

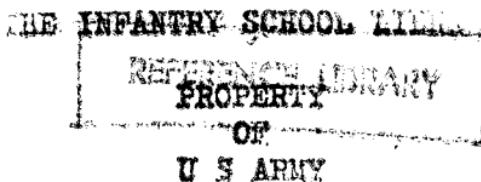
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FM 55-6

DEPARTMENT OF THE ARMY FIELD MANUAL

TRANSPORTATION SERVICES IN THEATERS OF OPERATIONS



HEADQUARTERS, DEPARTMENT OF THE ARMY
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TRANSPORTATION SERVICES IN THEATERS OF OPERATIONS

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CHAPTER 1

INTRODUCTION

1. Purpose and Scope

- a. This manual furnishes commanders and staff officers with a general guide for planning, establishing, and operating transportation service in theaters of operation, and a summary of the transportation service usually provided.
- b. The manual outlines the duties and responsibilities of the transportation officer at various echelons of command; the organization and functions of transportation staff sections; transportation intelligence and planning; the programming and supervision of transportation movements; the organization and employment of the transport mode organizations; the organization and operation of terminals; and the maintenance and supply activities of the Transportation Corps. Where detailed guidance is available, references are cited in appropriate paragraphs and in the appendix.
- c. The material presented herein is applicable without modification to both nuclear and non-nuclear warfare.
- d. Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to

the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to the Commandant, U.S. Army Transportation School, Fort Eustis, Va.

2. Terminology

a. The term "transport mode," as used in this manual with respect to responsibilities of the transportation officer, refers to either motor, rail, air, or water transportation. (Pipeline transportation is not included, since this is a responsibility of the Quartermaster.)

b. The term "transport means" refers to carrier equipment utilized within a transport mode.

c. The term "transportation service" is used in this manual to describe collectively the services provided by transportation staff and operating elements of a command. These services may include any one, or any combination, of the following:

- (1) Transport, by any mode.
- (2) Movements management.
- (3) Highway regulation.
- (4) Facilities, such as terminals, staging areas, depots, and transportation offices.
- (5) Supply and maintenance of Transportation Corps equipment.
- (6) Transportation planning.

d. The term "Transportation Intersectoral Service" (TIS) refers to the transportation services provided for the theater as a whole. TIS includes intersectoral transport mode organizations, intersectoral transportation movements units in both the communications zone and the combat zone, and those transfer points and other terminal facilities handling intersectoral movements. The Theater Army Logistical Command (TALOG) provides and supervises this service in support of all U.S. Army elements in the theater, the U.S. Navy, the U.S. Air Force, and such other agencies as may be directed by higher headquarters.

- (1) Intersectoral transportation includes transportation which crosses boundaries between sections of the communications zone and transportation which moves between the communications zone and the combat zone. These latter operations are coordinated with the transportation officer of the supported command.
- (2) A command of appropriate size is established for each transport mode utilized, and for transportation movements. These commands are assigned to TALOG and are under the operational control of the TALOG transportation officer. The mode organizations provide and operate transport equipment and facilities.
- (3) The TALOG transportation staff unites the operations and facilities of the sev-

eral commands into a single, integrated service. This staff also prepares plans for, and programs the intersectional movement of troops and supplies (except petroleum by pipeline) by all available modes of transport, including Army air transport used for administrative support, and controls the utilization of reusable shipping containers (CONEX).

e. Transportation operations in liberated or hostile areas may be referred to as Phase I, Phase II, or Phase III operations, according to the degree of utilization of civilian labor and facilities. These terms have no relation to the phases of the tactical operation. In Phase I, Transportation Corps units and personnel provide the organization and manpower to supervise and operate both civilian and military facilities and equipment. In Phase II, facilities and equipment are jointly operated, under military supervision. In Phase III, transportation services are provided by civilians, under minimum military supervision. Normally, the initial operation will be Phase I; but the transition through Phase II to Phase III should be expedited so that military personnel and units can be released and made available for assignment in forward areas. Some transport operations may progress through this phasing more rapidly than others. Thus, railway operations may be in Phase III after a short period, while motor transport may never progress past Phase I.

CHAPTER 2

TRANSPORTATION STAFF

Section I. TRANSPORTATION OFFICER

3. General

The transportation officer is a member of the commander's technical staff, under supervision of the logistics officer. For detailed listing of the duties of the transportation officer, refer to FM 101-5. The responsibility of the transportation officer for providing transportation service varies with the mission of the command. Typical areas of responsibility are as follows:

- a. The theater transportation officer has staff responsibility for coordinating employment of civilian and military transportation capabilities to provide an integrated transportation service that is responsive to requirements for transportation.
- b. The theater army transportation officer has staff responsibility for planning, supervising, and coordinating transportation activities of theater army forces and other transportation resources made available to theater army by the theater commander. He is responsible for providing a system of supply and maintenance of equipment for which the Transportation Corps is responsible.

c. When so directed by his commander, the transportation officers of theater army logistical command, advance logistical command, base logistical command, field armies, and corps have, in addition to staff responsibility, operational control over units engaged in providing transportation service, including Army air transport units used for administrative support.

4. Theater

The theater transportation officer is responsible for preparation of policies and long range plans for the theater commander on operations of the theater transportation service and he coordinates this service for the theater logistics officer of a combined staff, or for the J4 of a joint staff. Since he may be an Army, Navy, or Air Force officer, he may be both the theater transportation officer and the transportation officer for the theater army, navy, or air force.

a. One of the duties of the theater transportation officer is supervision of the allocation, by the Joint Military Transportation Board (JMTB), of theater transportation capability. A JMTB will normally be established by responsible oversea commanders to allocate transportation resources within specified geographical areas. These resources may consist of JCS allocated intertheater and intratheater airlift and sealift, as well as airlift and surface transport assets located within the theater. The JMTB includes representatives from each component service of United States forces and, when appropriate, representatives of

host and allied nations. Separate committees are usually organized within the JMTB to handle airlift, sealift, and land transportation matters. The JMTB allocates theater generated transport capability and JCS allocated capability in accordance with established priorities on the basis of forecasts of requirements submitted by each component service.

b. In territory under the control of a functioning sovereign government, military transportation requirements will be in continual competition with the transportation needs of the host nation. The transportation officer must accomplish the support of the command mission within the framework of applicable intergovernmental agreements. These agreements may specify the degree to which the host nation's transportation network and facilities may be utilized. Provision for certain transportation support to be given to the host nation may also be included in the agreements.

(1) Local civilian practices and government policies will usually provide guidelines for effective utilization of the host nation's transport capabilities, but may place unfamiliar restrictions and limitations on their use. For example, the degree of governmental control over transportation facilities may require negotiation with a government agency rather than with the commercial operator. The hiring of civilian employees, their pay scales, and types of employ-

- ment, may be subject to approval of the host government.
- (2) The Status of Forces Agreement between the United States and the host nation may include provisions affecting the transportation service available locally and that performed by United States forces personnel and equipment.
- (a) The host nation may allocate to United States forces specific space at ports or other terminal facilities, specific routes over which to operate, or maximum tonnages for shipment by commercial transportation.
- (b) Some additional requirements may be imposed, such as compliance with customs regulations, maximum tonnage for certain vehicles or routes, or changes to operating methods to achieve compatibility with local operations.

5. Theater Army

The theater army transportation officer, under supervision of the ACofS, G4, is responsible to the commander for planning, supervision, and coordination of transportation service activities of all forces under the theater army commander. His plans incorporate policies and directives established by the theater commander for employment of transport services of U.S. Navy, U.S. Air Force, allied, and civilian agencies, and for support to be furnished these agencies.

a. The theater army commander is primarily a planner and a coordinator who decentralizes tactical and administrative operations, to the maximum degree, to his combat force (field army or army group) and communications zone commanders. Transportation operations are among the functions so delegated to combat force commanders and to the commanding general, theater army logistical command (TALOG), for their respective areas. TALOG is also responsible for intersectional transportation (par. 2d(1)). The TALOG commander and the combat forces commander are coequal subordinates of the theater army commander; their transportation officers coordinate directly on movements between the communications zone and the combat zone.

b. The theater army commander is responsible for the use of theater transport capability allocated to theater army. He establishes policies and priorities, as required; the theater army transportation officer supervises and coordinates their implementation.

c. Theater army delegates to TALOG the responsibility for administering the use of Army allocated transport capability. TALOG sub-allocates this capability to combat forces, BALOG, ADLOG, and to TALOG intersectional services on the basis of forecasts of requirements submitted by these headquarters. *No portion of the allocation—particularly the allocation of airlift capacity—is reserved for potential emergency require-*

ments. Emergency requirements are met as they occur by allocating transport capacity on the basis of the priority accorded each shipment, under the priorities established by the commander.

6. Theater Army Logistical Command (TALOG)

TALOG directs administrative support (except civil affairs and personnel replacement) operations both within the communications zone and between the communications zone and the combat zone. The TALOG transportation officer, under the supervision of the Director of Services, provides transportation services for the theater as a whole in support of the TALOG mission. He is responsible for preparation and execution of the TALOG commander's plans, policies, and directives pertaining to transportation services and operations. He is responsible for effecting movements (except petroleum by pipeline) from the communications zone into the combat zone through operational control of the Transportation Intersectional Service (par. 2). He effects necessary coordination with the transportation officers of base logistical command (BALOG), advance logistical command (ADLOG), and the field army. He receives forecasts of requirements for surface and air transport from BALOG, ADLOG, and field army. He fulfills these requirements by allocating to these headquarters the requisite capacity, either from TALOG resources or from resources allocated to TALOG by theater army; or by having the requirements accomplished by the transportation intersectional service.

7. Base Logistical Command (BALOG)

BALOG directs administrative support operations within the base section of the communications zone. The BALOG transportation officer, under supervision of the Director of Services, plans, coordinates, and controls operations of transportation activities and units of the command, including operations of water terminals and staging areas located in and assigned to BALOG. He is provided with the capability to move supplies from terminals to BALOG depots, to accomplish other local transportation requirements, and to extend, as required, the transportation intersectoral service.

8. Advance Logistical Command (ADLOG)

The ADLOG transportation officer's staff position, functions, and responsibilities are similar to those of the BALOG transportation officer. In addition, he is responsible for providing Transportation Corps supply and maintenance service as a part of the ADLOG mission of support for the combat zone.

9. Field Army

The field army transportation officer advises the commander and staff on all transportation matters and prepares plans for employment of the army's transportation system, including resources allocated by theater army and TALOG (par. 5b). He provides a general transportation service to the field army and supplements, as required, organic capabilities of field army units and in-

stallations. When so directed by his commander, he exercises operational control over Transportation Corps units of the command not otherwise assigned or attached, including Army air transport units used for administrative support.

10. Army Corps

In a corps which is part of a field army, the transportation officer, under supervision of the ACofS, G4, consolidates transportation requirements of the divisions and of corps troops and, as necessary, prepares requests to the field army for allocation of additional transportation units to the corps. He also recommends allocation of corps transportation units to divisions and to corps troops. When the corps operates separately, its staff is augmented and additional transportation units are assigned. In this case, the corps transportation officer has functions and responsibilities similar to those of a field army transportation officer.

11. Army Divisions

In the Army divisions (airborne, armored, infantry and mechanized) the division support command commander provides staff advice to the division commander and the division staff on all transportation operations.

12. Logistical Commands

Each of the three types (A, B, or C) of logistical command headquarters has a transportation

officer on the special staff. He is under the supervision of the director of services, supply, and maintenance in a Type A command, and under the director of services in a Type B or Type C logistical command headquarters. His duties and responsibilities vary with the scope of the transportation operations performed by the command and its assigned or attached transportation units. When so directed by his commander, he exercises operational control over Transportation Corps units assigned or attached to the command and not further assigned or attached, including Army air transport units used for administrative support. For additional details on transportation officers of logistical command headquarters, see paragraphs 6, 7, and 8 and FM 54-1.

13. Other Commands

The transportation officers of other commands, such as Army groups, area commands, and depots, perform transportation functions applicable to the missions of those commands.

a. The transportation officer of an Army group is primarily a staff advisor, with little or no operational function. His duties include coordination of transportation matters between the transportation officers of the field armies and between the Army group and the transportation officers of ADLOG and TALOG.

b. The transportation officer of an area command or of a depot has functions and responsibilities closely related to those of an installation transportation officer in the continental United

States. He is a member of the commander's staff and he performs or supervises those transportation operations for which the command is responsible. In addition, he represents the commander in transactions with agencies of the TALOG transportation movements organization for inter-sectional movements to or from his installation; and with the transportation officer of ADLOG or BALOG, as applicable, for assistance in performing intrasectional movements.

Section II. STAFF ORGANIZATION AND FUNCTIONS

14. Organization

Figure 1 shows a type organization of the transportation division of a major headquarters. Branches and sections may be added or deleted as required for any specific headquarters, dependent on the composition and scope of the transportation activities supervised. No current TOE organization includes a transportation division with personnel in the grades, MOS qualifications, or quantities adequate to man the staff organization shown in figure 1. A TOE organization has a staff adequate for typical operations of that organization and that staff is augmented according to the requirements of specific operations.

15. Functions

The primary functions of the transportation division are to advise the commander and staff and to accomplish the coordination necessary to

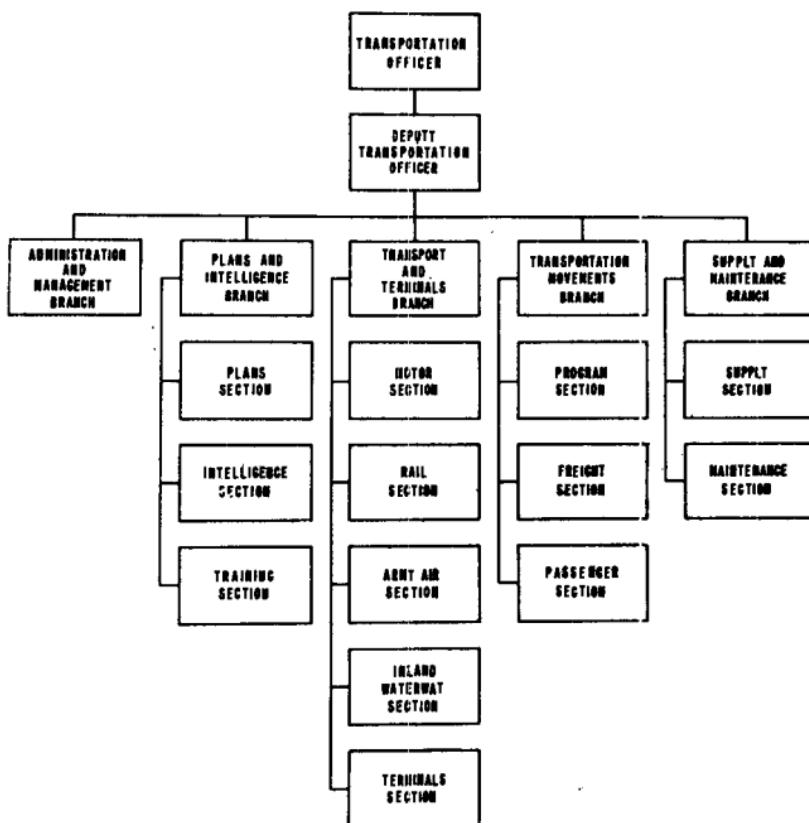


Figure 1. Type transportation staff organization.

insure that decisions and actions in transportation matters are valid and effective. The mission of the command determines the detailed functions of the division. Each branch of the division has similar responsibility for coordinating its actions within the division and with other agencies, as appropriate. The following outline of typical branch functions applies to the organization shown in figure 1; modifications are made to suit the requirements of a specific headquarters.

a. Administration and Management Branch.

- (1) Performs all internal administrative functions for the transportation staff to include military and civilian personnel matters and the authentication, publication, dispatch, and receipt of correspondence.
- (2) Maintains libraries and office files.
- (3) Controls allocation of office space.
- (4) Coordinates preparation and changes to the standing operating procedure (SOP) for the transportation division. (For a guide to preparation of SOP, see FM 55-15.)
- (5) Implements security measures for safeguarding, receiving, and disposing of classified information within the transportation division, as established by the organization SOP and by directives of higher headquarters.
- (6) Provides the transportation officer with current information and recommenda-

tions on personnel requirements and assignments.

- (7) Performs staff action on fiscal matters and on management policies and practices appropriate to the transportation division.
- (8) Performs reviews and analyses of operational projects.

b. Plans and Intelligence Branch.

- (1) Prepares and coordinates such special transportation plans as may be required.
- (2) Maintains liaison with planners of other services and commands.
- (3) Prepares and coordinates estimates and forecasts of transportation resources and requirements.
- (4) Supervises the collection of transportation information and the production and disposition of transportation intelligence.
- (5) In accordance with policies established by the Assistant Chief of Staff, G2, exercises technical supervision over transportation intelligence activities of subordinate commands.
- (6) Supervises transportation intelligence detachments and personnel assigned or attached to the command.
- (7) Prepares and maintains the transportation security portion of the SOP and related security directives for the headquarters.

- (8) Provides technical assistance to the Assistant Chief of Staff, G2, (or appropriate director) on transportation technical intelligence matters.
- (9) Coordinates the preparation of training programs of Transportation Corps units of the command.

c. *Transport and Terminals Branch.*

- (1) Performs necessary coordination between the transportation officer and the transport mode organizations of the command.
- (2) Initiates action to secure the services of civilian transport facilities and advises transportation movements branch of their capabilities.
- (3) Recommends adjustments in the location and employment of transport mode organizations, equipment, and facilities.
- (4) Provides operating data and planning information to other branches of the division.
- (5) Assists the transportation officer and the traffic headquarters in the preparation of highway regulation plans. (See paragraph 28 and FM 55-31.)
- (6) Recommends to the transportation officer the necessary action to improve the availability and capability of transport equipment and facilities of transport mode organizations and civilian agencies.

d. Transportation Movements Branch.

- (1) Compiles and analyzes movement requirements and transportation capabilities.
- (2) Recommends to the ACofS, G4, or appropriate director, priorities for utilization of transport capability.
- (3) Develops the movement plan by balancing capabilities and requirements according to priorities.
- (4) Adjusts movement program to meet changing requirements.
- (5) Establishes procedures for expediting shipments.
- (6) Effects coordination between transport services, including MATS and the troop carrier forces, and users of transportation.
- (7) Negotiates rates and contracts for transportation services.
- (8) Performs the necessary coordination between the transportation officer and the transportation movements units and personnel of the command.
- (9) Recommends locations for in-transit storage areas and transfer points.

e. Supply and Maintenance Branch.

- (1) Determines the requirements for, and the allocation of, Transportation Corps supplies and equipment.

- (2) Plans and supervises the establishment and operation of Transportation Corps supply and maintenance installations.
- (3) Establishes policies and procedures for the recovery, technical evaluation, evacuation, reclamation, and maintenance of Transportation Corps supplies and equipment.
- (4) Supervises maintenance and serviceability inspections of Transportation Corps equipment and assists in planning and performing command inspections of units having Transportation Corps equipment.

CHAPTER 3

TRANSPORTATION PLANNING AND INTELLIGENCE

Section I. TRANSPORTATION PLANNING

16. General

Planning is one of the major responsibilities of the transportation officer and he performs planning functions in three general fields.

a. Planning for Base Development. A base development plan is a program for establishment and development of theater resources. Its purpose is to achieve this development in accordance with the strategic mission and operational plans and to program the establishment of facilities to support military operations. The development of facilities, phasing of troop units into the area, and buildup of supplies will take place according to this plan. Base development planning is discussed in detail in FM 101-10.

b. Planning for Current Operations. This is the routine management planning necessary to assure continued, efficient operation. It includes revision of procedures to compensate for losses in capability or to take advantage of circumstances which permit more convenient working arrangements.

c. Planning for Future Operations. This includes planning both for new operations and for new phases of the current operation. The discussion in the following paragraphs of this section is directed primarily toward the functions of the transportation officer and the plans and intelligence branch within this area. However, for purposes of continuity, this discussion includes many elements of both base development and current operations planning.

- (1) The plan for a new operation requires comprehensive and careful preparation that makes adequate provision for every detail of that operation.
 - (a) Based on the mission, troop requirements are computed and the phasing of those troops into the operational area is scheduled to coincide with the planned phases of the tactical operation. Concurrently, requirements for supplies and equipment are determined; supply levels are established; and the buildup to those levels is scheduled.
 - (b) Initially, much of the planning is based on assumptions and estimates. Computations of requirements for troops, equipment, and facilities are based on generalized data, such as that found in FM 101-10 or FM 55-15. As decisions are made, and firm data developed, the plans are revised and refined accordingly.

- (c) Because of the importance of accuracy and detail, planners at all levels must achieve complete and continual co-ordination.
- (2) Planning for a new phase of a current operation may include some or all of the considerations mentioned in (1) above. More often, it may require little more than a realinement of the organization and a relocation of those units, installations, and facilities available at the time the plan is prepared. Reports of the operational experience of these units and activities furnish factual information on capabilities. These reports obviate use of the less exact data used in planning new operations.

17. Essential Elements of the Transportation Plan

A plan is the scenario for an operation. It indicates the method and schedule for the accomplishment of a mission. The transportation plan prescribes a course of action, including the methods of execution, which will furnish the transportation support required for an operation. This plan should have the flexibility necessary to insure continuity of transportation support if operational phase lines are not met, or are exceeded. The planner should provide for adequate control during the operation and for coordinated transition from the current to the new operation. The plan should be as simple as is consistent with completeness.

18. Planning Considerations

Basically, transportation planning involves balancing requirements and resources. The requirements are those movements necessary to insure success of the operation. The resources are the units, equipment, and facilities—and the methods and procedures established for utilizing them—available for performing the requirements.

a. Requirements.

- (1) Each requirement for troops or supplies generates at least one requirement for transportation. Initially, transportation requirements can be expressed in terms of tonnage (or numbers of personnel) and distance. In later stages of planning, the tonnages become classes of supply and even distinct items; and distances become specific origins and destinations.
- (2) Supply agencies are often reluctant to submit estimates of requirements for transportation, preferring to wait until those requirements are based on firm plans. For this and other reasons, the transportation planner may receive no requirement from one or more users. However, the responsibility for provision of adequate transportation support for the operation rests with the transportation planner. He estimates the total requirement for transportation,

based on the average supplies required for the forces to be supported and on the average distances involved in the several phases of the operation. This estimate serves as a "point of departure" and a general check on the realism of requirements submitted by users. He then encourages users to recognize in every supply or personnel action a transportation requirement, and to submit and refine those requirements as early as possible.

- (3) Some requirements may be within the capability of transport organic to the requesting unit. The planner must determine to what extent such capabilities exist and urge their utilization. A common example of this is moving general cargo, as well as unit equipment, on organic vehicles of a moving unit.

b. Resources. An assessment of transportation resources involves consideration of the—

- (1) *Characteristics of each transport service.* These are summarized in chapter 4.
- (2) *Capabilities of units within each transport service.* These are given in FM 55-15 and in the appropriate tables of organization and equipment.
- (3) *Capabilities of available civilian transport agencies.* These can be determined only through survey of the facilities and inspection of the equipment. In plan-

ning new operations, this is seldom feasible; estimates must be based on information obtainable from intelligence reports or from civil affairs area studies.

- (4) *Troop basis for operation.* The troop basis will seldom be broken out into separate ceilings for each service. Usually it prescribes the maximum number of service troops authorized for support of the designated combat forces.
 - (a) Each service wants the troop strength that will enable that service to furnish complete support. The proposals to accomplish this usually exceed the ceilings and competition for spaces develops. Since these conflicting proposals must be resolved by command decision, it is assured that any unit finally placed on the troop list has been fully justified.
 - (b) The transportation planner must visualize unit employment throughout the operation to prepare a valid troop list. For example, many terminal service units may be required for cargo discharge on several beaches during the initial phase of an operation. During a later phase, consolidation of functions at a large water terminal, or extensive use of civilian labor, may make some of these units unnecessary. The justification for the

proposed troop list should indicate that these units will operate mode transfer terminals needed in forward areas.

- (c) In some cases, the urgency of the operation requires that it be undertaken even though it is recognized that, by usual standards, sufficient personnel are not provided within the troop basis. The planner may be able to increase the capabilities of the troops available by one of the following measures.
 1. Type B units may be used, with civilians replacing some military personnel. However, any applicable ceiling on civilians must be considered.
 2. Reduced strength units may be used in those areas where the total capability of a full strength unit is not required.
 3. Some functions may be performed in part, or in whole, by contract services.
 4. In ADLOG and BALOG areas, prisoner-of-war (POW) labor may be used to supplement manpower resources. Utilization of POW labor is subject to the provisions of international agreements and theater policy and must be closely coordinated with the appropriate major command provost marshal.

19. Balancing Requirements and Resources

The process of balancing requirements and resources determines whether or not the transportation capability is adequate to support the operation. It also establishes the workload for each segment of the transportation service.

a. The planner is responsible for providing complete transportation support capability, though his planning data may be incomplete.

(1) Initially, requirements for transportation are stated only in general terms.

For example: 1,000 tons of Quartermaster Class II and IV to arrive in the theater and be moved 80 miles inland during a particular phase of the operation. The planner totals the requirements and computes the resources needed to perform this workload at a daily average rate throughout the period. Use of averages in planning is necessary; but in operations, an average production day is unusual. If resources are provided to produce only the average workload, the actual requirement for some days cannot be met. Therefore, the planner increases the quantities of resources to compensate for days of low productivity. The amount of this increase is based, in part, on assumptions; but primarily its determination is a function of the professional judgment of the planner.

- (2) Providing complete transportation support requires consideration of factors other than the necessary operating units. The planner provides for adequate command and control by organizing the units according to their missions, proposed locations, and area of coverage. He coordinates with planners of other services to insure that their plans include the necessary capability for support of the transportation units. He makes recommendations as to the location of supply and service installations in accordance with their requirements for transportation.
- b. A composite statement of the total requirements for transportation expedites the planning process. Each planner selects the format that he finds most usable. One may use a chart-type listing of requirements, showing origin, destination, amount, and the service and class of supply of each shipment. Another may plot this same data on an overlay of the area; while a third may use a combination of both. The format selected should permit ready identification of such items as cargo discharge tonnage at water terminals; terminal clearance tonnage, to include indication of areas to which it is cleared; forward movements of cargo to and from each area; and cargo which should be moved by air.
- c. The process of establishing workloads for each of the transport modes varies according to

the phase of the operation. In the usual situation, the plan for the initial phase should provide sufficient motor transport for all cargo and personnel movements. Though some priority items will, in fact, move by air, this quantity normally will be only a small percentage of the total supplies. In some situations, however, where physical barriers restrict surface movements or when speed of delivery is the determinant, the plan should provide for much or all of the supplies to be airlifted. After railway becomes available, most shipments compatible with rail shipment are allocated to this mode, within the system capacity. Motor transport is then used for shipments between points not on rail lines, for distribution operations, or for shipments in excess of the practical capability of the railway system. Whenever possible, one mode is used for through movement; the use of transfer points should be avoided.

- (1) Workloads are computed individually for each transport mode, according to the characteristics and capabilities of the operating units of that mode. The final plan, however, must combine the units and operations of all modes into a single, *integrated* transportation system.
- (2) During actual operations, the theater commander allocates a portion of the available airlift to theater army; this air movement capacity is utilized according to requirements. For *planning* purposes, however, air movement capacity

is an assumption based on coordination with Air Force planners. This assumed capacity will seldom exceed the requirement for movement of priority cargo; when there is an excess, planners should expect it to be required for nonprogrammed priority movements. Similarly, Army transport aircraft capacity will seldom exceed the amount required for direct support of combat operations. Therefore, the plan should not provide for routine movements by air of other than priority cargo.

- (3) Rarely will the transportation plan contemplate extensive use of inland waterways. The base development plan will provide for their use only when transport by other modes is not available in sufficient quantities.
 - (a) In only a few areas of the world are there extensive inland waterway systems that would be compatible with our requirements for transportation.
 - (b) Inland waterway systems are relatively vulnerable to enemy action and sabotage and they are difficult to restore to usefulness.
- (4) The planner must be certain to include all types of workloads, such as the following:
 - (a) Successive shipments of some cargo (i.e., from terminal to BALOG depot,

then from BALOG to ADLOG, then from ADLOG to field army) and the attendant rehandling and documentation, as well as shipments of cargo direct from terminals to combat forces.

- (b) Lateral shipments, rewarehousing requirements, and retrograde shipments.
- (c) Requirements for internal support of each area, beyond the capabilities of transportation organic to the units in the area.
- (d) Requirements for personnel needed to supplement TOE authorizations.

For example, supply personnel and transportation movements personnel may be needed for the transportation division of a logistical command.

- (e) Maintenance of equipment.
- (f) Requirements for support of allied and civilian agencies.
- (g) Evacuation of patients, with provision for rapid adjustment of operations and use of special terminals to expedite movement.

d. Based on the workload forecast for each mode, the planner computes the number of units, by type, required. Greatly simplified, this computation may be expressed as a fraction, whose numerator is the total job and whose denominator is the capability of one unit to perform that job.

The result of the division is the number of operating units needed. The requisite command and supervisory units are then added.

e. The items of Transportation Corps supply are computed, based on the planned population of end items and their maintenance and replacement requirements. According to the tonnage and planned distribution of these supplies, the number of maintenance and supply units can be determined.

f. Units and supplies are phased into the operation according to the requirements for each phase. The planner must assure that the relative priority given to these units and supplies is appropriate to their intended use.

g. The plan must provide for transition from the current to the new operation. For example, when support units are phased out of the current operation, their support functions must be transferred to another similar unit.

20. Coordination

The transportation plan is but one portion of the plan for support of an operation. Complete coordination among all planners is mandatory to assure integrated support.

a. The original guidance is seldom valid throughout the planning period; constant coordination with the appropriate general staff agencies on the following major topics is necessary to keep the planning current:

- (1) Changes to the mission.
- (2) Commander's concept, including phasing.
- (3) Organization.
- (4) Assumptions, including approval of assumptions proposed by transportation planners.
- (5) Intelligence.
- (6) Changes to policies and SOP.
- (7) Priorities and allocations (par. 5).
- (8) Supplemental requirements for support of U.S. Navy, U.S. Air Force, and allied elements, and for civilian relief.
- (9) Security, to include security of classified information and materiel, protection of routes of communications, rear area security, and security forces.

b. Coordination with other special staff and operating agencies includes consideration of such matters as—

- (1) Requirements for transportation.
- (2) Proposed locations of depots and other installations requiring transportation support.
- (3) Routes—to include construction, maintenance, and terminals, as applicable—of pipelines, railways, primary and secondary roads, waterways, and airways.
- (4) Adequacy of service support to transportation installations and units, such as signal communications service and traffic control support.

- (5) Compatibility of the transportation requirements submitted by users with the capability of supply agencies to ship or receive cargo.
- (6) Recommendations for improving transportation support.

Section II. TRANSPORTATION INTELLIGENCE

21. General

Transportation intelligence is defined as evaluated technical data concerning the characteristics, conditions, construction, development, and maintenance of materiel and all factors involved in the operation of all transportation facilities—air, land, or water—in an actual or proposed theater of operations. Such intelligence is essential to planning at all echelons. For detailed discussion of technical intelligence, see FM 30-16. Transportation technical intelligence is covered in FM 55-8.

22. Responsibilities

The transportation officer is responsible for the collection of transportation information, the production of transportation intelligence, and counterintelligence considerations, to include the security of transportation information and materiel. For these functions, he is under supervision of the Assistant Chief of Staff, G2, or the appropriate director, who will establish intelligence policies and procedures for the command.

23. Functions

The intelligence officer in the plans and intelligence branch assembles, analyzes, and incorporates into his collection plan the requirements of his own and, as applicable, higher, lower, and adjacent headquarters. His plan is submitted to G2 for approval and inclusion in the G2 collection plan. Orders and requests based on the G2 intelligence collection plan are disseminated to provide to transportation intelligence officers of subordinate commands, and to transportation intelligence team commanders, a basis for the organization of their collection effort.

24. Collection Agencies

Collection agencies include the intelligence personnel of the transportation staff division transportation intelligence teams, and Transportation Corps units. Transportation Corps personnel or units operating in the field may be assigned special collection or reporting tasks, in addition to their normal intelligence responsibilities. Transportation information is also collected by the intelligence elements of other branches of service and by Navy and Air Force intelligence agencies.

25. Transportation Intelligence Teams

Three types of intelligence teams are organized under TOE 55-500: Team HA, Intelligence—Collection; Team HB, Intelligence—Research; and Team HC, Intelligence—Augmentation. When

these teams are assigned to an organization they will usually operate under supervision of the transportation officer, but may receive direction and supervision from the ACoS, G2.

26. Disposition of Transportation Technical Intelligence

After study and analysis, all documents such as maps, diagrams, or charts should be forwarded through intelligence channels as directed by FM 30-16. Information concerning transportation systems, routes, facilities, and materiel will be forwarded without delay to the nearest transportation intelligence team or transportation officer. Captured enemy transportation materiel will be processed in accordance with FM 30-16.

CHAPTER 4

TRANSPORTATION SERVICES

Section I. MANAGEMENT SERVICES

27. Transportation Movements

a. The task of transportation movements management is to support the mission of the command by making the best use of transportation resources consistent with insuring the movement of supplies and personnel. To be effective, supplies and personnel must be *moved* to the required place, on time, and in the quantity desired. However, the supply systems of the several technical services differ in nature and volume of requirements; the transport modes vary as to characteristics and capability for employment. Therefore, accomplishment of the objective "enough and on time" requires command control to achieve unity of effort, on the one hand; and centralized direction to obtain timely response to demand, on the other. Intelligent movements management provides centralized direction to obtain effective response to demand through the integration and regulation of the transport means and facilities.

b. Movements management is the means by which the transportation officer of each headquarters and command provides an integrated

transportation service. Thus, every headquarters or command having substantial administrative support responsibilities requires, as a minimum, a transportation movements staff branch. However, the need for a transportation movements field organization is dependent upon the extent and complexity of the transportation network and the total distribution system.

- (1) In headquarters, such as TALOG, where several means of transport are available and intersectional movement requirements are generated throughout the communications zone and the combat zone, a field organization is a necessity.
- (2) In contrast, a transportation movements field organization is seldom required by BALOG, ADLOG, or area commands. Intrasectional movement requirements are usually local in nature, fulfilled by motor transport allocated on a mission basis. The allocation is made as a result of direct coordination between the user (installation or activity transportation officer) and the command transportation movements staff element.
- (3) In the event a requirement exists for the use of intersectional movement capability for an intrasectional movement requirement, the section transportation officer initiates a request to the TALOG transportation officer. After the capability is allocated by TALOG, the user

deals directly with the TALOG transportation movements field representative.

c. The movement program is the principal means by which movements are managed. Essentially, it is the command's program for the distribution of supplies and personnel, comprising both the shipping requirements stated by the various shippers and the means of transport allocated by the transportation officer. *The program's effectiveness is directly proportional to the accuracy of the forecasts of requirements submitted by the shipping agencies.* Adequate, timely service to the using agency can result only when management decisions are based on accurate and timely reports. Positioning transport equipment in response to significantly inaccurate estimates will result in the loss of transport capacity. Consequently, the transportation service will be unable to perform effectively the actual requirements of all supply agencies.

(1) *Development of movement program.* The movement program is evolved from the movement plan which is derived from an analysis of transportation capabilities and the command supply/personnel plan. Supply and personnel movement requirements are submitted by technical and administrative services and by other shipping agencies to the director of services or G4. These requirements are the basis for the supply/personnel move-

ment plan. Concurrently, an analysis of transport capabilities is developed by coordinated action between the transportation movements branch and the transport and terminals branch of the staff transportation division. The supply/personnel movement plan is completed by the allocation of an appropriate transport mode to each shipping requirement, in accordance with established priorities. The movement plan becomes the movement program when it is authenticated by the G4 or director of services. The program is published in the name of the commander and disseminated to all interested agencies.

- (2) *Implementation of movement program.* The movement program is a directive for planning action; it is also the authority for shipment when actual requisitioning action occurs. The program identifies the estimated daily tonnage of shipments by class and service of supply, origin and destination, and mode of transport (similar information is given for personnel movements), covering a stated period of time, usually 7 to 15 days. Based upon information contained in the program, shipping agencies prepare stocks or alert personnel to attain a continuous flow of movements. Receiving agencies plan for the receipt of the

stated daily quantity. Transport equipment is prepared and positioned, but *no equipment is dispatched until a shipper submits a request for transportation*. Requirements for movement which are included in an appropriate program description are fulfilled upon the receipt of a request for transportation. On the other hand, requirements which differ in any substantial respect from information contained in the program, or which do not appear in the program, are nonprogramed movements. The fulfillment of nonprogramed movement requirements may be delayed, dependent on the availability of transport equipment, unless the importance of the shipment warrants assignment of a priority for transport and adjustment of programed shipments.

d. Centralized control of movements is exercised by the transportation officer charged with providing an integrated transportation service and having a knowledge of the overall requirements for movement through the transportation movements staff and field organization.

(1) The transportation movements staff function usually is accomplished by transportation movements personnel provided in TOE's of headquarters of logistical command and field army. However, the transportation group (move-

ments) may perform the staff function in addition to its primary mission of exercising command over the transportation movements field organization.

- (2) The requirements for a transportation movements field organization vary with the size of the geographical area encompassed by the command, the complexity of the transportation net, and the volume of movements. Basically, "on-the-spot" supervision of movements is accomplished by transportation movements offices (branch). Branch TMO's are established to provide area coverage or to supervise a critical point, dependent upon the volume of movements.
- (3) For administrative and operational purposes, the communications zone and the combat zone may be divided into one or more transportation movements regions. Regional boundaries are established to facilitate control of movements and do not necessarily coincide with command or political boundaries. A transportation battalion (movements) is organized to operate the regional transportation movements office and to command and supervise branch TMO's located within the region. The transportation battalion (movements) may be assigned to a transportation group (movements) or may operate independently.

- (4) TALOG and field army each has an assigned transportation group (movements). Under the operational control of the command transportation officer, the group commands and supervises the transportation movements field organization.
- (5) The transportation group (movements) and transportation battalion (movements) are organized from group and battalion headquarters cellular units authorized under TOE 55-500. Transportation movements teams of various sizes are included in TOE 55-500 to staff branch TMO's or to provide specialized augmentation for movements group and battalion organizations.
- (6) The primary functions of transportation movements personnel in the field are to facilitate the movement of authorized shipments; to prevent the dissipation of transportation resources; to act as the common point of contact between users and transport mode operators; to report the status of transportation activities in their areas; and to transmit to operators requirements for transport.
- (7) Installation or activity transportation officers, as staff officers of the command to which assigned, insure the provision of transportation services required to support the mission of the command.

The installation transportation officer represents all activities of the command in dealings with the transportation movements field organization for inter-sectional movement requirements.

e. For details of transportation movements functions and procedures refer to FM 55-4.

28. Highway Regulation

a. *Definition.* Highway regulation is the planning, scheduling, routing, and direction of the actual use of the highways.

b. *Responsibility.* The ACofS, G4, or the appropriate director, is responsible for the provision of highway regulation required to insure that operational requirements are met. This responsibility is discharged through a staff agency, the traffic headquarters, which is operated and supervised by the transportation officer.

c. *Traffic Headquarters.* The traffic headquarters performs all appropriate highway regulation staff actions and has operational control over highway regulation operating elements. The necessity for complete coordination between highway regulation and traffic control agencies requires assigned Provost Marshal representation in the traffic headquarters; other agencies of the command furnish representatives when the need arises.

(1) General or director staff coordination is performed by the G4 or equivalent director. The traffic headquarters co-

ordinates directly with all other interested staff agencies in the preparation of highway regulation plans and directives to insure timely accomplishment of both tactical and administrative support movements.

- (2) Highway regulation teams (TOE 55-500) in the field operate in close coordination with military police traffic control personnel, often being located at traffic control posts. These highway regulation teams effect such regulation as may be necessary to carry out the directives of the traffic headquarters.

d. References. For details of highway regulation operations, see FM 25-10 and FM 55-31.

Section II. TRANSPORT MODE SERVICES

29. General

This section discusses in general terms the transportation services provided in theaters of operation by organizations of the transport modes.

a. Characteristics of operations, equipment, and organization are covered in other manuals which are cited in appropriate paragraphs of this section. Information on these subjects is included here only as necessary to define and explain the services performed.

b. Any of the services discussed herein are subject to delay or interruptions due to enemy action,

sabotage, or extreme weather conditions. Some services may not be provided in some theaters.

c. Users of this manual should not attempt to determine, on the basis of information in this section, which transport mode or means should be used for movement of specific shipments. The mode of movement for each shipment is determined by the transportation officer on the basis of much additional information, examples of which follow:

- (1) The availability of capacity within each of the transport modes, and the compatibility of carrier and cargo.
- (2) The relative priority of the shipment.
- (3) The ability of the shipper to load and ship, and the ability of the receiver to accept and unload, by each mode.
- (4) Any conflicts with programmed transportation.
- (5) Any transfer of modes necessary if shipped from origin by a specific mode.
- (6) The desire of the agency requesting shipment.

30. Motor Transport

a. *Nature of Service.*

- (1) Each motor transport operating unit has the capability of independent operation, having organic mess, administration, supply, and maintenance sections. Each unit can be attached, detached, or dispatched from and to organizations or

installations on short notice without extensive preparation by, or support from, the using agency.

- (2) The motor transport service can tailor operations to the requirements of each user agency. This enables the user to obtain the service he needs without changing his procedures or disrupting his operations. The service can be rapidly changed in scope or nature, in a coordinated transition, to meet new requirements developed by changes in the operations of the using agency.
- (3) Motor transport is the connecting link that makes possible an integrated transportation service. It bridges the gap between depots and the air, water, or rail terminals. It transfers shipments between other modes and is the mode best suited for most distribution activities. It supplements other modes, when necessary, thus reducing the pressure of peak load periods.
- (4) Continuity of service can be maintained. Enemy action and other factors may be expected to cause some interruptions in service. However, each vehicle is independently mobile and has significant cross-country capability. Therefore, it is possible for motor transport operators to substitute vehicles or units, bypass, or re-route, as necessary to minimize the

effects of interruptions. In many cases, motor transport can provide complete origin to destination service, even from shipside direct to the using unit.

b. Employment.

- (1) *Capabilities.* The capabilities of the motor transport service are as varied as the possible combinations of the operating units. These units include light, medium, and heavy truck companies and car companies. The TOE for the medium truck company provides for augmentation of this unit with a missile transport squad. For tasks which do not require the capability of an entire company or one of its platoons or squads, motor transport teams are available which provide truck, bus, or car transportation. Each team includes vehicles and operators and can be attached to any unit requiring such assistance.
- (2) *Basis.* Usually, the units will be dispatched on a mission basis; but the factors peculiar to some situations may require attachment or assignment to the supported organization or installation. *For example*, the distance separating the unit from its parent headquarters may make it impracticable for the headquarters to exercise command, or for the transportation officer to exercise operational control and supervision. The

decision to attach or assign the unit is an individual determination based on the requirements of each specific situation.

(3) *Methods.* Motor transport operations are generally classed as either line haul or local haul. Line hauls are characterized by long running time in relation to loading and unloading time. A line haul usually involves one round trip, or a portion of a trip, daily; it is evaluated on the basis of time consumed, tonnage hauled, or ton-miles accumulated. Local hauls are characterized by short running time in relation to loading and unloading time. Usually, several trips will be made daily and the operation is evaluated on the basis of tons of cargo, or number of personnel transported during the evaluation period.

c. *Control.* Appropriate command and supervisory headquarters organizations are provided. Battalion, group, and motor transport command headquarters supervise operations and accomplish operational planning. The staff transportation officer exercises operational control usually through the motor transport section of the transport and terminals branch. The ACofS, G4, or corresponding director, exercises highway regulation through the transportation officer and the traffic headquarters (par. 28).

d. Reference. For detailed information on motor transport operations and units, see FM 55-31.

31. Rail Transport

a. Nature of Service.

- (1) Rail transport excels as a mode for bulk movements. Moving at a relatively constant speed, railroads move more in a given period, with fewer operating and maintenance personnel, than any other land transport mode.
- (2) Freedom from traffic interference and relative immunity to weather conditions provide rail transportation with an inherent ability to maintain continuous scheduled service.
- (3) Any commodity can be moved by rail in practically unlimited quantities, subject only to clearance restrictions along the route. Refrigerator, tank, depressed center, and hospital cars, as well as other types of specialized equipment, are available to accommodate an almost endless variety of shipments; though they may not always be available in quantity within the theater of operations. Since the personnel and all the equipment of a unit can travel together, unit integrity can be maintained from origin to destination.
- (4) Operating only on fixed roadbeds, rail transport is less flexible than, for ex-

ample, motor transport. However, the fixed routes provide safety and traffic control so that supervision, by agencies outside the rail transport organization, is seldom required.

b. Employment.

- (1) *Capabilities.* The railway operating battalion provides train service and maintenance of way on one division (usually 90 to 150 miles of track) or operates a large rail terminal or marshalling yard. Other rail units furnish support for the operating battalion.
- (2) *Basis.* The senior command headquarters of the transportation railway service retains command and control of all operating units. Only those units or teams required for hospital train operation are detached from this control. Such units or teams are placed under operational control of the surgeon having responsibility for evacuation.
- (3) *Methods.* Requirements for service and availability of equipment and facilities determine which of the following methods of operation is used:
 - (a) *Fleet.* In fleet operations, trains move in one direction for a specified period; then in the opposite direction for a similar period. When the time cannot be specified in advance, the last train in one direction carries a train order

identifying it as the last; its arrival at a yard is the signal for trains to start moving in the opposite direction.

- (b) *Manual Block.* In manual block operations, trains move a block at a time, or from one station to the next, when given a permissive signal to do so. Where signals are lacking, crews may, on written orders from the block or tower operator, advance trains in stages.
 - (c) *Train Order.* In train order operations, trains move over single-tracked divisions in stages and in strict conformity to written orders from the train dispatcher. These orders advise train crews where to pass or meet trains moving in the same or opposite direction, respectively.
 - (d) *Timetable.* This method is used when trains are scheduled in the timetable. When timetable operation is used, extra trains may be authorized by train order and, unless other provisions are made, such extra trains are governed by the timetable with respect to their meeting or passing scheduled trains.
- c. *Control.* Rail transportation is organized as an intersectional transportation service (par. 2d). The units are assigned to TALOG and the TALOG transportation officer exercises control over their operations.

d. Reference. For detailed information on transportation railway organization and operations, see FM 55-21 and other publications cited in that field manual.

32. Air Transport (Army Aircraft)

a. Nature of Service.

(1) Air transport provides the greatest potential speed of delivery for cargoes which are within the capability of the aircraft. This speed makes possible, by repeated trips, the delivery of substantial quantities in less time than by other modes. It should be noted, however, that this speed is achieved only during the air travel portion of the total trip. In some cases, a shipper's insistence on air transport may actually delay delivery of a shipment. This could occur when either the origin or destination point is not near an airfield. The total transit time would then include surface transport time and time for loading and unloading surface carriers. In such instances, delivery may be expedited by use of only surface transportation. Extension of this reasoning would indicate that, if air transport is necessary or advisable for a portion of the distance, the transportation officer should consider using air transport for the entire distance.

- (2) Aircraft have an almost infinite choice of routes, generally limited only by their design characteristics of capacity, range, and fuel consumption. This enables aircraft to fly directly between points or to be diverted to any new destination within the limits of the aircraft's range.
- (3) The vertical or short take-off and landing abilities of Army aircraft obviate extensive airfield construction and permit many shipments to be made from origin to destination without supplementary transportation.

b. Employment.

- (1) *Capabilities.* Army transport aviation operating units of the Transportation Corps include light and medium helicopter companies. The capabilities of these units vary with the capabilities of the aircraft which, in turn, vary with the weather, distance involved, and other factors affecting flight. For detailed discussion of the capabilities of these aircraft under specific conditions, see FM 101-10 and FM 55-15.

(2) Basis.

- (a)* Numerically, most Army aircraft are used within the field army area for direct support of combat operations. However, those aircraft and units utilized for administrative support are integrated into the transportation

service of the field army. As a part of the transportation service, they are used to transport priority cargo and personnel.

- (b) The nature of most cargo transported, integration of the aircraft with other transport modes, and the urgency of the missions performed by aircraft preclude assignment or attachment of aircraft or Army transport aviation units to using installations or units for administrative support mission. The administrative use of these aircraft and units is generally restricted to mission dispatch, on a one-time basis. For tactical support missions, however, the aircraft and units will normally be attached to the supported unit or installation. In exceptional instances, particularly in stabilized situations, some units may operate scheduled flights between selected terminals.
- (3) *Methods.* Efficient operation of aircraft is not tied to any specific method. Aircraft perform each mission according to the requirements of that mission.

c. Control.

- (1) The transportation officer is responsible for the employment of Army air transport utilized for administrative support and for integration thereof with other

modes of transport. When aircraft are used for an extended period of time to augment patient evacuation they will be controlled by the command surgeon. The aviation officer advises on technical and flight aspects of administration, training, safety, and operations of Army transport aviation units.

- (2) Appropriate headquarters organizations are available for command and administration of the operating units.

d. Reference. For detailed discussion of operations of Army aircraft and air transport units, see FM 1-5 and FM 1-100.

33. Inland Waterway Transport

a. Nature of Service.

- (1) Inland waterway systems can carry great quantities of volume cargo; they can, therefore, be used either to supplement other transport modes or to enable the other modes to be used for higher priority cargo.
- (2) Inland waterway transport may be of great value in either of the following:
 - (a) Movement of very heavy or very outside shipments which are not easily handled by other modes.
 - (b) Support of units on offshore island sites or at any time when short coastwise service is the most practical means of support.

(3) Equipment and facilities of inland waterway systems are vulnerable to sabotage and enemy action and are difficult to restore or construct. Also, though each carrier unit has great capacity for both bulk and tonnage, its effectiveness is limited by its slow rate of travel and the difficulty of diverting individual shipments. For these reasons the transportation service will include inland waterway operations only when it is impracticable to generate sufficient transport capability in other transport modes.

b. *Employment.*

(1) *Capabilities.* Transportation boat and amphibious units, and teams available from TOE 55-500, provide personnel and equipment for use on waterways. These units and teams provide a variety of carrier equipment such as powered cargo vessels and cargo barges with capacities ranging up to 585 short tons; landing craft with capacities from 35 to 150 short tons; and amphibians ranging from the LARC-5, with a capacity of five short tons, to the BARC amphibious lighter, which will carry 60 short tons. However, the tonnage capacities of the inland waterway system are as dependent on the characteristics of the waterway as on the type and quantity of

equipment available. Therefore, only a survey of the system can determine its actual capacity.

- (2) *Basis.* Inland waterway units and facilities are usually retained in the transportation intersectional service of TALOG; they may be assigned to BALOG, ADLOG, or field army if the inland waterway operation takes place wholly within the area of responsibility of one of these commands.
- (3) *Methods.* Inland waterway transport may be established to move large tonnages or to provide scheduled service; the equipment and methods used vary with the purpose. In the former instance, the service may be established to provide flexibility and dispersion, to relieve peak loads on other modes, or to achieve economy. The latter method is generally used only when other transport modes cannot generate the requisite capacity or cannot reach the points to be served. If one type of service is required, the transportation officer should consider providing both services, to obtain maximum use of the equipment and the supervisory elements of the operation.

c. *Control.* A transportation terminal command or transportation terminal battalion, as appropriate, conducts inland waterway operations. The operations are under operational control of the appropriate staff transportation officer.

d. References. For details of inland waterway operations and units, see FM 55-57. For planning factors pertinent to inland waterway operations, see FM 55-15. For use of watercraft in terminal operation, see paragraph 34.

Section III. TERMINAL AND STAGING SERVICES

34. Terminals

a. Nature of Service.

- (1) From the standpoint of the shipper, the terminal is a point of transfer from one mode, or one carrier, to another. Only to the carrier or the transport mode organization does the terminal represent the beginning or end of an operation.
- (2) Terminal operations are conducted at ports, beaches, air terminals, and mode transfer points. In all of these operations, the services performed are similar. Some of these services are receiving, checking, unloading, loading, documentation, inspection, cargo accounting, and temporary intransit storage.

b. Employment.

- (1) *Capabilities.* The basic operating unit is the terminal service company, which can discharge cargo from a conventional type ship at the average rate of 720 short tons per day when operating at a water terminal. The capabilities of other units used in connection with ter-

minal service companies are designed to be compatible with this discharge rate. When operating at a mode transfer terminal, the capability of the company depends on the number of handlings of the cargo and on the degree to which materials handling equipment can be used. At a minimum, the unit should be able to handle 900 short tons per day.

- (2) *Basis.* Terminal operations responsibility, and terminal units, are assigned to BALOG, ADLOG, or field army commanders, dependent on the location of the terminal. The exception is that a terminal unit operating a transfer point as a part of the transportation inter-sectional service is assigned to TALOG.

(3) *Methods.*

- (a) *Fixed Facilities.* Terminal operations at a port achieve greater efficiency than at beaches. More elaborate equipment is available, fewer personnel are required per ton handled, and, therefore, unit tonnage capability is increased. Cargo or passengers may be unloaded directly from ships into railway trains or motor vehicles. Amphibians, landing craft, and lighters may be used to increase the terminal capacity by bringing cargo and personnel from ships in the stream to piers not capable of receiving large vessels.

(b) *Beaches.* Terminal operations are conducted at beaches when fixed facilities are not available to supplement the capacity of fixed terminals, to achieve dispersion, or to shorten supply lines to the supported forces.

1. Amphibians are of especial value in achieving dispersion. Since they travel on both land and water, there is no concentration of equipment at the waterline. Cargo can be transferred to land transport modes at several protected points, none of which offers a profitable target at any time.
2. Because of the difficulty of handling cargo under the relatively primitive conditions, more units are required to attain a specific tonnage capability than would be required in fixed terminal operations. Also, there is a requirement for more equipment, such as amphibians, boats, and cranes.

(c) *Air Terminals.*

1. At Army air terminals, emphasis on timing and precision is necessary to move the required tonnage. Both the cargo and the aircraft are critical items and the terminal operations are directed toward insuring that the cargo arrives in good condition and the aircraft are not delayed.

2. Except for unit movements, Air Force personnel are responsible for loading and unloading aircraft at both troop carrier and MATS terminals. Transportation Corps terminal service personnel perform functions related to receipt, consolidation, documentation, or clearance of Army cargo or personnel moving through these terminals.

3. For unit movements by Air Force troop carrier command aircraft, the responsible Army commander furnishes the personnel to load and unload the aircraft under the supervision of the aircraft commander.

(d) *Mode Transfer Points.* Terminal service units at mode transfer points provide labor for transferring cargo. They also perform processing and documentation for movement by the new mode, maintain records and submit reports to provide continuity of information on location of shipments, and accomplish transfer of responsibility for shipments from the losing to the gaining mode.

c. *Control.* Terminal operations are conducted under the control of the appropriate transportation officer. Command and supervisory organizations include terminal battalions and three types of terminal commands. The Transportation Ter-

rninal Command Headquarters, Type C, provides command and supervision for the largest terminal operations; types B and A for proportionately smaller operations.

d. References. For further details of terminal operations and units, see FM 55-51 and FM 55-52.

35. Staging Areas

a. Nature of Service. Staging areas are established, when required, in the vicinity of water or air terminals, to provide mess and billeting facilities for personnel or units being processed through the terminals. Mess personnel of the transient units are required to assist. Staging areas may also be established to provide these services to troop units between or during movements over lines of communications. The services provided neither substitute for nor replace functions and services of the replacement and training command; the staging area provides only those services incidental to transportation of the troops.

b. Employment.

(1) *Capabilities.* Each Transportation Staging Area Company can provide mess and billeting for 7,500 troops daily. When operating along lines of communication, necessary additional labor is furnished from Quartermaster Labor Detachments organized under TOE 10-500; additional mess personnel are furnished from

Composite Service Organization, TOE
29-500.

- (2) *Basis.* Staging area companies are allocated on the basis of one per 45,000 troops to be staged monthly, assuming six increments of 7,500 troops, each increment averaging five days' stay.
- (3) *Methods.* A staging area company may operate a single staging area, for 7,500 troops, or may operate as many as five dispersed staging areas, each capable of staging an infantry battle group or equivalent.

c. Control. Staging area companies are normally assigned or attached to a transportation terminal command.

d. References. For details of staging area operations, see FM 55-51 and FM 55-52.

Section IV. U.S. NAVY AND U.S. AIR FORCE TRANSPORTATION SERVICES

36. Military Sea Transportation Service

The Military Sea Transportation Service (MSTS) furnishes a worldwide military sealift service under a single manager common-service assignment. The single manager charter assigns to the Secretary of the Navy the responsibility for providing a military sealift service for all agencies of the Department of Defense and, as directed, for other governmental agencies. MSTS

operates a scheduled service between CONUS terminals and oversea areas and between theaters of operations. Vessels of the U.S. Navy and commercial vessels under contract to MSTS are employed in this service. Generally, the Navy vessels used in this service are assigned to MSTS; however, space on supply ships of the fleet may be made available to MSTS to supplement the capacity of assigned and contract vessels.

a. The J4, Joint Chiefs of Staff, allocates to the theater sealift space for retrograde and inter-theater movements. The Theater Joint Military Transportation Board suballocates space to each service component (par. 5).

b. TALOG is responsible for retrograde movements to the zone of interior and is the claimant for space for Army-responsible cargo. TALOG usually delegates to the appropriate logistical command the responsibility for routine coordination and operations.

37. Air Force Air Transportation

a. General.

(1) Theater-wide air transportation service is a responsibility of the theater commander. This service is provided by the theater Air Force commander with assigned Air Force troop carrier units, supplemented to a degree by the Military Air Transport Service (MATS) system. Intratheater air service is operated either on a scheduled or nonscheduled

basis. Aircraft of the troop carrier units are capable of either dropping troops and supplies by parachute or landing on hastily prepared airstrips.

- (2) MATS furnishes a worldwide military airlift service under a single manager common-service assignment. Under the single manager charter, the Secretary of the Air Force is responsible for providing a military airlift service for all agencies of the Department of Defense and, as directed, for other governmental agencies. MATS operates a regularly scheduled service over fixed routes (channels) between CONUS aerial ports and oversea areas; and within and between theaters of operations. The service is performed by military aircraft (both U.S. Navy and U.S. Air Force) assigned to MATS and by commercial air carriers under contract. MATS also provides a special air mission (SAM) service for airlift requirements which must move in military aircraft manned by military crews.

b. Aeromedical Evacuation. The TALOG surgeon, through his Medical Regulating Officer (MRO), coordinates and controls the use of Air Force airlift allocated for aeromedical evacuation between the combat zone and the communications zone and within the communications zone. This coordination is effected between the aeromedical evacuation liaison officer (AELO) located in

TALOG, BALOG, ADLOG, and field army surgeons' offices and their MRO counterparts in each of these offices; and between AELO and the aeromedical evacuation control officer (AECO) located in the troop carrier aeromedical evacuation control center (AECC), which is an integral part of the transportation movement control center (TMCC). The AECO maintains direct liaison with the army airlift liaison coordinating officer (ALCO) in coordinating the use of retrograde airlift space for aeromedical evacuation.

c. Control and Coordination.

- (1) Theater army normally delegates to TALOG the control of airlift allocated for Army responsible intertheater and intratheater movements. The TALOG transportation officer exercises this control for the TALOG commander to insure complete integration and maximum utilization of all transport capabilities in support of the TALOG mission.
- (2) The TALOG transportation officer normally furnishes an Army ALCO to the transportation movement control center (TMCC) at the headquarters of the troop carrier force. The Army ALCO operates directly with the TMCC in coordinating the utilization of troop carrier airlift allocated for Army use. His principal duty is to take the necessary measures to insure the orderly flow of Army-responsible traffic into and out of the troop carrier system.

- (3) The TALOG transportation officer is also responsible for the assignment of an air traffic coordinating officer (ATCO), as required, to MATS terminals. The duties of ATCO with respect to MATS are similar to those of the ALCO with respect to the troop carrier command.
- (4) While loading or unloading of MATS aircraft is a responsibility of the Air Force, air terminal clearance of Army cargo and personnel is the responsibility of the appropriate staff transportation officer.

d. References. For further details of Army use of MATS and Air Force airlift, see FM 55-4. For further information on aeromedical evacuation, see FM 8-10, FM 8-55, and FM 31-8.

CHAPTER 5

MAINTENANCE AND SUPPLY

Section I. MAINTENANCE

38. General

a. Maintenance System. The categories and echelons of maintenance are defined and explained in AR 750-5. These definitions apply to the maintenance of Transportation Corps equipment except as indicated in subsequent paragraphs of this section.

b. Responsibility. Maintenance of equipment is a command responsibility. Planners must provide for all factors that contribute to keeping equipment in useful condition. Commanders must require detailed attention to these factors, which include the following:

- (1) *Time to Perform Maintenance.* Schedules and missions for operating units must be restricted to the amount of work which will permit performance of scheduled maintenance. Army regulations regard failure to perform maintenance as abuse of equipment; therefore, missions which preclude maintenance must be of such urgency as to justify that abuse.

- (2) *Personnel.* Adequate numbers of trained personnel must be provided at all maintenance levels. Careful selection is necessary to assure that maintenance specialists are assigned to organizations or facilities which can best utilize their capabilities.
- (3) *Resources.* This term includes not only the repair parts and replacement items, but the means by which they can be obtained and used. The necessary tools, test equipment, buildings, and other facilities must be provided. Publications must be available to guide personnel in the proper procedures for obtaining parts and performing the work. Records must be maintained and reports rendered to permit measurement of the maintenance effort.
- (4) *Inspection.* A comprehensive program of inspection keeps the commander and staff informed of the quality of maintenance and the status of equipment. This program supplements, and is supplemented by, the maintenance reports system. Inspections are of value to the inspected unit only when commanders establish a vigorous system of followup procedures. Followup actions should correct deficiencies and eliminate their causes but should also recognize exemplary performance.

(5) *Coordination.* Realistic coordination of maintenance involves the staff, the operators, and the maintenance personnel. It results in furnishing the commander with the optimum solution for accomplishing his mission—in this case, directing the maintenance program.

c. *Preventive Maintenance.* Preventive maintenance is the heart of a maintenance program, because it achieves the greatest economy. Personnel need less training; fewer and less expensive tools are used; equipment is out of service for shorter periods; and the performance of preventive services and inspections reduces the requirement for more complex maintenance.

d. *Maintenance Support.* Unusual circumstances may develop a maintenance load beyond the capabilities of a unit. In such instances, the transportation officer or senior commander arranges for the supporting field maintenance agency to assist the unit. When the situation is of long duration, other measures are necessary. Pooling of maintenance personnel or facilities may be effective. Reduction or realinement of workloads may be required. In any case, equipment which cannot be maintained must not be used. However, equipment not in use requires some maintenance; even this may be beyond the ability of the unit. AR 750-5 provides for returning to the appropriate technical service any equipment which cannot be properly cared for by the unit. This regulation indicates that the unit

initiates the action. However, senior commanders and staff officers should assist the units so as to expedite the transfer and preclude deterioration of the equipment.

39. Motor Transport

a. Military design vehicles issued to units under the authority of a table of organization and equipment are maintained under regulations and procedures promulgated by the Ordnance Corps. Commercial design vehicles issued to units under authority of a table of organization and equipment may be maintained under the same regulations and procedures as for military design vehicles or under regulations and procedures promulgated by the Transportation Corps pertaining to vehicles in transportation motor pools. The decision as to which regulations and procedures are to be followed is made by TALOG and field army commanders for units within their areas of responsibility.

b. General transport administrative vehicles in transportation motor pools (TMP) are maintained under the provisions of AR 58-5. This regulation outlines a system of maintenance based on the performance of only that service necessary to keep the vehicle in a safe and serviceable operating condition.

c. The maintenance system for administrative-use vehicles does not conform, in all details, to the general Army Maintenance System. The following outline covers the more important deviations:

- (1) The echelons of maintenance established in AR 750-5 are not applicable to maintenance of administrative-use vehicles.
- (2) The maintenance necessary may be performed in the TMP shop, another Government shop, or in a commercial shop, as may be in the best interest of the Government.
- (3) Organizational maintenance performed in TMP shops is limited to that work authorized in appendix II, TM 38-660-2. Subject to that restriction, the TMP shop may perform any work within the capabilities of its personnel, tools and equipment.
- (4) TMP shops are not field maintenance facilities, unless specifically designated by Department of the Army or the oversea theater Army commander. Even when so designated, those portions of field maintenance pertaining to the repair or rebuild of major units and assemblies will not be performed in TMP shops.
- (5) Depot maintenance is not performed in TMP shops and is not normally performed on administrative-use vehicles.
- (6) Technical assistance is normally provided during administrative transport management surveys. Special visits can be arranged as indicated in AR 58-5.

40. Railway

a. Maintenance of Way, Structures, and Signals. The railway engineering company of the railway operating battalion performs routine maintenance of way, maintenance of structures, and maintenance of railway signal and control system equipment. The Engineer is responsible for major construction, rehabilitation, and maintenance.

b. Maintenance of Communications Systems and Equipment. The railway engineering company of the railway operating battalion performs second echelon maintenance of Signal Corps equipment included in TOE of the units and that issued on a project basis. The TALOG signal officer is responsible for both major construction and repair of communications lines reserved for exclusive use of the military railway service and for field maintenance support for other Signal Corps equipment used by the railway units.

c. Railway Equipment. The maintenance of railway equipment is divided into echelons in conformity with the Army maintenance system. Unit responsibilities are outlined as follows:

- (1) The railway operating battalion performs first and second echelon maintenance of equipment, and, in stabilized areas, may also perform third echelon.
- (2) In forward areas, the railway workshop (mobile) performs third echelon maintenance.

- (3) The railway shop battalion performs fourth and fifth echelon maintenance of railway equipment.

41. Aircraft

a. A Transportation Corps aircraft maintenance unit organic to infantry and armored divisions provides third echelon maintenance support for all division aircraft. The division maintenance battalion provides limited third echelon maintenance support for aircraft organic to the airborne division. Other Transportation Corps aircraft maintenance units provide third echelon maintenance direct support and fourth echelon general support both to the divisions and for Army aircraft located in the corps area or in the field army service area.

b. Transportation Corps units located in the communications zone will provide fourth echelon maintenance and depot supply support for all Army aircraft in the theater, as well as any depot maintenance authorized to be performed in the theater. Army aircraft operating within the communications zone will be supported by Transportation Corps maintenance units similar to those found in the field army area.

42. Floating Equipment and Amphibians

Maintenance of Transportation Corps full floating equipment is divided into two categories—organizational and depot (see AR 750-1900-1.) Any services or repairs below depot level are performed within the organization. Maintenance

of Transportation Corps amphibians is divided into the conventional three category system. Field maintenance is performed by direct support augmentation units or by field maintenance companies. Depot maintenance authorized to be performed in the theater of operations is provided for both full floating equipment and amphibians by the Transportation Floating Craft Depot Maintenance Company, by cross-service agreements with the U.S. Navy, or by contract service, whichever may be in the best interest of the government.

43. Reusable Shipping Containers (CONEX)

Oversea commanders are responsible for maintenance of containers which become unserviceable en route to or within their commands. Repairs are performed with maintenance funds available to the oversea commander. The individual repair limit for each repair job is 50 percent of the cost of the container, based on the cost shown in DA Supply Manual TC 55-2-3. If the cost of repair exceeds this limitation, the oversea commander forwards a narrative description of the condition of the container to the Accountable Officer, Office, Chief of Transportation, who will issue disposition instructions.

Section II. TRANSPORTATION CORPS SUPPLY

44. Responsibility

The theater army transportation officer is responsible to his commander for providing a

system and an organization for supply of Transportation Corps items.

45. Organization

The organization for supply of Transportation Corps materiel provides direct, general, and depot supply support to using units and, through centralized stock control, insures proper balance between adequate supply and minimum stockage.

a. Aircraft maintenance units provide direct and general supply support related to their maintenance missions and may be given the additional mission of supplying other Transportation Corps items to the supported units.

b. Direct and general supply support not otherwise provided by aircraft maintenance units, and depot supply support, are responsibilities of depots. Dependent on theater policies and on requirements for echelonnement of supplies, general type field depots or branch depots may be established in any area. Each transportation (branch) depot, or transportation section of a general type field depot, is manned by a transportation depot company. The storage platoon of this organization receives, stores, and issues up to 100 tons daily of all types of Transportation Corps supplies. The stock control platoon prepares requisitions for replenishment of depot stocks and maintains records of receipts, issues, and stock availability. When required, this platoon also performs as the central stock control point (CSCP) for the area or command.

c. A transportation CSCP provides coordinated stock control when two or more transportation depots (or general type field depots) are established in one area or when one command performs stock control functions for another command. When this facility is required, the command designates the transportation depot company responsible for the service. If the command has established an Administrative Support Operations Center (ADSOC), this facility may provide central stock control functions for all technical services. If so, the stock control platoon of a transportation depot company may be the source of Transportation Corps supply personnel for the ADSOC. The BALOG transportation CSCP may also serve as the TALOG transportation CSCP. If a separate CSCP is established at TALOG, it may be manned by a transportation depot company, less storage platoon.

46. System

a. The system for supply of Transportation Corps materiel is based on issue to the using unit from the nearest supply agency that stocks the required item. For example, each unit is assigned, for Transportation Corps direct supply support, to a specific support unit. The unit submits requisitions to this support unit. The direct support unit issues the item, if on hand, or refers the requisition to the appropriate general support unit. The general support unit may issue directly to the using unit or to the direct support unit. An unfilled requisition is passed successively from

general support unit to supporting depot or supporting transportation CSCP, whichever is appropriate, and thence to the BALOG transportation CSCP. If the item is not in the theater, the TALOG transporation CSCP decides, for the transportation officer, whether to purchase the item locally or to place a demand on the zone of interior.

b. Local procurement of items of supply may be effected by depots, to the extent authorized by theater and theater army directives. Usually, procurement authority will be reserved to TALOG for appropriate coordination with procurement actions of other agencies.

c. The supply of aircraft items varies somewhat from the system outlined in subparagraph *a*, above. It is necessary that replacement aircraft be stored at a field maintenance facility to insure adequate instorage maintenance. Therefore, the end items—and most of the repair parts—will be stocked by the general support unit. The depot (or CSCP) may control the issue of some or all items.

APPENDIX REFERENCES

1. Field Manuals

- | | |
|-------|---|
| 1-5 | Army Aviation Organizations and Employment. |
| 1-100 | Army Aviation |
| 8-10 | Medical Service, Theater of Operations. |
| 8-55 | Army Medical Service Planning Guide. |
| 21-5 | Military Training |
| 21-6 | Techniques of Military Instruction |
| 21-30 | Military Symbols |
| 30-5 | Combat Intelligence |
| 30-16 | Technical Intelligence (U) |
| 31-8 | Medical Service in Joint Overseas Operations. |
| 32-5 | Communications Security (U) |
| 41-5 | Joint Manual for Civil Affairs/Military Government. |
| 41-10 | Civil Affairs/Military Government Operations. |
| 54-1 | The Logistical Command |
| 55-4 | Transportation Movements in Theaters of Operations. |
| 55-8 | Transportation Intelligence |

55-15	Transportation Corps Reference Data.
55-21	Rail Transportation Higher Units
55-31	Motor Transport Services in Theaters of Operations.
55-37	Transportation Battalion, Infantry Division.
55-51	Transportation Terminal Commands Theater of Operations.
55-52	Transportation Terminal Battalion and Terminal Service Company.
55-57	Transportation Corps Harborcraft and Marine Maintenance Units.
100-1	Doctrinal Guidance (U)
100-5	Field Service Regulations; Operations.
100-10	Field Service Regulations; Administration.
100-15	Field Service Regulations; Larger Units.
101-5	Staff Officers' Field Manual; Staff Organization and Procedure.
101-10	Staff Officers' Field Manual; Organization, Technical and Logistical Data.

2. Technical Manual

38-660-2	Organizationl Maintenance Instructions and Procedures for Administrative Motor Vehicles.
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3. Army Regulations

- 55-22 Allocation of Transportation Space
55-166 Utilization of Cargo Transporters in CONEX Service.
58-5 Administrative Motor Vehicle Management.
59-107 Responsibilities of Air Traffic Coordinating Officers.
220-50 Regiments; General Provisions
220-60 Battalions, Battle Groups, Squadrons; General Provisions.
220-70 Companies; General Provisions
320-5 Dictionary of United States Army Terms.
320-50 Authorized Abbreviations and Brevity Codes.
380-5 Safeguarding Defense Information
701-9100-1 Petroleum Supply System
725-14 Maintenance Float Aircraft
735-1900-3 Supply and Property Accounting Procedures for Army Floating Equipment.
750-5 Organization, Policies and Responsibilities for Maintenance Operation.
750-730 Reusable Steel Shipping Containers
750-1900-1 Maintenance of Transportation Corps Watercraft

4. DA Pamphlets

- 108-1 Index of Motion Pictures, Film Strips, and Phono-Recordings.

- 310-1 Military Publications; Index of Administrative Publications.
- 310-3 Military Publications; Index of Training Publications.
- 310-4 Military Publications; Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders and Modification Work Orders.
- 310-5 Military Publications; Index of Graphic Training Aids and Devices.
- 310-7 Military Publications; Index of Tables of Organization and Equipment, Type Tables of Distribution, and Tables of Allowances.
- 310-22 Military Publications; Index of Supply Manuals, Transportation Corps.
- 690-80 Administration of Foreign Labor During Hostilities.

5. Supply Manual

TC 55-2-3 Pricing Guide for Transportation Corps Items.

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NG: State AG (3).

USAR: Same as Active Army.

For explanation of abbreviations used, see AR 320-50.