numbered? (IAW Field Equipment SOP) YES___NO___

8. Are parts to heaters clean and free of spots, grease, rust or in need of additional work? (TM 5-4540-202-12&P, Pg 4-10, Sec 4-7). YES___NO___

9. Are fuel tanks for immersion heaters empty of any fuel, water, or other contaminates? (TM 5-4540-202-12&P, Pg 4-10, Sec 4-8) YES___NO___

10. Do fuel cans have warning decals attached? (TM 5-4540-202-12&P, Pg F-10, Sec II) YES___NO___

11. Are 32 gallon cans clean and painted? YES___NO___

RANGE OUTFIT FIELD M-59

1. Are ranges complete to include M2 burner unit? (TM 10-7630-204-13&P, App C) YES___NO___

2. Are ranges clean, free of burned on grease and food particles? (TM 10-7630-204-13&P, Pg 2-11, Para 2-3) YES___NO___

INSPECTION CHECKLIST

FUNCTIONAL AREA — PAGE 6 OF 11 PAGES

FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field kitchen Equipment

3. Are ranges to include the M-2 burner units numbered? (IAW Field Equipment SOP)	YES___NO___
4. Are cradle rails inside cabinets coated with antiseize compound to prevent cooking cradle from sticking? (TM 10-7360-204-13&P, Pg 3-1 Para 2-3-a)	YES___NO___
5. Do the doors have any damage?	YES___NO___
6. If the range outfit is not to be used for several days or weeks it is to be covered with corrosion preventive compound P14 or a comparable substitute? (TM 10-7360-204-13&P)	YES___NO___

M2 BURNER UNIT

1. Is the burner unit empty of fuel? (TM 10-7360-204-13&P, Pg 4-15, Para 4-9-6)	YES___NO___
2. Does burner unit have both caution and maintenance decals on them? (TM 10-7360-204-13&P)	YES___NO___
3. Does unit have three generators attached? (TM 10-7360-204-13&P, Pg C-4 Sec II)	YES___NO___
4. Do units have air pressure gauges that are operational? (TM 10-7360-204-13&P, Pg 4-2, Tbl 4-1 #11)	YES___NO___
5. Does each burner unit have 1/4" washers under brackets of fuel tank? (TM 10-7360-204-13&P, Pg 4-19, Para 4-10-h)	YES___NO___
6. Are burner units numbered? (IAW Field Equipment SOP)	YES___NO___

INSPECTION CHECKLIST

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FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

7. Do burner units have air valve caps and preheater shields? (TM 10-7360-204-13&P, Pg D-24, D-25) YES___NO___

8. Are burner units free of rust, grease and dirt? (TM 10-7360-104-13&P, Pg 4-19, Para 4-10.1) YES___NO___

9. Are burners equipped with the safety valve device? (TM 7360-204-13&P, Pg 4-18, Para 4-9-11) YES___NO___

ACCESSORY OUTFIT

1. Are all items in accessory outfit on hand, clean and serviceable? (TM 10-7360-204-13&P Pg C-3) YES___NO___

2. Is a bake rack set clean and serviceable? (TM 10-7360-204-13&P, Pg 2-18, Para 2-5-5) YES___NO___

3. Are fire extinguishers charged? (TM 10-7360-204-13&P, Pg C-5, Sec III) YES___NO___

4. Is air pump operational? (TM 10-7360-204-13&P, Pg C-3) YES___NO___

VACUUM JUGS 5 & 10 GALLON

1. Are vacuum jugs complete with faucet, wing nut, washer and gasket for cover and locking handles? YES___NO___

2. Is vacuum jug clean to include inside of faucet assembly? YES___NO___

3. Does vacuum jug have air vent closure cap? YES___NO___

4. Is vacuum jug clean and free of odor? YES___NO___

INSPECTION CHECKLIST

FUNCTIONAL AREA

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FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

5. Are vacuum jugs numbered? (Field Equipment SOP)	YES___NO___
INSULATED FOOD CONTAINERS	
1. Are food containers clean and stored where they can can air dry with lids closed but unlatched? (FM 10-23, Pg 10-10)	YES___NO___
2. Does each food container have 3 inserts, 3 insert lids, 3 rubber gaskets for lids, 1 rubber gasket for each food container lid and are handles attached? (FM 10-23, Pg 10-9)	YES___NO___
3. Are food containers spot painted as required? (FM 10-23)	YES___NO___
4. Are food containers numbered and have appropriate decals? (Div Asst SOP)	YES___NO___
5. Are the inside and gaskets free of paint? (FM 10-23)	YES___NO___
6. Are all parts clean and free of food particles and odor? (FM 10-23, Pg, 10-10)	YES___NO___
ICE CHESTS 200/400 POUNDS	
1. Are ice chests clean and lids open to allow air to circulate?	YES___NO___
2. Is the rubber gasket on the lid serviceable and free of any paint overspray?	YES___NO___
3. Is safety chain and drain stopper attached to the inside of the ice chest?	YES___NO___
4. Are there four legs mounted on the ice chest?	YES___NO___

INSPECTION CHECKLIST

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FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

5. Is ice chest numbered? (Div Asst SOP) YES___NO___

KITCHEN TENT FLYPROOF M1948

1. Is tent clean and folded as TM requires? (TM 10-8340-205-13, Pg 4-2, Para 4-2) YES___NO___

2. Does tent have screen and cover? (TM 10-8340-205-13, Pg 4-5) YES___NO___

3. Are all ten poles, pins and ropes required for tent on hand? (TM 10-8340-205-13, Pg 4-2) YES___NO___

4. Are all zippers serviceable? (TM 10-8340-205-13, Pg 3-1) YES___NO___

5. Is there documentation to reflect the tents last service (i.e. last cleaned, last serviced and last water-proofed)? (DA PAM 738-750, Pg 20, Para 3-6) YES___NO___

TENT GENERAL PURPOSE MEDIUM

1. Is the tent clean and folded as TM requires? (TM 10-8340-211-13, Pg 4-12 Para 6) YES___NO___

2. Is the tent covered with the tent cover? (TM 10-340-211-13, Pg 4-12) YES___NO___

3. Are all tent poles, pins and ropes on hand for tent? (TM 10-8340-211-12, Pg 1-7) YES___NO___

4. Are all zippers serviceable? (TM 10-8340-211-13, Pg 3-1) YES___NO___

5. Is there documentation to reflect the tents last services (i.e. Last cleaned, last waterproofed and last serviced? (DA PAM 738-750, Pg 10, Para 3-6) YES___NO___

INSPECTION CHECKLIST

FUNCTIONAL AREA — PAGE 10 OF 11 PAGES

FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

MKT PLATFORM ASSEMBLY

1. Are corner struts able to hold up platform assembly? (TM 10-7360-206-13) YES___NO___

2. Does the platform assembly have any missing braces on the front and rear? (2 each ends and 4 each sides?) YES___NO___

3. Are any slide lock bolts missing? YES___NO___

4. Are any slide lock bolts missing bolt handles? YES___NO___

5. Does the platform assembly have any damage? YES___NO___

6. Is the damage recorded on DA Form 2404? YES___NO___

7. Are any bubble levels broken? YES___NO___

MKT LEVELING JACKS

1. Are all four jacks operable? (TM 10-7360-206-13) YES___NO___

2. Are stabilizer arms and braces free of dirt, mud, grease and debris? YES___NO___

3. Are all push lock pins available and attached to stabilizing arm? YES___NO___

4. Are all jack handles available (4 ea)? YES___NO___

INSPECTION CHECKLIST

FUNCTIONAL AREA

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FIELD KITCHEN EQUIPMENT
Unit Level

SUBJECT
Field Kitchen Equipment

MKT HOOK TIE DOWN ASSEMBLIES

1. Are tie down assemblies serviceable? YES___NO___

2. Are any tie down assemblies missing? YES___NO___

PMCS

1. Is PMCS being accomplished on the MKT IAW (TM 10-7360-204-13)? YES___NO___

2. Are personnel knowledge on performing PMCS tasks? YES___NO___

PRESCRIBED LOAD LIST (PLL)

Has a PLL stockage of repair parts been established? YES___NO___

KITCHEN COMPANY LEVEL FIELD FEEDING-ENHANCED (KCLFF-E) (FM 10-23) TM 10-7360-209-13&P)

1. Is the tray pack heater cleaned and serviceable? YES___NO___

2. Are cooking pots clean and free of rust? YES___NO___

3. Is the cooking cradle and burner rack clean and free of rust? YES___NO___

4. Are all components lightly coated with corrosion preventive compound to prevent corrosion? YES___NO___

SAFETY

Is there any paint or cleaning solvents being stored with the field kitchen equipment or mobile kitchen trailer? YES___NO___

APPENDIX C
DEVELOPMENT OF AN AIRDROP OPERATIONAL RATION STANDING OPERATING PROCEDURE

Airdrop of rations may be required when other resupply modes will not permit timely resupply. Use of airdrop during field training should be minimized to preclude loss of subsistence; however, when airdrops must be used preplanning is essential.

Airdrop of operational rations (MREs, T-Rations) should be considered early by the G3/S3 planning cell in support of deployments or exercises to prevent the loss of rations and training dollars. Planning considerations should include the length of the exercise, when the airdrop is planned (beginning and end of exercise), and the number of personnel to be supported. This will ensure that the airdropped rations can be consumed prior to the end of the exercise (ENDEX). Key personnel in the planning cell should include the food advisor and senior food service supervisor to assist in preparing and ordering the ration cycle and mix needed for successful completion of the units' mission in accordance with the commanders intent.

Operational rations that are airdropped into the operational area will be accounted for and handled as any other operational ration in the theater. There is no adjustment needed to the shelf-life of operational rations due to air drop procedures. Current standards are 100 percent survivability for low-level airdrops and 75 percent survivability for free-fall airdrops. Operational rations airdropped into the operational area will be handled by development of a local SOP to cover the following areas:

- Procedures identifying the operational rations by marking them with a distinctive color or symbol. (Use red spray paint to mark the ends of the cases.)
- Procedures for checking of operational rations considered having possible defects as a result of the airdrop. These procedures will cover VETCOM requirements for holding, inspecting, and disposition of rations.
- Procedures for identifying and accounting for airdropped rations that cannot be recovered (aircraft went down, dropped in lake). These rations will be accounted for in accordance with procedures in AR 30-21.
- Planning requirements for the mission should be closely considered in the operational planning for Class I to prevent undue waste and training dollars lost due to improper planning. Airdropped rations not consumed during the deployment will not be allowed to be turned back into the TISA.

Airdropped operational rations that cannot be consumed in the field will be transferred to another unit in the field or returned to garrison dining facility for consumption. The transfer of these rations will cover the following procedures:

- Transferred to another unit or returned to garrison operations will be accomplished on a DA Form 3294 and marked "Air Dropped" operational rations. Disposition and accountability of rations will be accomplished on DA Form 5914-R in accordance with AR 30-21.
- FIFO by date of pack will not apply to airdropped operational rations. They will be consumed as soon as possible.

NOTE: *If at anytime there is a question as to the shelf-life, quality, or safety of airdropped operational rations, VETCOM personnel will be contacted. They will evaluate and make a final determination as to the disposition of the rations.*

GLOSSARY

ACES Army Center of Excellence, Subsistence
ACofS Assistant Chief of Staff
ACR armored cavalry regiment
adj adjustable
ADJ Adjutant
AFFS Army Field Feeding System
AG Adjutant General
AIT advanced individual training
AMC Army Materiel Command
AMFFS Army Medical Field Feeding System
ANG Air National Guard
AOE Army of Excellence
AP as purchased
APOD aerial port of debarkation
AR Army regulation
ARCOM Army Reserve Command
ARCS Army Ration Credit System
ARNG Army National Guard
arty artillery
ASG area support group
ATTN attention
AVN aviation
B breakfast
BAS basic allowance for subsistence
bde brigade
BDFA basic daily food allowance
bn battalion
BSA brigade support area
Btu British thermal unit
C2 command and control
C Centigrade
CAM chemical agent monitor
CB chemical, biological
cbt combat
CDR commander
cmd command
co company
COMSEC communications security
CONUS continental United States
CONUSA Continental United States Army
COR contracting officer's representative
COSCOM corps support command
CPT captain
CS combat support
CSB corps support battalion
CSS combat service support
CTA common table of allowances
cu cubic
CUCV commercial utility cargo vehicle
CWFF cold-weather field feeding
CZ combat zone
DA Department of the Army
DCSLOG Deputy Chief of Staff for Logistics
DD, DOD Department of Defense
DFA dining facility attendant
din dinner

DISCOM division support command
DIVARTY division artillery
DLA Defense Logistics Agency
DMMC division materiel management center
DMMO division materiel management officer
DODAAC Department of Defense Activity Address Code
DOS days of supply
DOT Department of Transportation
DPSC Defense Personnel Support Center
DS direct support
DSA division support area
DSU direct support unit
e equipment
ea each
EAC echelons above corps
EAD echelons above division
ENDEX end of exercise
engr engineer
EPMS Enlisted Personnel Management System
ext extractor
F Fahrenheit
FA field artillery
FAO finance and accounting office
FCIHW food container, insulated, hospital ward
FDA Food and Drug Administration
FIFO first in, first out
FK field kitchen
FKM field kitchen modular
fld field
FLOT forward line of own troops
FM field manual
FMP foreign military personnel
FMT food management team
FOS food operations sergeant
FRH flameless ration heater
FSB forward support battalion
FSC Federal Supply Catalog
FSO food service officer
ft foot
fwd forward
FY fiscal year
G1 Assistant Chief of Staff, G1 (Personnel)
G2 Assistant Chief of Staff, G2 (Intelligence)
G3 Assistant Chief of Staff, G3 (Plans and Operations)
G4 Assistant Chief of Staff, G4 (Logistics)
G5 Assistant Chief of Staff, G5 (Civil Affairs)
gal gallon
GP general purpose
GS general support
GSU general support unit
GTA graphic training aids
H&S heat and serve
HCP health and comfort pack
HHC headquarters and headquarters company
HMMWV high mobility multipurpose wheeled vehicle
HMT high mobility trailer
HQ headquarters
HQDA Headquarters, Department of the Army
hr hour
HTH high-test hypochlorite
hvy heavy
IAW in accordance with
IFC insulated food container
illus illustration
IMA Installation Medical Authority
INF infantry
inc included

ITD inspection test date
ITEP Individual Training Evaluation Plan
KCLFF kitchen, company level field feeding.
KCLFF-E kitchen, company level field feeding-enhanced.
KP kitchen police
lb pound
LIN line item number
LOGMARS Logistical Marking System
LOGPAC logistics package
LRP logistics resupply point
lun lunch
M meal
MACOM major Army command
MARKS Modern Army Record Keeping System
MASH mobile Army surgical hospital
MCC movement control center
MEDCOM medical command
METT-T mission enemy terrain troop-time
MHE materials-handling equipment
MILVAN military-owned remountable container
MIRHD mounted individual ration heating device
MKT mobile kitchen trailer
MMC Materiel Management Center
MOS military occupational specialty
MP military police
MRE meal, ready-to-eat
MRO material release order
MSB main support battalion
MSR main supply route
MT medium truck
MTOE modification table of organization and equipment
MTPA meal module, tray pack, arctic
NBC nuclear, biological, chemical
NCO noncommissioned officer
NICP national inventory control point
no number
NSN national stock number
OCONUS outside continental United States
OJT on-the-job training
OMA Operation and Maintenance, Army
OPCON operational control
OOTW operations other than war
OPLAN operations plan
OPORD operations order
ORD ordinance
OSHA Occupational Health and Safety Act
oz ounce
PAC Personnel and Administration Center
PBO property book officer
PFD present for duty
PHF potentially hazardous food
PLL prescribed load list
PMC&S preventive maintenance checks and services
POD point of debarkation
PPM parts per million
PSP perishable subsistence platoon
QM quartermaster
QMC&S Quartermaster Center and School
qt quart
qty quantity
R rations
RBP ration break point
RC reserve component
rec received
RCW ration, cold weather
RLW ration, lightweight
RSI receipt, storage, and issue section

RSOP readiness standard operating procedures
RTCHS rough terrain cargo handling system
SARSS-O Standard Army Supply System-Objective
S&S supply and services
SB supply bulletin
SC sanitation center
SDO staff duty officer
SICP standard integrated command post
SIK subsistence-in-kind
SM soldier's manual
SMO supply maintenance officer
SOP standing operating procedure
SP subsistence platoon
SPOD seaport of debarkation
STAMIS Standard Army Management Information System
STP soldier training publication
TA theater Army
TAACOM Theater Army Area Command
TAMMS The Army Maintenance Management System
TASC Training and Audiovisual Support Center
TB MED technical bulletin, medical
TDY temporary duty
TEMPER tent, extendable, modular, personnel
TG trainer's guide
TISA Troop Issue Subsistence Activity
TISO troop issue subsistence officer
TM technical manual
TO theater of operations
TOE table of organization and equipment
TRADOC United States Army Training and Doctrine Command
TTP tactics, techniques, and procedures
UGR unitized group ration
UHT ultra high temperature
ULLS Unit Level Logistics System
US United States (of America)
USACHPPM United States Army Center for Health Promotion and Preventive Medicine
USAREUR United States Army Europe
USASPTAP United States Army Support Activity Philadelphia
VETCOM Veterinary Command
VSP Veterinary Service personnel
WIMS Worldwide Information Management System
WRS war reserve stocks

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