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LOGISTIC SUPPORT IN THE VIETNAM ERA

MONOGRAPH 17

SUPPLY MANAGEMENT

A REPORT
BY THE JOINT LOGISTICS REVIEW BOARD

444

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

18 DEC 1970

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Deputy Assistant Secretary of Defense
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INTRODUCTION

1. BASIS FOR STUDY. The Joint Logistics Review Board was directed in its Terms of Reference[1] to review supply management.

2. DEFINITION. Th JCS Dictionary[2] defines supply management as material management, cataloging, requirements determination, procurement, distribution, overhaul (maintenance), and material disposal.

3. STUDY OBJECTIVES. The objectives of the review of supply management are:

a. To review supply management effectiveness and efficiency during the Vietnam era.

b. To make a comparative evaluation of supply management systems, including special management systems as they evolved during the Vietnam era.

c. To develop recommendations for reinforcing supply management system strengths and correct weaknesses.

4. SCOPE. This monograph reviews supply management as well as the overseas supply support concepts, organizations, procedures, and intensively managed supply systems of the Services, with particular emphasis on support of operations in Vietnam. These topics were explicitly identified in the Terms of Reference.

5. EXCLUSIONS. This monograph excludes requirements determination for principal end items, procurement, maintenance, petroleum, ammunition, and DSA/GSA supply management as they are addressed in other monographs of the report.

6. ORGANIZATION OF THE MONOGRAPH

a. This monograph comprises nine chapters.

b. Chapter II contains a general description of logistic organizations and procedures within each of the four Services. It provides the reader with background material to enable him to better understand the analyses presented in subsequent chapters.

c. Chapters III through VIII analyze issues related to supply management as they occurred during the Vietnam era. These issues are grouped into two major areas:

(1) Supply management in CONUS as it relates to overseas support and associated problems.

(2) Supply management and control of materiel overseas with special emphasis on supply management in Vietnam.

d. The specific topics of Chapters III through VII are shown below.

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[1]Secretary of Defense, Memorandum, subject: Joint Logistics Review Board (JLRB), 17 February 1969.
[2]Joint Chiefs of Staff, JCS Pub 1, Dictionary of United States Military Terms for Joint Usage, 1 August 1968.

(1) Chapter III describes the DOD procedures and supporting systems common to the four Services and their impact on overseas supply management.

(2) Chapter IV discusses supply management at CONUS Inventory Control Points, with particular emphasis on policies and procedures affecting overseas supply support.

(3) Chapter V reviews item visibility and how it is accomplished within the Services.

(4) Chapter VI discusses Service stockage in CONUS of integrated items, including a review of how DSA items are stocked and distributed by and for the Services.

(5) Chapter VII describes the management and control of materiel in overseas areas, with detailed analyses of supply management in Vietnam. A description of supply operations in Vietnam during the period 1965 through 1969 together with lessons learned are also presented in this chapter.

e. Chapter VIII reviews and evaluates the efforts of the Services to provide adequate personnel for operational logistics support of U. S. military forces in Vietnam.

f. Chapter IX is the summary chapter and contains significant conclusions and recommendations developed within this monograph.

CHAPTER II

GENERAL DESCRIPTION

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1. INTRODUCTION

a. General

(1) Any review of supply management requires some familiarity with the basic logistic structures and procedures employed by the organizations performing the management. When those organizations are the four Services, such familiarity is particularly important. Although the Services have a common management objective—optimum logistic support of their combat units—their methods of achieving this objective are often quite different. The uninitiated might advocate too quickly the elimination of these differences and the standardization of the supply management techniques employed by the different Service organizations; however, such standardization could result in the degradation of effective and efficient supply management. Equally dangerous would be the dismissal of standardization or cross-Service use of selected supply management techniques by overemphasizing the necessary differences among the Services. An understanding of each Service's logistic organization and procedures will facilitate achieving the selectivity required in evaluating each Service's supply management techniques and possible further uses and/or improvements.

(2) Differences in missions and roles, traditional influences and special support problems in the past have had far reaching impact on Service logistic organizations and procedures described in this chapter. Significant changes have occurred in recent years in supply management organizations, in the functions and tasks assigned to supply depots, and in the scope of activities undertaken at storage facilities. Depots in the continental United States (CONUS) were consolidated and realigned in the early 1960's when the Defense Supply Agency and the General Services Administration assumed certain military logistic responsibilities. The Air Force has eliminated its overseas depots in favor of base supply activities supported by air transport as a primary means of delivering other than bulk materials. There have been substantial improvements in the capability of all modes of transportation to respond to military requirements, and dramatic advancements have been made in communications and in automatic data processing. However, the overseas stockage policies of the Services in terms of range and depth of stock and number of supply activities between user units and CONUS wholesale suppliers have not improved at a corresponding rate. Increasing sophistication in determining more accurate and timely materiel requirements and in automating supply management functions at the CONUS wholesale level has not, in many cases, been matched by corresponding improvements at the user unit level.

b. Organization of the Chapter. This chapter describes supply management in each of the Services as a preliminary to an analysis of supply management problems. It begins with a brief review of the logistic responsibilities of senior civilian and military officials in the Office of the Secretary of Defense and in the military departments. Next, those supply programs and services common to all Services provided by the Department of Defense are summarized. Following this section there are descriptions of organizations and, where pertinent, the functions of the organizational elements of each Service. More detailed treatment, particularly of Service logistic systems, is provided in Chapter III of Volume II of the report. The Service organization is traced from its highest level in the CONUS down to the level of the overseas or afloat user unit.

2. RESPONSIBILITY FOR SUPPLY

a. General. The commander at each echelon of command is responsible in some measure for ensuring that elements of his command are properly supplied to perform assigned missions.

Within each command, however, designated individuals perform specific supply functions for the command.

b. Specific Responsibilities

(1) Office of the Secretary of Defense. The principal assistant and advisor to the Secretary of Defense on supply and logistics matters is the Assistant Secretary of Defense (Installations and Logistics) (ASD (I&L)). He prescribes policy and, in some cases, procedures in the logistics area for the military departments. He also monitors supply performance in the military departments through data submitted by the Services and by field visits conducted by members of his staff.

(2) Joint Chiefs of Staff. Under the authority and direction of the Joint Chiefs of Staff, and subject to the supervision and guidance of the Director, Joint Staff, the Director for Logistics serves as the principal advisor to the Joint Chiefs of Staff on logistics matters, except those involving transportation. Logistics matters under cognizance of the Director for Logistics include joint logistical plans, programs, studies, and recommendations concerning assignment of logistic responsibilities to the armed forces. The Special Assistant for Strategic Mobility (SASM) is responsible for providing information and appropriate staff assistance on strategic movement matters to the Joint Chiefs of Staff.

(3) Military Departments. The Secretary of each military department is aided in supply and logistics matters by an Assistant Secretary (Installations and Logistics). The Assistant Secretary is responsible for implementing supply and logistics policy promulgated by the Office of the Secretary of Defense and for providing additional policy and guidance to the Services.

(4) Military Services. Each Service has a Deputy Chief of Staff for Logistics assisted by an appropriate staff. Each of these staff elements is responsible for translating the logistics plans and policies of the military department to the major logistical commands within their respective Service and for the worldwide monitoring of logistics systems.

(5) Major Logistic Commands. The Army Materiel Command (AMC), the Naval Material Command (NMC), and the Air Force Logistics Command (AFLC) are the major logistics commands involved in worldwide wholesale supply of secondary items such as end use items, replacement assemblies, repair parts, and consumables. The Quartermaster General of the Marine Corps (QGMC) performs a similar function for the Marine Corps.

(6) Inventory Control Points. The Inventory Control Points (ICPs) are subordinate, through Service organizational elements, to the major logistical commands of their parent Services. This responsibility encompasses determination of requirements, and budgeting for resources necessary to finance materiel needs. ICPs are the principal agencies responsible for ensuring that adequate supplies are available within the wholesale supply system to meet worldwide military requirements.

3. DOD COMMON-SERVICE PROGRAMS. There are several programs and central services provided by the Department of Defense to all Services. Several of these programs and services are administered and coordinated by the Defense Supply Agency acting for the Secretary of Defense. A synopsis of these programs follows.

a. The Federal Catalog System provides a common language for identifying, requisitioning, purchasing, storing, and shipping items in supply-distribution systems. It eliminates individual Service identifications for similar items, reveals interchangeability, aids standardization, improves inter- and intra-departmental support, and facilitates industrial mobilization. Each item in the Federal Supply Catalog is identified by a Federal Stock Number (FSN), consisting of a 4-digit Federal Supply Classification Code and a 7-digit Federal Item Identification Number. This stock number is a unique identification of each item that differentiates it from all other items used by the Government. Responsibility for administration of the Federal Supply Catalog rests with the Defense Supply Agency (DSA). The Assistant Secretary of Defense (I&L) has final approval authority over cataloging plans, policies, and programs. He is assisted in the discharge of this responsibility by the Secretaries of the military departments.

b. The Defense Material Utilization Program operates as a central clearinghouse of information to improve the use of excess, or potentially excess assets throughout the Department of Defense and other Federal agencies.

c. The Coordinated Procurement Program assigns the procurement to a single Service for like items managed by all the Services. This integrated program is designed to preclude duplication of procurement of similar items in the Department of Defense.

d. Surveillance of the Military Standard Systems throughout the Department of Defense are designed to improve communications by the standardization of the exchange of logistics data among the many military activities, Federal agencies, some friendly foreign governments, and industrial organizations. Included are:

(1) MILSTRIP. The Military Standard Requisition and Issue Procedure is the keystone of the Military Standard Systems and provides standard codes, data elements, priorities, and procedures for requisitioning activities upon any Service, the Defense Supply Agency, and/or the General Services Administration supply system.

(2) MILSTAMP. The Military Standard Transportation and Movement Procedure establishes and standardizes the flow of documentation and the reporting of materiel movements status from supply sources to delivery to the customer.

(3) MILSTRAP. The Military Standard Transaction and Accounting Procedure standardizes the financial accounting procedures in the wholesale level distribution systems.

(4) MILSTEP. The Military Supply and Transportation Evaluation Procedure provides a reporting system for uniform evaluation of supply performance from the time of requisitioning by an activity to the actual delivery of the items to that activity.

(5) MILSCAP. The Military Standard Contract Administration Procedure standardizes the flow of information among the Defense Contract Administrative Services Regions, the National Inventory Control Points, and the contractors.

(6) The Department of Defense Warehousing Gross Performance Measurement System is used to develop standard methods and productivity measures for the evaluation of military warehousing operations.

e. The Automatic Digital Network (AUTODIN), managed by the Defense Communications Agency as a communications service for the armed forces, can be used for transmitting digital data among wholesale and retail outlets ashore in the requisitioning chain. MILSTRIP relies on AUTODIN for rapid transmission of requisitions.

f. The DOD Automatic Addressing System (DAAS) is operated by the Defense Supply Agency. With DAAS, the originator of a requisition or supply message transmits his data to the DAAS facility on an "as-generated" basis. DAAS determines automatically the correct processing path and the required communication and action agency address. The system is keyed to FSNs.

4. SERVICE SUPPLY ORGANIZATIONS AND PROCEDURES

a. GENERAL. The supply organizations and procedures utilized by each Service have evolved and been refined through the years to meet the unique and changing requirements of each Service. They are described in this chapter starting with the CONUS wholesale systems and ending with the different consumer units. Each echelon of supply is treated in order. Some aspects of a Service's organization or procedures are stressed, on occasion, to support and to clarify issues addressed later in this monograph.

b. Service Descriptions. The following paragraphs describe supply management organizations and procedures in each of the four Services.

(1) Army. The organization for supply in the Army consists of a wholesale level and retail level.

(a) Wholesale

1. The Army Materiel Command (AMC) is the wholesale supplier for the Army. It has responsibility for development, testing, cataloging, requirements determination, procurement, production, distribution, supply control, inventory control, maintenance direction, and disposal of supplies and materiel. AMC has nine major subordinate commands. Seven are commodity commands responsible for materiel management in specific commodity areas; as inventory control points, they are responsible for worldwide wholesale supply support of a specific commodity. One command is a Service command responsible for test and evaluation. The last is a special command established to provide mission-essential logistics support for the SAFEGUARD missile system.

2. AMC controls assets at the depot level in CONUS. It also maintains ownership and accountability at the depot level overseas for approximately 1,800 overseas items. Depot asset data on approximately 30,000 items are reported quarterly to AMC by overseas commands. In addition, the asset position of about 6,500 items (1,500 secondary items) in the hands of using units both in CONUS and overseas is reported quarterly to AMC. Additional information on item visibility and control is provided in Chapter V of this monograph.

3. Supplies of stock items are stored in the CONUS depot system until required by a customer. These wholesale supplies are issued to forces both in CONUS and overseas and after issue are considered to be retail supplies.

(b) Retail. Retail supply operations in the Army are the responsibilities primarily of the major commanders, such as the Continental Army Command (CONARC) and the major overseas commands.

1. CONUS. The Continental Army Command (CONARC) is the principal CONUS customer of AMC. Within CONARC, post, camps, and stations requisition from the wholesale system the supplies required to support designated forces. A level of inventory is maintained at station level for issue to direct support units or activities which, in turn, issue to or use in support of specific using units or organizations. A small appropriation-financed inventory is maintained by each unit either as an authorized stockage list (ASL) or prescribed load list (PLL), depending on the mission of the unit.

2. Overseas

a. The principal overseas commands, the U. S. Army, Europe (USAREUR), and the U. S. Army, Pacific (USARPAC), have several major subordinate organizational elements, each of which is relatively autonomous in supply matters.

b. These commands are the principal overseas customers of AMC. USAREUR has a single inventory control center that requisitions from AMC wholesale system supplies required to support designated forces and maintain stocks in various depots in Europe. These supplies are then issued to direct supply units and activities for further issue to using units. USARPAC has inventory control centers (ICCs) in Vietnam, Okinawa, Japan, Korea, and Hawaii. Each of these ICCs deals directly with CONUS ICPs and buys supplies from the wholesale system required to support designated forces within assigned areas of responsibility. Depot stocks, maintained in all areas except Hawaii, are issued to support units for further issue to using units and activities.

c. Both the U. S. Army, Alaska (USARAL), and the U. S. Army, Southern Command (USARSO), operate as a post supply in CONUS.

d. The following paragraphs constitute a general review of the Army's supply management organizations as they apply to a field army.

e. The organization of field army logistics is a flexible structure modified as necessary to fit various situations and combat environments. Pending the establishment of a communication zone, a logistical command may be attached to a field army to assist in controlling supply operations. Combat service support units, organized into brigades, groups, or battalions, are directly responsible to the field army support commander, who, in turn, is responsible to the field army commander for providing adequate support. Each combat service support unit is individually structured to be responsive to field army requirements for items and services for which that support unit is responsible. A fixed organization is not prescribed for a field army; hence, numbers and types of logistical support units are determined by the mission, types of combat and combat support units, availability of nuclear weapons, terrain and weather within the area of operations, and composition and capability of the probable hostile forces.

f. The field army commander, through his staff, renders staff assistance in supply and maintenance matters, provides policy development planning, determines priorities for allocations, resolves problems between subordinate commands, and provides information on technical matters. Many operational functions and that planning referred to as combat service support have been transferred to the Field Army Support Command (FASCOM) for action. This includes the development of details for the supply support of proposed operational plans as well as the actions to implement them. The field army's staff relationship to FASCOM in the supply and maintenance support function parallels its relationship to corps headquarters for tactical operations.

g. The corps headquarters is primarily a tactical headquarters. The establishment and location of FASCOM and its brigades have an impact on the corps headquarters role in the supply and maintenance system. Supply and maintenance support to the corps area is provided by elements of FASCOM. When the corps is on an independent operation, however, it becomes a self-contained unit, and the corps commander is responsible for the supply and maintenance support of the entire force. Under these circumstances, the support brigade, supplemented by elements of FASCOM, is assigned to the corps and is called the Corps Support Command (COSCOM).

h. FASCOM is a major subordinate element of the field army, established to command designated supply and maintenance units and to plan and control their operations in the field army. FASCOM is primarily responsible for the planning and for providing supply and maintenance support to the field army. Although the field army headquarters staff has basic responsibility for policy development, allocations, priorities, and the development of support plans, the detailed evaluations and the requirements computations needed for projected plans are developed by FASCOM.

i. Support brigades are composite multifunctional task organizations, responsible to FASCOM, and tailored to meet specific supply and maintenance support requirements. Their missions, responsibilities, and functions generally parallel, on a reduced scale, those of FASCOM in the area of supply and maintenance. The support brigade is, by doctrine, employed on the basis of one per corps and one per army service area and exercises command control of its assigned direct support (DS) and general support (GS) groups. In addition to supporting the corps, support brigades are responsible for supporting all Army units and other designated units and agencies located in the brigade area of responsibility. The support brigade operating in the field army service or rear area has certain missions and responsibilities differing in some respects from those of the support brigades operating in the corps area; e.g., responsibility for reserve stocks for the field army and relieving forward brigades of time-consuming maintenance. General support group elements of rear support brigades provide supplies from Army reserve stocks to forward brigades when communications zone support is interrupted or depleted or in other emergencies. Because of these requirements, rear brigades are considered less mobile than forward brigades. The balancing of the supply and maintenance workload between support brigades is a major function of FASCOM. The support brigades do not perform routine supply actions.

j. General support groups are composite multifunctional task organizations tailored to meet specific supply and maintenance support requirements. They are major subordinate elements of FASCOM support brigades. These groups provide supply and maintenance to division support commands and to direct support groups in the corps or army service area. When warranted, the support brigades transfer workload or support missions between general support groups to balance the workload. General support units receive, store, maintain in storage, and issue supplies (except for those handled by the Ammunition and Medical Army-wide services) to division support commands and direct support groups. Some of these supplies are used only to support general support operations; others are supplied to direct support units as well. Whenever possible, supplies shipped from communications zone depots go directly to division support commands and direct support units without being offloaded at general support units even though they are stocked at the general support level. At the general support level, repair parts are handled in supply channels along with end-items of supply. Supply and stock control of field army stocks carried by the support brigades is exercised at general support echelons for stocks carried by units of the general support groups. The general support group headquarters operates on a management by exception basis; it is not an office of record for routine supply actions.

k. The direct support groups are composite multifunctional task organizations that are tailored to meet specific supply and maintenance support requirements. They are major subordinate elements of the support brigades of FASCOM. The direct support groups provide direct support echelon supply and maintenance support to nondivisional units in the field army area. The operation of direct support groups in support of nondivisional units generally parallels the operation of division support commands in support of divisional units. At direct support level, repair parts are handled in maintenance channels. End-item supply is provided by the functional (i.e., supply, maintenance, transportation, and medical) supply and service element. The functional battalions of the direct support groups handle their own stock control activities. The functional elements deal directly with the appropriate functional elements of the general support groups and their customers. The headquarters of the direct support group manages supply and stock control activities by exception and does not normally enter into the processing of requisitions. Many of the direct support maintenance units are now supplied with the National Cash Register (NCR) 500 magnetic ledger accounting machine with standard programs to support stock control operations within a field army, including the Army in Vietnam.

l. The division support commands are major support units organized functionally to provide division level logistical support. Their composition varies in the supply, transportation, and maintenance elements according to the type of division supported. Logistical support includes storage and distribution of supplies and direct support maintenance and backup organizational maintenance support of all division units except medical. The division support commands provide supply and maintenance support on an area basis, a task basis, and a unit support basis. Normally, support is furnished by employing a combination of unit and area support with unit support as the foundation.

m. Under the Army's present functional system of supply, overseas depots are generally organized and function as general depots. These depots are normally semifixed installations and are located in permanent facilities, whenever possible, and once established, are seldom displaced forward. Increases in distance between the depots and the forward supply installations supported are compensated for by increased use of transportation rather than by the establishment of new depots. Overseas depots are established when the tactical or strategic situation permits this type of relatively fixed installation. These depots normally provide both supply and maintenance support for supported forces in their area of responsibility.

n. Wherever an overseas supply and stock control activity is established, that activity becomes the principal integrated materiel management organization in the theater. The actual title or designation of this activity may vary. For example, in the European theater, this activity is designated as the U.S. Army Materiel Management Agency (MMA); in the Pacific theater, it is designated as the Materiel Management Division. Regardless of the designation, the operating elements of this activity are basically the same supply control and the managerial elements of materiel planning, financial operations, customer liaison, and systems engineering. These agencies serve as the principal interface between the overseas retail level supply activities and the CONUS wholesale supply agencies. The ability of overseas retail supply installations to accomplish effectively their support functions is directly related to responsiveness of the CONUS wholesale supply agencies, the supply guidance furnished by higher commands, and the speed and accuracy with which the retail level installations make their require requirements known to supporting echelons of supply. Where more than one depot is required in an overseas area of operation, provisions are made for an ICC to consolidate requirements and provide for intra-area redistribution of stocks and centralized management. Troop units, activities, and other supported customers forward their requests for operating supplies to the supporting installation or unit. In turn, supporting installations forward their requisitions through the theater ICCs or in some instances, direct to CONUS ICPs.

o. The organization for inventory control depends on the overseas theater, assigned mission, geographical location, and logistical resources. When required and authorized, it is generally possible to obtain a reasonably secure rear area where a theater inventory control center and major depots can be located. At this level of organization, inventory management functions include determination of requisitioning objectives, processing requisitions, replenishing depot stocks, directing offshore procurement, and managing the intertheater distribution of supplies. Rebuild and overhaul is coordinated with the applicable maintenance management center in CONUS. Below the ICC and overseas depot level, inventory management functions are usually accomplished through the use of the Army Field Stock Control System (AFSCS). These functions are generally limited to maintaining authorized stockage lists (lists of items authorized to be stocked at each supply point), establishing stock reorder points, and managing requisitions.

p. The AFSCS had its origin in studies initiated during the Korean War, when it was discovered that the mobility of units in Korea was being seriously impaired by the numbers of in-stock repair parts and other items that they were carrying. It was found that these units were stocking all items listed in the maintenance tables for each piece of equipment they supported. An analysis of item demands revealed that the great majority of day-to-day maintenance actions were being accomplished with a relatively few fast-moving items. Continued study in this field provided data which established that an 85 percent rate of demand satisfaction could be accomplished with the use of only 15 percent of the line items prescribed on the maintenance tables for equipment. The basic purpose of AFSCS is to ensure that adequate amounts of supplies are available at the proper place and time without overstocking. This is accomplished by means of uniform stock control and accounting procedures. The system is used at all installations and activities in overseas commands. AFSCS emphasizes demand experience as the basis for stockage at the retail level instead of issue experience. Demand data are accumulated and reported upward through the supply system for the desired item, although an original demand for an item may have been satisfied by issuing a substitute item. This procedure permits inventory action to be taken on demanded items so that, in time, a proper stockage level will be reached and the issue of substitute items will become unnecessary. It was anticipated that the selective stockage feature of AFSCS, predicated on retail level consumer demand, would stabilize stockage lists and reduce the number of items being stocked below the depot level without appreciably impairing the support provided. These advantages were in fact achieved during the initial test of field stock control procedures in Korea and subsequently as part of the test of the Army's Modern Supply System (MASS) in Europe. Since these tests, however, stockage concepts and levels have tended to revert to those prevalent prior to the tests.

q. Army property is classified as: (1) real property and (2) supplies. Supplies are divided into three major categories: (1) principal items, (2) major secondary items, and (3) repair parts. Secondary items and repair parts constitute a large portion of all the line items in the supply system and are the primary concern of retail level supply managers.

r. Each supply activity under AFSCS is generally restricted to stockage of items which (1) show a specified number of demands during a 12-month period, and

(2) are necessary to achieve desired demand satisfaction to accomplish assigned missions. A fringe item demand file is maintained for nonstockage list items; it is screened each time a posting is made to determine if sufficient demands have accrued during the previous 12-month period to qualify the item for stockage. A fringe asset file is also utilized for temporary control of excess items at retail level supply activities. Items in this file normally accumulate because of deletions from the authorized stockage list, because of turn in of nonstocked items, and because of late changes of fringe requirements. This fringe asset file is screened monthly and disposition action initiated for items on hand over 60 days.

s. Stocks on hand at all retail level installations responsible for issuing supplies to units and activities are kept to a minimum consistent with the assigned mission. Normally, stockage will not include supplies for which there are no anticipated requirements. Three different stock level concepts are generally applicable for use at retail level installations. They are the Non-Economic Inventory Policy (NON-EIP) and the Economic Stockage Principle and Economic Order Quantity (EOQ). These concepts are discussed in the following paragraphs. Major commanders have the responsibility and prerogative of determining the applicability of these concepts within their commands.

t. Under the Non-Economic Inventory Policy concept of inventory management, the quantity of items stocked is based upon a fixed amount in days of supply which may be on hand or on order at any one time in order to sustain current or projected missions. This stockage concept is applicable to all direct and general support-type units and installations not authorized to use the economic inventory policy procedures. Generally, the stockage objective for activities using the Non-Economic Inventory Policy procedures has been established at 30-days operating level plus 15-days safety level for authorized stockage items. Overseas direct support units normally have a stockage objective of 15-days operating level of direct support units to be expanded to 300-days of supply for those low-dollar value stockage list items that meet the EOQ criteria. Major commanders are authorized to reduce the stockage objectives, as necessary, based upon such factors as the ability of direct support units to remain mobile and the average resupply time. The stockage criterion for direct support units and installations operating under the Non-Economic Inventory Policy concept has normally been prescribed as three demands in 360 days to add and one demand in 360 days to retain an item on the authorized stockage list. This demand criterion is designed to achieve maximum demand accommodation. Major commanders are authorized to vary the demand frequency standard in order to achieve a reasonable demand accommodation.

u. The economic stockage principle governs the items that may be selected for stockage. This principle first considers the depth of stockage required to stock an item at an economic order frequency and with sufficient safety stock to ensure a high level of performance. Then it compares the "cost of stockage" (the operating and management costs of holding and ordering the items) against costs of nonstockage, (treating the item as a fringe item which would entail ordering costs each time the item is requested). If the costs of stockage is less than the costs of nonstockage, the item is selected for stockage and added to the authorized stockage list. If the reverse is true, the item is handled as a fringe item. Generally, the stockage criteria for economic inventory policy are more liberal for items costing more than $25. The economic stockage principle extends the range of stockage of items above this cost to the faster-moving items. This stockage principle is designed to increase supply effectiveness and, at the same time, reduce the cost involved in frequent ordering.

v. The economic order quantity concept is a system used to compute replenishment (replacement) order quantities of stocks and relates the cost to order to the cost of the items. Under the economic order quantity concept quantities are established for stockage list items having a unit cost of $10 or less and an annual forecast demand of no more than $100. Items qualifying for stockage under the economic order concept are requisitioned on an annual basis. This procedure materially reduces the number of requisitions and the cost of processing low-dollar value stockage list items.

w. The responsibility for ensuring that property is safeguarded, accounted for, and administered rests with each unit or installation commander. Installation or unit commanders normally appoint installation accountable property officers to assume accountability for expendable and nonexpendable supplies. These accountable property officers establish and maintain stock records for each item on the stockage list. Stock records are maintained manually at some installations and by electrical accounting machines at others.

(2) Navy. The Navy supply organization has evolved and been refined through the years to meet the fleet's changing requirements. Key considerations have been to sustain the worldwide mobility of the fleet by making combat units as independent of fixed-base support as is practical. The level of support carried by Navy ships and the Navy distribution network has been influenced by such support requirements. A second factor has been the requirement to support ships averaging 18-25 years in service and with a great variety of nonstandardized equipments.

(a) Navy Supply Support Concept. Navy supply support is provided by three echelons of supply: (1) the CONUS system, (2) mobile logistics support forces and overseas bases, and (3) ships.

(b) CONUS System. The third echelon of supply support is composed of the wholesale system, the CONUS system, and the Navy Retail Office for DSA/GSA items described in the paragraphs below.

1. Wholesale System. The wholesale system is composed of (1) Material Systems Commands and Project Managers when they manage inventory, (2) Inventory Control Points, and (3) Reporting Stock Points.

a. There are two distinct groups of Navy inventory managers in the Navy wholesale system. The first is the Material Systems Commanders (hardware systems commands) and Project Managers who are responsible for managing items in a research and development state, items of unstable design, end items of major importance, and certain repairable items for which engineering decisions or configuration control is essential and not available elsewhere. Material Systems Commanders and Project Managers manage 2 percent (less than 30,000) of the items, representing about 34 percent of the money value of the total Navy-managed inventory of equipments, components, and repair parts needed to support major end items and hardware systems.

b. The second group, the Navy Inventory Control Points—the Ships Parts Control Center (SPCC), Mechanicsburg, Pennsylvania; the Electronics Supply Office (ESO), Great Lakes, Illinois; and the Aviation Supply Office (ASO), Philadelphia, Pennsylvania—under the Commander, Naval Supply Systems Command, normally manage established (stable) items of equipments, components, and repair parts with the Material Systems Commanders and Project Managers providing technical and engineering guidance. The vast majority (98 percent of 825,000 items) of Navy controlled minor equipments, spares, and repair parts are assigned for inventory management to the Inventory Control Points. These items represent about 66 percent of the money value of the total Navy-managed inventory.

c. Stock management and determination of requirements within the wholesale system are based on the one warehouse concept. Simply stated, all items stocked at the ICP reporting stock points, regardless of location, are considered to be in "one warehouse" as reflected by the centralized records and requirements computations at the ICP. Characteristics of the concept include: stocking of items at those stock points most likely to experience demand, centralized stock records, daily transaction and stock status reconciliation between ICP and its stock points, "real-time" processing of requisitions, redistribution of stock, and central maintenance of backorders (due outs) and due ins.

d. More timely and effective centralized inventory control at the ICPs was made possible by the development, commencing in 1961, of a Uniform Automatic Data Processing System (UADPS) within the Navy Supply System. UADPS for supply management links the three segments of supply inventory control points, stock points, and ships into an integrated system.

2. CONUS Retail System. The CONUS retail system begins with 60 nonreporting stock points and includes approximately 260 activities of the Navy Shore Establishment, such as air stations, ordnance plants, shipyards, training stations, and smaller activities.

a. Nonreporting stock points hold stocks primarily for their own use, generally determine their own requirements, and do not support any significant number of activities other than themselves. Although they do not report their inventory on an item basis, the ICPs establish strict policies for stock levels and analyze the Navy Stock Fund financial inventory control reports from these activities to monitor compliance. Stocks are requisitioned via AUTODIN from designated reporting stock points or from the ICPs, or are obtained from local purchase.

b. Some very small Navy shore activities operate utilizing NAVSUP specified supply management procedures similar to ships of the operating forces. Such activities in CONUS are authorized minimum stocks for immediate requirements.

3. Navy Retail Office. The Navy has established a Navy Retail Office at the Fleet Material Support Office (FMSO) Mechanicsburg, Pa., to exercise financial control and retail management over Navy Stock Funded DSA and GSA material located at Navy stock points. FMSO provides DSA/GSA with certain program requirements and publishes detailed procedures to Navy stock points for management of the stocks. Retail stock levels are monitored by using financial inventory control data and by budget controls rather than through individual item reporting.

(c) Mobile Logistic Support Forces and Overseas Bases

1. Mobile Logistic Support Forces

a. The second echelon of supply support that extends the Navy supply system directly to the operating forces is composed of the Mobile Logistic Support Forces (MLSF) and strategically located overseas bases. The Pacific Mobile Logistic Support Forces and overseas bases are under the operational control of Commander in Chief, Pacific Fleet (CINCPACFLT) and its logistic agent Commander, Service Forces, Pacific (COMSERVPAC) and serve as backup for combatant ships providing an additional 3 months endurance of supplies.

b. The MLSF consists of approximately 98 ships (48 in the Pacific). Major supply carrying elements in the MLSF include repair ships (AD, AR, and AS), ammunition ships (AE), oilers (AO), stores issue ship (AKS), combat stores ships (AFS), fast combat support ships (AOE), and provision ships (AF). MLSF carries cargoes tailored to replenish seagoing combat forces. Its stocks resupply those of an individual ship by providing ammunition, fuel, provisions, frequently used repair parts, general consumable items, and certain insurance items not carried aboard combatants. The MLSF enables combatants to remain on-station for extended periods by means of transfer at sea (underway replenishment).

c. The range and depth of material carried by the MLSF for fleet units are prescribed in two different types of load lists prepared by the FMSO and based on the specific demand data and equipment configuration of fleet units supported. Fleet Issue Load Lists for AFS, AOE, and AKS are computed to satisfy recurring demands for 85 percent of the range and 90 percent of the depth of items requested by fleet units during a 90 day period. For tenders (AD, and AS) and repair ships (AR, ARL, and ARG), load lists are individually computed to support their industrial missions with similar range and depth effectiveness.

d. The MLSF relies primarily on CONUS stock points for replenishment. When replenishment in CONUS is not feasible, MLSF ships requisition supplies from CONUS stock points, which, in turn, ship material to the MLSF ships directly or via an overseas base.

2. Oversea Supply Bases. Due to the long supply lines in the Pacific area, the Navy has augmented normal stocks available aboard MLSF units with materiel in three overseas supply depots at Yokosuka, Subic Bay, and Guam. A supply depot is also located at Guantanamo Bay. Supply support capabilities were extended also to the two Navy support activities at Da Nang and Saigon to meet Navy logistic support missions within Vietnam. A full discussion of the development of supply management within these activities will be discussed in subsequent chapters and will not be developed further at this time. Authorized stockage levels and stocking criteria for the shore activities under the command of COMSERVPAC are specified in CINCPACFLT instructions. Authorized levels are specified for each type of material by individual activity.[1]

(d) Ships

1. The first echelon of Navy Supply Support is combat ships, each supported with a ship's allowance list which is tailored to the ship's configuration and is designed to include balanced support to sustain the ship for 3 months of combat or independent operations. The range of these stocks is based on the ship's hull type, installed equipments, relative military essentiality of the ship's systems, and composition and size of the crew. The categories of material carried include equipment related spares and repair parts, general purpose industrial material, consumables, medical and dental material, clothing, personnel items, food, fuel, ammunition, and such portable equipment as is necessary for the ship's operation.

2. These items are specified in an individual ship's allowance list called the Consolidated Shipboard Allowance List (COSAL) for ship's and the Aviation Consolidated Allowance List (AVCAL) for air groups or squadrons. An AVCAL provides a consolidated listing of repair parts, reparables, and other supporting material tailored to maintain a predetermined mix of aircraft operating at prescribed flying hour rate for a designated time period.

3. The range and depth of materials specified in a COSAL are computed by Inventory Control Points and are designed to achieve the basic combat endurance prescribed by the Chief of Naval Operations (CNO).[2] The endurance load in general is designed to satisfy 90 percent of the demands in a 90-day period. The ships allowance list provides for insurance-type repair parts (items which do not have a predicted usage on board ship of at least 1 in 90 days), but their range and depth are based on stringent selection criteria.[3]

4. Normally, ships operating in CONUS waters requisition their requirements from the nearest CONUS stock point. Forces positioned in the Sixth and Seventh Fleets obtain as many supplies as possible from MLSF, with minimum direct dependence upon overseas bases. In general, deployed combatants are replenished at various intervals depending upon the item concerned. However, because of the flexibility of the MLSF, ships may take on supplies at any frequency required by the fleet commander.

5. Major fleet units consisting of approximately 25 carriers and 44 auxiliary ships (tenders, repair ships, and combat stores ships) have sufficient on-board inventory and supply transactions to justify installation of the U1500 standard supply and accounting system. Most large ships, other than the above, employ Electrical Accounting Machine (EAM) equipments with standard programs and operating procedures prescribed by the Fleet Assistant Group, Atlantic, a field activity of Commander, Naval Supply Systems Command. Smaller fleet units have insufficient supply transactions to justify mechanized records and maintain manual records in accordance with fleetwide procedures prescribed by Naval Supply Systems Command instructions.

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[1] Commander in Chief, Pacific Fleet, Instruction 4442.1 series.

[2] Chief of Naval Operations Instruction 4441.12 series

[3] Ibid.

(e) Fleet Replenishment

1. Ships in the Sixth Fleet in the Mediterranean submit requirements at 20-30 day intervals to the Sixth Fleet AFS. The AFS carries provisions and a range of approximately 19,000 consumable items, spares, and repair parts listed in the load list. The load list is updated periodically and reflects those items most frequently required by fleet units supported. Ship's requirements for those items not carried by the fleet issue ship are ordered from the Naval Supply Center, Norfolk. Routine requisitions are filled and sent by fleet freight (Navy or commercial ships). Commercial ships sail twice monthly from Norfolk to Naples via Rota, Spain. One provisions ship departs Norfolk each month carrying food and resupply material for the Sixth Fleet AFS. Like the Sixth Fleet, ships positioned with the Seventh Fleet normally are replenished for provisions and general stores items by a fleet issue ship every 20-30 days, although more frequent replenishment may be prescribed by the Fleet Commander. The load carried by the Seventh Fleet issue ships consists of approximately 26,000 items.

2. Seventh Fleet Ships' requisitions for material not carried aboard the issue ships are normally submitted to a fleet representative at the supply depots at Yokosuka or Subic Bay. If the items are not available there, requisitions are passed by the depots to the Naval Supply Center (NSC), Oakland. If emergency requirements develop that cannot be satisfied from on board stock, the ship first screens accompanying ships for availability of the item. If the screening is unsuccessful, the ship notifies the local MLSF logistic unit/command who, if in the Sixth Fleet, is the supporting stores ship (AKS or AFS) and, in the Seventh Fleet, is Commander Service Group 3 (COMSERVGRU 3) who represents COMSERVPAC. The local MLSF logistic command coordinates further screening, including other fleet units and WESTPAC supply activities when applicable, before the requisition is forwarded to Naval Supply Center, Norfolk (Sixth Fleet) or Naval Supply Center, Oakland (Seventh Fleet).

3. By including a code in priority 1-5 requisitions to NSC's Norfolk, or Oakland, overseas shore activities may obtain requisition monitoring assistance of one of the two Ship's Material Office Atlantic/Pacific (SMOLANT/SMOPAC) located at the supply centers. This monitoring assistance is similar to that provided by the Army REDBALL system for Vietnam units. SMOPAC and SMOLANT are agents of COMSERVPAC and COMSERVLANT, respectively, which expedite and monitor actions taken by the CONUS supply system, including transportation, and provide timely status reports to overseas activities/unit and other interested commands. For operating ships, COMSERVPAC and type commanders intercede and provide special monitoring and expediting action for critical ship requirements.

(3) Marine Corps. The Marine Corps supply system is oriented to support the deployable combat elements of the Fleet Marine Forces (FMF). The organization for supply consists of a wholesale level and a retail level. The retail level for the FMF, except for selected items while in garrison in CONUS, is performed by deployable FMF supply activities.

(a) Deployable Supply Activities. The deployable supply activities of the Marine Corps are described in the following paragraphs.

1. Service Command. The principal force logistic organization is the Service Command which is activated only during wartime. Peacetime functions of this command are accomplished by the Fleet Marine Force Headquarters and by other service support units; e.g., force service regiment. The Service Command, when activated, is a base or camp type activity and is not normally situated in the objective area itself.

2. Force Logistic Support Groups. Force logistic support groups may be organized to support the landing force in certain operations. These groups are tailored to meet the requirements of the operations.

3. Force Service Regiments. The force service regiment (FSR) is a force level logistic organization designed to provide combat service support to a landing force of one Marine division and one Marine aircraft wing with attached force units. Selected units of

the force service regiment may be assigned to the service command upon activation of that organization. Other units may be assigned to a force logistic support group or operate independently in the objective area. For graduated task groupings, a task organization of elements of the FSR may be formed to provide the necessary combat service support. Dependent upon the requirement of each operation, attachments of other force level combat service units, or elements thereof, may be required to increase the logistic capability of the FSR. The FSR is capable of providing replenishment supplies in the objective area and of supporting the landing force with third and fourth echelon maintenance of Marine Corps materiel from bases outside of or within the objective area. Its primary mission is to provide sustained logistic support for a division/wing landing force, including isolated components operating independently.

4. Service Battalions, Marine Division. The service battalion is the primary source of combat maintenance and supply support for the Marine Division. Normally, the service battalion draws its resupply from a supporting force service regiment. When reinforced with force combat service support units, such as a force service regiment, the sustaining capability and range of the division can be greatly extended.

5. Marine Wing Service Groups, Marine Aircraft Wing. The Marine wing service group provides wing level service and supply to all units utilizing the airfield where the service group is located.

(b) Wholesale. The Marine Corps supply system has evolved into the present Marine Corps Unified Materiel Management System (MUMMS), a modern and highly integrated supply system. On 1 May 1967, the Marine Corps began implementation of this integrated system of centralized supply management that is designed to satisfy all internal and external Marine Corps requirements by utilizing modern management and third generation automatic data processing equipment and techniques at a single Inventory Control Point and several remote storage activities (RSAs).

1. Inventory Control Points. Centralized inventory management is accomplished by Headquarters, Marine Corps, Washington, D. C., and a single Inventory Control Point, the Marine Corps Supply Activity, Philadelphia, Pennsylvania. The ICP in Philadelphia is the central supply processing point for the Marine Corps Supply System. It is responsible for inventory control of all centrally-managed and centrally-procured items (other than subsistence and commissary stores) procured under the appropriate Marine Corps Stock Fund, plus the majority of Appropriation Stores Account Items. Additionally, the ICP performs functions, as assigned, relative to pricing, cataloging, reporting, and computation of mobilization reserve requirements for centrally-managed, locally-procured, integrated-manager items.

2. Remote Storage Activities. There are eight major RSAs in the Marine Corps stores distribution system: (1) the Marine Corps Supply Centers (MCSC) at Albany, Georgia, and Barstow, California; (2) Marine Corps Bases at Camp LeJeune, North Carolina, Camp Pendleton, California; Quantico, Virginia; and Twenty-Nine Palms, California; (3) the Marine Corps Recruit Depots at Parris Island, South Carolina, and San Diego, California. The missions assigned to the two supply centers are as follows: (1) to procure, maintain, repair, store, and distribute classes of supplies as assigned; (2) to maintain liaison with the appropriate coastal overland, water, and air transportation activities for the purpose of expediting shipments of Marine Corps supplies to forces overseas; (3) to conduct training for assigned personnel through organizational schools, apprenticeship and on-the-job training in advanced supply and technical matters; and (4) in the case of MCSC, Albany, to act as the Marine Corps' alternate inventory control point when directed. The responsibilities assigned to the two supply centers are: (1) to execute their command responsibilities with due regard to maintaining in the remote storage activity a continuous capability of discharging its Marine Corps-wide supply responsibilities, (2) to exercise operational and administrative control over the remote storage activity, and (3) to maintain close liaison with the Commanding General, Marine Corps Supply Activity, Philadelphia, regarding base support requirements affecting the remote storage activity's capability to perform its system-wide supply responsibilities. The remaining six RSAs generally share the missions and responsibilities assigned to the supply centers. An

exception is made in the case of support for the Marine Corps' depot maintenance effort. This effort is shared only by the centers. The other remote storage activities are concerned primarily with the receipt, storage, and issue of bulk, wholesale stocks, and the support of local on-base customer activities through self-service, shop-store, clothing, fuel, and subsistence outlets.

(c) Retail. The Marine Corps retail level supply management program encompasses those supply units below the ICP management level. These units are primarily in the direct support stock control (DSSC) function at remote storage activities (RSAs) or in Fleet Marine Force service units and organic supply accounts at the consumer level.

1. Direct Support Stock Control

a. Supply Management Concept. The direct support stock control (DSSC) subsystem is designed to record and accumulate data required for routine record keeping, requisitioning, reporting to the inventory control point and stores accounting subsystem, and maintaining history. The accounts within the subsystem are: self-service centers, shop stores, retail clothing outlets, subsistence accounts, ammunition accounts, petroleum, oils, and lubricants (POL), and separate individual clothing accounts. Materiel positioned within the DSSC subsystem belongs to the distribution system, and the ICP accounts for it by dollar value only. One exception to this is ammunition over which Headquarters Marine Corps (HQMC) has total management control, although item stock records are also maintained at the local level. For other categories of materiel, all stock management functions (such as computations of requirements, positioning of materiel, maintenance of stock levels, replenishment and disposition actions, and item accounting) are performed locally. Customers get materiel from the issue points by informal demand. Issue point stocks are replenished by submitting requisitions to the authorized supply source. The RSA maintains all necessary item records, receipts, issues, adjustments and change transactions; sends the ICP daily item/money value reports of transactions; produces documents required by fiscal officers for simultaneous obligation and liquidation of customer's funds; and produces quarterly status of issue point item assets for reconciliation with ICP records.

b. Stockage and Issue Criteria. Items authorized for stockage in the retail outlets are automatically requisitioned or else "buy recommendations" are produced for quantities based on requirements codes and supply codes in the item record/balance card. The quantitative levels established for individual items stocked at the self-service center and shop stores are based on recurring demand. A 60-day operating level plus procurement lead time is authorized for all items other than those locally procured. A 90-day operating level plus procurement lead time is authorized for locally-procured items.

c. Determination of Requirements. At the end of each quarter, an excess review is accomplished to determine if all items presently held in stock qualify for retention in the DSSC subsystem. The usual criterion for stocking an item is establishment of a recurring demand with at least three movements in 180 days. As new items meet established stockage criteria, they are subsequently procured for stock.

d. Relationship Between Units and Retail Level Supply Activity. The DSSC subsystem is primarily responsible for providing supply support to using units so located geographically that an authorized representative can conveniently come to the outlet to obtain supplies. Commanding Officers of authorized customer activities are responsible for the range and quantity of items selected by their unit representatives.

2. Service Unit

a. Supply Management Concept. The term "service unit" applies to those organizations, i.e. Force Service Regiments, Division Service Battalions, Marine Wing Service Groups, Force Logistic Support Groups, and like or equivalent units, designated by the Commandant of the Marine Corps to perform the supply acquisition and accounting duties in the FMF for Marine Corps-owned/controlled/managed/financed materiel.

The objectives of the service unit are: (1) to provide a system to facilitate efficient and expeditious supply support to FMF customers; (2) to minimize manual handling and processing of documents; (3) to provide a system flexible enough to absorb changes to policy without disrupting normal procedures, and permit latitude at the local level in adjusting to different situations and conditions without having to change the basic system.

b. Stockage and Issue Criteria. The stockage criterion for items at the service unit is normally items with two or more movements in either the current or prior 6-month period. Requisitioning objective/reorder point is computed by multiplying the average demand for a 5-day period by the number of 5-day increments desired. Each item is assigned its individual requirement code. The resulting adjusted average 5-day demand is then multiplied by the number of days represented by the requirement codes to arrive at quantity figures for operating level, order and ship time requirements and safety level. Issues are made based on customer requisitions and follow normal procedures.

c. Relationship Between Service Units and FMF Units. The fleet stock accounts located within the force service regiment and service support units (service battalions/service groups) of the Marine Divisions and Aircraft Wings are the connecting links between the Marine Corps' distribution system and the using battalions/squadrons of the Fleet Marine Forces.

d. Accounting Records. The fleet stock accounts have a mechanized capability to process transactions affecting inventory. A more dramatic sophistication of supply management will be vested in the Marine Corps Supported Activities Supply System (SASSY). SASSY will combine the accounting records of the fleet stock accounts and the using units into a centralized, computerized system which will automatically issue materiel to the using unit. SASSY will provide computer produced management information to all levels of command.

3. Consumer Supply Management

a. Fleet Marine Force. The mission of the Fleet Marine Force dictates that all component units maintain a high degree of readiness so that given assignments can be accomplished with maximum efficiency. In order that unit commanders may exercise command responsibility relative to the supply function, it is essential that item control based on established allowance tables and/or usage data, as applicable, be rigidly applied. Under this procedure, the principle of item control is extended to provide readiness data to all echelons of command and to the Commandant of the Marine Corps. Each Marine Air Group, battalion, separate squadron, separate company, and separate battery has a property account and is administered as a supply element. Procurement, control, and disposition of materiel is accomplished at the unit supply level. Materiel required by subordinate units is reflected on property records and custody records prepared and maintained by the supply element. These supply management systems are generally manual. In a division, each regiment has a property account which is administered as a supply element for the purpose of providing immediate support to the headquarters elements only. The regimental commander has responsibility for command control and supervision of supply functions within the regiment. Specific allowances of items and quantities of items have been established for all Fleet Marine Force air and ground units. The quantities contained in the individual table of equipment are mandatory allowances for units to have on hand, but it remains the commander's judgment as to what is needed for a particular operation.

b. Post and Stations. The mission of the post or station organic supply activity is to provide supply support for station activities or designated nondeployable FMF aviation units for the accomplishment of their missions by assuring that authorized materiel is obtained in sufficient quantity, maintained in a serviceable condition, and disposed of as authorized. This responsibility includes all functions incident to requisitioning, receiving, storage, maintenance, issue, recovery, and elimination of unauthorized excess. Post, stations, and smaller units, such as reserve units, Marine barracks, or security detachments, deal directly with the ICP for direct customer delivery.

c. Stockage and Issue Criteria. Each organizational unit is assigned a table of equipment which it is required to maintain. The unit's stockage objectives for other items are based upon recurring demand and must meet the criteria of having six demands in a 6-month period. These stockage objectives are the summation of a 30-day operating level, and specified procurement lead time, and safety level. Items of supplies are issued to using elements according to the table of equipment, the table of authorized materiel or on an "as required" basis.

(4) Air Force. The Deputy of Chief of Staff, Systems and Logistics, under delegated authority from the Chief of Staff is responsible for developing and directing plans, programs, policies, and procedures for the management of Air Force and Reserve Forces activities in the field of logistical support. This involves systems and support equipment development, quantitative logistical requirement determination, procurement, supply and services, production, industrial planning, maintenance engineering, and transportation. This also includes responsibility for execution of the Air Force portion of the foreign military assistance program, Air Force small business affairs, and technical programs security. The Air Force consists of major air commands and separate operating agencies which represent the field organization of the United States Air Force. These commands are organized on a functional basis in the United States and on an area basis overseas.

(a) ZI Commands. Four major commands within the zone of interior (ZI) are responsible for accomplishing the Air Force logistics mission and are organized on a functional basis. Those ZI commands having a major role in the logistic support program and considered part of their mission are:

1. Air Training Command. The Air Training Command provides individual training for Air Force Officers and airmen. This includes: basic training and indoctrination for all Air Force recruits; flying training; technical and field training, special and such other training as directed. It is also charged with the recruiting function of the Air Force.

2. Military Airlift Command. The Military Airlift Command, among other things, provides air transportation for personnel and cargo for all Services worldwide.

3. Air Force Systems Command. The Air Force Systems command has a development responsibility for new weapon systems including advance technology, development, test, procurement, and production.

4. Air Force Logistics Command. The Air Force Logistics Command (AFLC) provides logistic support and services for Air Force organizations. Logistics control extends from AFLC through the Air Material Areas (AMAs), to Air Force bases in CONUS and overseas.

(b) Overseas Commands. The United States Air Force in Europe, the Pacific Air Forces, the Alaskan Air Command, and the United States Air Forces Southern Command constitute the overseas commands and are organized on an area basis. Logistically, they are responsible for retail supply support and organizational and field maintenance support for assigned weapons and equipment. Intertheater support for air transportation is provided by the Military Airlift Command and assigned organic aircraft. Air training commands, Tactical Air Command (TAC), Strategic Air Command (SAC), and the Air Force Logistic Command, provide additional support based on contingency plans for technical assistance as required.

(c) Air Force Logistics System for Supply Management. The Air Force Logistics Command's mission is to support the Air Force's Aerospace Weapon Systems for constant readiness and it functions as the Central Spares Procurement, Support and Maintenance Agency of the Air Force. It must perform this mission —which is constantly growing in size and complexity—at the lowest possible cost. It must make certain that the combat and other commands have the logistics support needed to maintain their aircraft, missiles, and support equipment constantly at top efficiency.

1. It provisions, computes requirements, stores, distributes, redistributes, and repairs Air Force peculiar spares, repair parts, and equipment. Along with these basic responsibilities, AFLC prepares and defends budgets, lets procurement and maintenance contracts, and performs various maintenance functions.

2. The five CONUS industrial-type logistics centers that carry out most of the command's operational functions are the AMAs. There are five of them—wholesalers—all in the United States. They are located at Ogden, Utah; Sacramento, California; San Antonio, Texas; Oklahoma City, Oklahoma; and Warner Robins, Georgia near Macon.

3. The current five AMA operation resulted from many years of experience. As improved communication, transportation and electronic data processing came into being numerous overseas and CONUS wholesalers were closed. The current direct wholesaler to retailer system was responsive during the SE Asia buildup and should be more responsive in the future as further advances are made in computer, communication, and transportation technology.

4. The AMAs now process approximately 17 million requisitions from field activities each year. In addition, more than one and a half million items are repaired every year by the maintenance and repair facilities within the command. Among these AMAs approximately 900,000 items, with a gross inventory value of 11 billion dollars, are managed by the Air Force. Another 800,000 items are secured directly from GSA, DSA, and the Services by Air Force activities.

5. Each AMA is organized along identical lines and carries out its responsibilities based on standard policy and procedures established by Headquarters, AFLC. Each AMA is responsible for managing particular items of supply. No other AMA has the responsibility for managing the same item, thereby, eliminating any overlap of item management. Central control is the basic management philosophy. Each base activity (retailer) is advised (by supply catalog data) which AMA (wholesaler) is responsible for managing a particular item and therefore where to obtain the item.

6. Within the AMA, management of items is carried out by individuals designated as inventory managers (IM). This person and only this person manages his assigned items. Information that he needs to make effective management decisions is readily available to the IM. This includes information concerning wearout rates, repair schedules, weapons application, procurement lead time, and program data.

7. Each AMA is also assigned management responsibility for a portion of the 300 various weapons and/or support systems. The systems manager (SM) is responsible for ensuring support of his system. He works in conjunction with the IMs and other commands to resolve support problems for his system.

8. Centralized control is the key. The major development that has made centralized control possible is computer technology combined with improved communications and air transportation. A major feature of the supply system is the elimination of intermediate echelons between the AMAs (wholesalers) and base supply activities (retailers). As an example, if Cam Ranh Bay needs an unique F-4 part, a requisition is submitted using electrical transmission means, to Ogden AMA, which is the inventory manager wholesaler. The requisition is received directly by the IM without intervening review. Shipment is made directly to Cam Ranh Bay. Processing time and shipment mode are dependent upon requisition priority. If the item is not available, and base need is of sufficient priority, the manager at Ogden will attempt to locate the item and may direct redistribution of the part from any Air Force Base having the item in stock. Ownership and control of the centrally located managed item(s) in the Air Force supply system are vested in the AFLC.

9. Many new systems have been developed to enhance management of Air Force inventories. One of these new systems, pertaining to the high dollar value items,

is called the Air Force Recoverable Assembly Management System (AFRAMS), which was implemented 1 November 1967 after more than 2 years of development. It gives the AFLC IM continuous asset information by base, by condition and location, for 77,000 line items subject to repair and depot level, representing an investment of over $5 billion.

10. By knowing the location and condition of the items, the IM has the capability to redistribute those in short supply from bases where they are available to bases which have a priority need. The system permits a high degree of compatibility between total Air Force requirements and the distribution pattern, while permitting positioning of the items at base level.

11. AFRAMS provides the IM daily item visibility for recoverable type items. This knowledge provides a sound basis for the projections of procurement and repair programs. It also permits the redistribution of items to meet the most urgent needs.

12. Plans call for the expansion of AFRAMS to an additional 77,000 recoverable line items having an investment value of $300 million, which are normally only repaired at base level.

13. When a repairable item is removed from an aircraft (or other system) by maintenance and a demand is made for a like replacement item on supply, a Due-In-From Maintenance (DIFM) transaction is instituted to ensure that the removed item is returned to supply. These repairable procedures, with the AMA/Base AFRAMS Control Systems, complete the loop on control of repairable items.

14. For extremely expensive items such as aircraft engines, F-4 stable platforms, and minuteman missile guidance units, tighter controls are maintained by serial number accounting, and each activity provides daily status to the responsible item manager. Items are moved by air and handling as well as repair is expedited. By using these management techniques, AFLC is able to reduce significantly the number of spares required for weapons support.

(d) Retail Supply Support. Each of the commands has a supply staff to manage supply operations within their command to ensure that central policy and control are carried out as directed by Air Force Headquarters. The various commands recommend policy changes that are approved or disapproved based on their merit.

1. Each major base in the Air Force has a single Chief of Supply who performs and supervises the retail operation of the Base Supply System. All activities on each base obtain their supply support from this base supply account except medical, cryptographic, and nonappropriated funds. This activity in turn is the only organization authorized to go to the wholesale organizations, such as AFLC, DSA, GSA, for items of supply.

2. The Chief of Supply is normally the senior supply officer assigned to the host base and usually possesses broad supply background. To assist him he has individuals designated as managers for spares, equipment, fuel, etc. The Chief of Supply is responsible for supporting all units on the base. As an example, if two or more commands are located on a base, as they often are, there is only one supply activity on that base to support both units. Other on-base organizations such as Civil Engineer, Communications and Weather are also supported by the same single supply activity. On some bases there are as many as 75 organizations drawing support from the single supply organization.

3. To accomplish the supply accounting functions at Air Force bases throughout the world, UNIVAC 1050-II computers are used under program control in a a standard organization. Installation of this Standard System has stabilized the overall supply operation. The Air Force now enjoys a responsive requisitioning and inventory status

reporting capability. By standardizing computer hardware, data systems, and supply procedures, a significant step forward has been taken in improving the logistics system, resulting in reduced inventories. For example, in FY 61 Air Force investment in combat equipment amounted to $31 billion, whereas the spares necessary to support this inventory amounted to $9 1/2 billion—a 3 to 1 ratio. In FY 67 there was a capital investment of over $39 billion with a spares support inventory of just $8 billion—a 5 to 1 ratio.[4]

4. Program changes cannot be made by base personnel or the host major command. Computer programming is done at Headquarters, USAF, by the supply system design office. Routines are distributed worldwide, either by punched cards or magnetic tapes. A command post, to answer questions and assist in solving problems, is maintained 24 hours per day, 7 days per week.

5. Although each of the bases has a slightly different mission, the supply system and procedures are flexible enough to effectively support all of them. Stock levels, accounting procedures, inventory techniques and frequency, funds management, reports, and organization have all been standardized and are centrally controlled.

6. One of the major benefits has been the reduction in training requirements and increased efficiency of supply personnel. Personnel are now immediately productive when they are transferred between CONUS bases of different commands or between overseas and CONUS bases. They no longer have to learn a new system each time they change bases. They have only one system to know and understand and they all speak the same language.

7. The bases and AMAs are linked by a very effective Automatic Digital Communications Network System called AUTODIN. Requisitions are produced at bases by computer; transmitted over AUTODIN to the AMA; processed there by computer; and status is furnished back to the bases automatically.

8. Equipment items in the Air Force are also centrally controlled and managed. These are items that perform a function themselves such as electronic test sets, ground air conditioners for aircraft shop equipment, and mobile radar sets regardless of supply source. Each piece of AMA managed equipment in use in the Air Force is reported periodically to the AMA IM. When an item is issued by the Base Equipment Manager to a using organization, the item is recorded by the Local Base Equipment Manager and reported to the appropriate IM. An equipment item either has a validated unit requirement, or it is reported to the IM, or shipped to a unit requiring the item at the direction of the IM. Again, certain items such as vehicles are very closely controlled by serial number.

5. SUMMARY

a. The structure of each Service's logistic organization is directly related to the mission requirements for mobility of combat units. Degrees and means of mobility differ, but in general, the combat units of the Army, the Navy, and the Marines must be able to move in mass to any geographical area and to operate there for extended periods i.e., weeks, months, or years. Each Service's logistic network therefore must be equally mobile with the ability to extend its pipeline forward to the combat units. The Army, the Navy, and the Marines have established three echelons of supply, as previously described, including supply points in CONUS and overseas to provide the required worldwide logistics mobility.

b. Mobility requirements placed on Air Force combat units and their supporting logistic organization are different conceptually from those of the other Services. The Air Force combat units deploy and return to fixed support bases within hours. The Air Force logistic system therefore, is designed to resupply such fixed bases rather than the more mobile

[4] Riemondy, BG, USA, presentation to JLRB

forward support bases utilized by the other Services. Additionally, the mission assignments of the Air Force requiring rapid response and deployment of its combat weaponry within minutes have carried over into the response time requirements laid on its logistic system. Responding to such requirements has forced the Air Force to make extensive use of high speed, real time computer systems and rapid communications and transportation networks. Such logistic systems and the Air Force's fixed support base concept have permitted elimination, to a great extent, of the intermediate stock points employed by the other Services.

c. Differences in roles, traditional influences, support problems, and Service size have led to unique differences in the logistic organizations and procedures employed by the Services. Despite these differences in the nature and organization of their supply missions, the broad management problems facing each Service are quite similar as shown in the following chapters of this monograph.

CHAPTER III

DOD PROCEDURES AND SUPPORTING SYSTEMS

SECTION A

INTRODUCTION

1. BASIS FOR STUDY. The Joint Logistics Review Board was directed in its Terms of Reference[1] to review supply management. The following systems and procedures involved in requisitioning and shipment processes by the Services, Defense Supply Agency (DSA), and General Services Administration (GSA) are discussed in this chapter. They are the Military Standard Requisition and Issue Procedures (MILSTRIP), the Military Supply and Transportation Evaluation Procedure (MILSTEP), the Uniform Materiel Movement and Issue Priority System (UMMIPS), the Defense Automatic Addressing System (DAAS), and catalog data changes during the Vietnam era.

2. OBJECTIVES. The objectives of this chapter a

a. To review MILSTRIP, UMMIPS, MILSTEP, cataloging, and DAAS during the Vietnam era.

b. To make comparative evaluations of supporting systems as they evolved during the Vietnam era and to analyze their effectiveness.

c. To provide the basis for recommendations that will reinforce systems' and procedures' strengths and correct apparent weaknesses.

3. SCOPE. This chapter reviews the previously described procedures and systems to:

a. Analyze and determine if they placed constraints on or hampered the submission of transmission or processing of requisitions.

b. Analyze the preparation of requisitions by field units from the standpoint of sufficiency of catalog and identification data; and the complexity and adequacy of the MILSTRIP requisitioning procedures.

c. Determine the extent of the problem of catalog management data, element changes, and cataloging on the requisitioner.

d. Examine the abuses of the priority system and reasons therefore in order to ascertain the measures that need to be taken to provide a viable system responsive to contingencies of all kinds.

4. ORGANIZATION

a. This chapter comprises Sections A through F. Sections B, C, and D will review the selected military standard systems and analyze patterns of operation.

b. Sections E and F analyze cataloging and the Defense Automatic Addressing System.

c. Conclusions and recommendations are included in each section and are summarized in Chapter IX of this monograph.

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[1] Secretary of Defense, Memorandum, subject: Joint Logistic Review Board (JLRB), 17 February 1969.

SECTION B

MILITARY STANDARD REQUISITIONING AND ISSUE PROCEDURES

1. INTRODUCTION AND BACKGROUND

a. The Department of Defense (DOD) has made tremendous strides since 1962 in the development and implementation of standard logistics data systems. These military standard systems. These military standard systems, often referred to as the MILS, play an important role in current logistics operations. In Cuba, the Dominican Republic, and Vietnam these systems have demonstrated their importance as a vital and uniform data communications link between the operational forces and the support activities. Through standardization of data elements, codes, forms, and formats these systems have enhanced integrated management and facilitated the interchange of stocks among the Services. They have also improved control over movement of materiel from source to user and have provided a uniform data base and reporting system for evaluating the effectiveness of DOD logistics support.

b. The MILS seek to achieve three major data objectives: (1) standardization, (2) automation, and (3) integration. Of these, standardization is the most important. In the current defense structure of unified and specified commands, defense agencies for supply and services, and single-service management assignments the standardization of data is an absolute must.

c. The following paragraphs will review how the MILS satisfied these objectives during the Vietnam era. This chapter will review the Military Standard Requisition and Issue Procedures (MILSTRIP), Uniform Materiel Movement and Issue Priority System (UMMIPS), and Military Supply and Transportation Evaluation Procedure (MILSTEP) systems.

d. The MILSTRIP, the first Defense-wide logistics data system, established a standardized system of data codes, data elements, and document formats. The objective of MILSTRIP has been to improve supply support by attaining a greater degree of simplification, standardization, and automation in the processing of requisitions.[2] The system, which was implemented in July 1962 by all of the Services, the Defense Supply Agency (DSA), and the General Services Administration (GSA), replaced 16 different systems that had been utilized for the issue and receipt of supplies throughout the military establishment.

e. MILSTRIP is designed to (1) provide uniformity of procedures for all requisitioners and suppliers, (2) meet essential requirements of all the Services, (3) provide for DOD interservice supply transactions, including DSA operations, (4) provide for interservice supply support operations (excluding interdepartmental purchasing and services operation), and (5) accommodate the requisitioning on GSA stock.[3]

f. MILSTRIP requisitions can be processed if information is provided and is compatible with the information on supply records at the next higher level of supply, as follows:

(1) Document is properly identified as a requisition

(2) Customer is properly identified

(3) Supply source is properly identified

[2] Department of Defense Directive 4140.17, Military Standard Requisitioning and Issue Procedures (MILSTRIP), 2 April 1968, para. a.
[3] Ibid., para. b.

(4) Federal stock number is valid

(5) Quantity of the item required is shown.

g. All other information required by MILSTRIP, such as funding, routing, project code, and priority, can be provided or corrected at the next higher level of supply and the requisition can be processed.

2. MILSTRIP INTERFACE WITH OTHER DOD MILITARY STANDARD PROCEDURES. To clarify the purpose of MILSTRIP and its relationship to other DOD military standard procedural systems, the following comparisons are made.

a. To provide for a uniform flow of information necessary to supply management, and to that aspect of financial management generated as a result of supply transactions, the Department of Defense implemented the Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP) on 1 July 1965.[4] Just as MILSTRIP standardized the requisition and issue procedures and the communication between the customer and the supplier, MILSTRAP standardized the procedures and communication necessary for the accomplishment of the in-house operations of supply managers in the areas of supply and financial accounting and reporting. Some of the data derived from the MILSTRIP aspect of a transaction become input data for the MILSTRAP operation, but the relationship ends there. Each system has its own purpose and neither can be made to do the work of the other.

b. The closest interface between MILSTRIP and another military standard system is that which it shares with the Uniform Materiel Movement and Issue Priority System (UMMIPS).[5] UMMIPS' provisions are a part of each Service's MILSTRIP procedural manual. It is this placement in the MILSTRIP manual that often leads to the belief that the UMMIPS' priorities are part of the MILSTRIP system. These separate functions are best expressed by this statement: "MILSTRIP deals with the way the user gets what he wants, not how fast he gets it". An entirely different DOD Instruction, UMMIPS, covers priorities; however, in supply operations they have become irretrievably linked and MILSTRIP becomes synonymous with UMMIPS.[11]

c. MILSTRIP shares a close relationship with still another military standard system, the Military Standard Transportation and Movement Procedure (MILSTAMP).[7] As MILSTRIP provides the standards for the requisitioning and issue of materiel, and UMMIPS provides the order of priority with which materiel will be issued, it logically follows that the value of these standards is lost unless the materiel moves to the customer with the same priority and speed. MILSTAMP was specifically designed to integrate supply and transportation by incorporating the MILSTRIP document identifier as an integral part of the transportation control number. Also, the systems are inter-reliant but since their purposes are different, it is incorrect to think of UMMIPS and MILSTAMP a MILSTRIP systems.

d. With standard procedures established for supply and transportation operations, and a uniform system of priorities to make those operations effective, it is desirable that management have some means of evaluating the performance of supply and transportation in relation to the time frames established by UMMIPS. MILSTRIP does not provide any method of evaluating performance, nor was it designed to do so. To satisfy the evaluation requirement, the Department of Defense has promulgated the Military Supply and Transportation Evaluation Procedure (MILSTEP).[8]

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[4] DOD Instruction 4140.22, Department of Defense Military Standard Transactions Reporting and Accounting Procedures (MILSTRAP), 3 August 1964.

[5] DOD Instruction 4410.6, Department of Defense Uniform Materiel Movement and Issue Priority System (UMMIPS), 24 August 1966.

[6] Ibid.

[7] Department of Defense Instruction 4540.2, Department of Defense, Military Standard Transportation and Movement Procedures (MILSTAMP). 11 June 1963.

[8] DOD Instruction 400.23-M, DOD Military Supply and Transportation Evaluation Procedures, (MILSTEP) Manual.

3. MILSTRIP CHANGES. The Director, DSA, is the designated DOD System Administrator for MILSTRIP under DOD Instruction 4140.17, which established the responsibilities required for the administration of the MILSTRIP System.[9] The DSA is also designated to coordinate, publish, revise, and distribute the MILSTRIP Operating Manual, maintaining procedure surveillance, ensuring uniform implementation, and operation by all the Services.

a. The respective Services are responsible for overall guidance on supply logistics, policies, priorities, and for adherence to provisions of MILSTRIP regulations through proper supervision and inspection.

b. The MILSTRIP operating manual has been written and published a number of times. A major revision occurred in May 1964 as a direct result of findings and recommendations emanating from the Department of Defense evaluation of UMMIPS and MILSTRIP.[10] The rewrite of the manual at that time permitted the opportunity for consolidation of numerous published changes to the system into a single publication. Since this rewrite, a total of 162 interim changes, included in 15 formal changes, have been published as of the end of July 1967. Further, a DOD Backorder Reconciliation Review Team (July 1967) recommended some 32 areas for changes to Chapter 9 of the manual on Reconciliation of Backorders.[11] Additional amendments to the operating manual were recommended as a result of a MILSTRIP Operations Review in May 1969.[12] This review contained some 22 major recommendations. Because of continuing problems in backorder reconciliation, a MILSTRIP Interim Change was promulgated in May 1969 to improve and expand backorder validation procedures.[13] To facilitate the cancellation of requisitions, a major change to cancellation procedures was developed in June 1969.[14] The above only highlights some of the major changes. There were many others developed. Some were adopted while others were rejected because of Services' differences. In this regard, the Services and the agencies jointly developed MILSTRIP changes under the chairmanship of the DOD MILSTRIP administrator. Although changes are generally developed as a joint effort on the part of the Services and agencies, unanimous agreements are not necessarily reached on all recommendations.[15] Areas where differences exist are analyzed by the DOD MILSTRIP coordinator and forwarded to DOD for resolution.

c. The changes or adjustments to MILSTRIP are not always easy to make nor are they totally accomplished. In the effort to adjust to the various requirements of the Services and agencies, MILSTRIP procedures are undergoing constant change or adjustment. With each change, the procedures in the MILSTRIP Operating Manual become more lengthy and detailed, and what was intended to be a simple, flexible system has steadily increased in complexity and difficulty of administration.[16]

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[9] DOD Instruction 4140.17, Military Standard Requisitioning and Issuing Procedures (MILSTRIP), 2 April 1968.

[10] Department of Defense, Performance Evaluation Report. Military Standard Requisitioning and Issue Procedures, (MILSTRIP), and the Uniform Materiel Issue Priority System (UMMIPS), March 1963.

[11] DOD Performance Evaluation Report of the MILSTRIP Backorder Reconciliation Procedures, 1 July 1967.

[12] MILSTRIP Operations Review DOD Report, Recommendations Requiring Resolution by the Office of the Assistant Secretary of Defense (I&L), May 1969.

[13] DSA MILSTRIP Interim Change No. 11-69, Improvement and Expansion of Backorder Validation Procedures for Calendar Year 1969, File No. DSAH-LSD, 15 May 1969.

[14] DSA, Letter, File DSAH-LSD, Facilitation of Requisition cancellation through Military Standard Systems, 13 June 1969.

[15] Ibid., (4) p. ii.

[16] Air Force Institute of Technology Air University Thesis, An Examination of the Continuing Problems of MILSTRIP, August 1969, p. 3.

d. The effect of changes on the Services' supply system can be illustrated by a presentation made by Headquarters, U.S. Army, Pacific (USARPAC), at the U.S. Army Logistics Management Systems Symposium.[17] USARPAC indicated that during the Vietnam operations it had experienced a significant number of MILSTRIP changes. AR 725-50, which is the Army MILSTRIP bible, has been changed 34 times since 1965. During the Vietnam era this regulation has also increased in volume. These changes have an impact on the supply system, and system managers must react and be responsive. Our automated logistical systems must be capable of absorbing a change on a quick-reaction basis, or they will fail to provide the necessary support. Implementation of changes are generally time consuming because they require procedural, documentation, and programming changes. It is realized that many MILSTRIP changes are evolutionary and are required for system refinement and development. But, to minimize impact on the system, changes should be approached with caution and carefully reviewed.

4. MILSTRIP AND AUTOMATIC DATA PROCESSING

a. MILSTRIP depends on computers and high-priority communications circuits.[18] If sufficient computer time and adequate logistics circuits are not available, MILSTRIP communications between the customer and his supporting levels of supply breakdown. The situation is dynamic—when normal supply communications are delayed there is a resultant surge of transactions. This creates a further backlog of processing for the computer which leads to further delays. The result is saturation and a system out of control. As an example, the MILSTRIP operations of the Army in the Pacific were seriously hampered by automatic data processing (ADP) equipment saturation problems during the Vietnam buildup.[19] The solution is the availability of adequate computer resources to process and eliminate MILSTRIP backlogs. Ideally, there should be enough computer capability and time to process a daily supply cycle for each working day of the month.[20]

b. The Department of the Army National Inventory Control Point (NICP) Review Team visit to United States Army Pacific, (USARPAC) (14 February 1969) reported that the MILSTRIP oriented USARPAC Centralized Automated Standard Supply System (3s) was designed and developed by the command, was implemented during the Vietnam buildup, and was working well. However, it was hampered by many MILSTRIP changes and revisions to the flow of requisitions that required major revisions and reprogramming of established routines. This is normally a time consuming procedure.[21]

5. MILSTRIP DEVIATIONS AND VIOLATIONS

a. MILSTRIP is a self-policing system because mechanical techniques are used for the processing of transactions. The use of computers and other mechanical equipment is such that, in most cases, any deviation from prescribed formats, codes, or data element is readily discovered as a result of document validation by recipients.

b. In this regard, review indicates that neither requisitioners nor supply sources appear to be violating or deviating from MILSTRIP instructions under their own volition.[22] As an example, most violations concern preparation of documentation, sequence for processing backorder reconciliation, use of project codes, status codes, and followup inquiries. These are caused by individual misinterpretations of the Services or agencies implementing instructions or policies.[23] The numerous changes developed during Vietnam caused additional deviations due to misunderstandings.

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[17] Hq., Department of the Army, Office of the Deputy Chief of Staff for Logistics, U.S. Army Logistics Management Systems Symposium, 26-30 January 1970, pp. 11-128.

[18] DA, Report, DA NICP Review Team Visit to USARPAC, 10 Jan. - 14 Feb. 1969, p. 27.

[19] Ibid., p. 28.

[20] Ibid., p. 28.

[21] Ibid., p. 27.

[22] DOD, Report on Operations Review of the Military Standard Requisitioning and Issue Procedures (MILSTRIP), March 1968, p. 160.

[23] Ibid., p. 160.

c. The normal method of reporting deviations is that the Service or agency component discovering the condition brings it to the attention of the violator. If the problem is of great magnitude, the headquarters of the appropriate Service or agency is also made aware of the violation. The MILSTRIP administrator is responsible for ensuring Service compliance.

6. REJECTION OF REQUISITIONS

a. Historically, one of the major problems connected with military supply has been the transmittal of consumer needs to the supplier with sufficient accuracy and speed to allow the supplier to recognize these needs and to react. The function of military supply has not changed in the past decade, nor has modern technology provided a solution to the aforementioned problem. The rejection of customers' requirements is a problem experienced by all Service requisitioners. The magnitude of the problem is indicated in Table 1, which shows the number of all Services and agencies stocked and nonstocked items rejected by DSA centers during the period FY 65 through FY 69.[24] Although MILSTRIP has enabled military and agency suppliers to process requisitions expeditiously and at an ever increasing rate,[25] the accuracy and validity are the customer's responsibility. However, more than 1 million dollars were spent in 1966 in processing erroneous MILSTRIP requisitions.[26] The GAO in reviewing SE Asia MILSTRIP operations also reported that a significant number of requisitions could not be processed through the computer and had to be manually reviewed for errors and omissions.[27] Table 2 shows the magnitude of DSA customer requisitions corrected and re-entered for supply action during FY 68 and FY 69.[28] Many of the requisitions rejected must be returned to the requisitioners and significant delays occur before they are reprocessed and supply actions re-initiated. The major causes of rejection of customer requisitions are:

(1) Incorrect Federal Stock Numbers

(2) Incorrect unit of issue

(3) Duplicate document numbers

(4) Incorrect source of supply

b. Causes of erroneous or noncurrent data on rejected requisitions can be attributed to the following:[29]

(1) Source information was not current

(2) Errors had been made by personnel preparing requisitions

(3) Information on requisitions or documents from customers had not been adequately reviewed for errors and omissions

(4) Duplicate documents submitted because of weaknesses in internal control.

c. Basically, a rejected requisition could result in a required item or piece of equipment not reaching a requestor within a specified time limit (or conceivably not reaching him at

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[24] Hq., DSA, Data Furnished JLRB, September 1969.

[25] Air Force Institute of Technology, Air University Thesis, An Analysis of MILSTRIP Requisition Training on MILSTRIP Requisition Errors, August 1967, p. 1.

[26] Ibid., pp. 57-59.

[27] DOD, Comptroller General, Report to the Congress, subject: Need for Improvement in the Processing of Requisitions for Materials (B-164500), 17 September 1968, p. 7.

[28] Hq., DSA, Data Furnished JLRB, September 1969.

[29] Department of the Air Force, Air Force Logistics Command, Stock Control and Distribution Analysis, RCS4-LOG-S144, DO8471-C1, Wright-Patterson Air Force Base, Ohio, April 1966 through May 1967.

TABLE 1

DSA, NUMBER OF REQUISITIONS REJECTED

Fiscal Year	Stocked	Nonstocked, FSN	Nonstocked, Non-FSN	Total
1965				
3rd Qtr	102,714	63,988	N/A	166,702
4th Qtr	108,665	68,727	N/A	177,392
Total	211,379	132,715	N/A	344,094
1966				
1st Qtr	157,654	91,514	N/A	249,168
2nd Qtr	120,333	75,562	N/A	195,895
3rd Qtr	125,192	74,820	N/A	200,012
4th Qtr	127,641	107,851	N/A	235,492
Total	530,820	349,747	N/A	880,567
1967				
1st Qtr	137,260	112,582	N/A	249,842
2nd Qtr	195,007	109,060	N/A	304,067
3rd Qtr	132,067	108,813	N/A	240,880
4th Qtr	125,049	131,233	N/A	256,282
Total	589,383	461,688	N/A	1,051,071
1968				
1st Qtr	117,227	126,455	N/A	243,682
2nd Qtr	124,978	91,923	N/A	216,901
3rd Qtr	149,282	74,570	N/A	223,852
4th Qtr	122,974	85,681	N/A	208,655
Total	514,461	378,629	N/A	893,090
1969				
1st Qtr	131,473	83,446	51,166	266,085
2nd Qtr	113,346	69,525	55,548	238,419
3rd Qtr	108,503	56,180	44,618	209,301
4th Qtr	104,472	56,482	32,157	193,111
Total	457,794	265,633	183,489	906,916

Source: Hq., DSA, Report Furnished JLRB, September 1969.

TABLE 2

DSA, CUSTOMER REQUISITIONS CORRECTED AND RE-ENTERED

Fiscal Year	Stocked	Nonstocked, FSN	Nonstocked, Non-FSN	Total
1968				
3rd Qtr	88,484	N/A	N/A	88,484
4th Qtr	113,071	N/A	N/A	113,071
Total	201,555	N/A	N/A	201,555
1969				
1st Qtr	119,296	29,225	N/A	148,521
2nd Qtr	88,504	20,242	N/A	108,746
3rd Qtr	91,171	4,563	N/A	95,734
4th Qtr	84,303	4,604	N/A	88,907
Total	383,274	58,634	N/A	441,908

Source: Hq., DSA, Report Furnished JLRB, September 1969.

all) thereby causing a delay or failure in his mission. The cumulative effects of rejections are extensive and include the following:

(1) Duplication of effort

(2) Delayed item delivery

(3) Increased costs

(4) Increased man-hours

(5) Needless computer utilization

(6) Needless AUTODIN utilization

(7) Delayed inventory data computation

(8) Increased pipeline time

Reduction of the rejection rate would result in measurable improvement in the overall Service logistics effort.

7. REQUISITION CANCELLATION

a. The Services and agencies experienced difficulties with the MILSTRIP cancellation procedures during SE Asia operations and indicated modifications were required. Experience with project Stop/See and the Vietnam phase down emphasized the need for this modification.

b. The Assistant Secretary of Defense (I&L) by the memorandum of 12 May 1969 to the Director, Defense Supply Agency, directed that MILSTRIP procedures be reviewed and evaluated and modified to attain simplicity and processing ease. As a result, the Director of DSA developed modified procedures to facilitate cancellations through the Military Standard Systems.[30]

[30] DSA, Letter, file DSAH, subject: Facilitation of Requisition Cancellation through Military Standard Systems, 23 May 1969.

DSA convened a conference on 9 June 1969 of Service and agency representatives to review and discuss their comments relative to the amended procedures. The conference effort resulted in some modification of the procedures and identification of specific areas requiring additional policy guidance by DOD. These areas were primarily in the suspension of demand, disposition, and payment for materiel in diverted shipments and mandatory limitations of requisition cancellation procedures. The modified Military Standard Procedures, as they were to be incorporated into MILSTRIP operating manuals, were furnished the Services and agencies in June 1969 for earliest implementation.[31] Following are the major procedure modifications added to the manuals:

(1) Modified procedures for submission of mass cancellation requests.

(2) Supply source acknowledgement of cancellation request.

(3) Conditions under which cancellation requests will not be submitted to storage or procurement and the conditions under which shipment hold or diversion will not be attempted.

(4) Initiation of terminal requests for shipment hold or diversion.

(5) Standard data for inclusion in cancellation submitted on procurement.

c. Modification of cancellation procedures when implemented should eliminate the previous problems encountered and facilitate the cancellation of requisitions.

8. <u>MILSTRIP BACKORDER RECONCILIATION PROCEDURES PROBLEMS</u>

a. One of the main purposes of backorder reconciliation is to reconcile the records of the supply source with the records of the activity maintaining the due-in record to determine whether the two are in agreement. This must be done before any validation of requirements is made. Initially, during the Vietnam buildup, backorder reconciliations were being made without reconciling the request documents with their due-in records but merely validating all reconciliation requests documents received and returning them to the supply source.[32]

b. Difficulties were encountered with the implementation of backorder reconciliation procedures prescribed in MILSTRIP. The DOD suspended these procedures during April 1966. The suspension resulted because of general misapplication of the procedures by supply sources and requisitioning activities.[33] During the suspension period several proposals for changes to the procedures were developed by the Services and agencies in an effort to improve the procedures and to cause a proper application of their provisions. Staffing of the proposed changes with the Services and agencies did not result in unanimity for adoption of the changes. The proposed changes were forwarded to the Assistant Secretary of Defense (I&L) for resolution.

c. By the memorandum for the Director, Defense Supply Agency, 17 September 1966, the Assistant Secretary of Defense (I&L) stated that the comments of the Services and agencies did not indicate adequate justification for continuing suspension of the MILSTRIP Backorder Reconciliation Procedures. Accordingly, direction was provided to the Director, Defense Supply Agency, for immediate institution of the modified procedures.[34] Direction was also provided for the Defense Supply Agency's MILSTRIP System Administrator to

[31] Ibid.

[32] DOD Report, Performance Evaluation Report of the MILSTRIP Backorder Reconciliation Procedures, 1 July 1967, p. 6.

[33] DOD Memorandum (I&L) for Service Secretaries and Director, Defense Supply Agency, subject: MILSTRIP Reconciliation Procedure, 30 September 1966.

[34] DOD Report, Performance Evaluation Report of the MILSTRIP Reconciliation Procedures, 1 July 1967.

(1) Scrutinize the Services' backorder reconciliation implementing instructions for adequacy of compliance and to monitor systems discipline down to the requisitioning activity level.

(2) Monitor implementation of the backorder reconciliation procedures at requisitioner and inventory control point level and report to OASD (I&L) on progress in implementation, responsiveness of requisitioners, and accomplishments resulting from the first two backorder reconciliation cycles.

9. ANALYSIS OF BACKORDER PROCEDURES

a. The ASD, by a 30 September 1966 DOD memorandum, directed an analysis and evaluation of the procedures at supply sources and requisitioner activities by a joint Services and agencies review for the October 1966 and February 1967 cycles.[35] This joint group prepared and forwarded on 1 July 1967 a report of the findings to DOD. The report by the Review Team (Performance Evaluation of MILSTRIP Backorder Reconciliation Procedures) established reconciliation intervals and improved documentation, coding cancellation, validation procedures, simplified methodology, and changes to the MILSTRIP Manual.

b. Although some improvements were accomplished as a result of the review, problems continued to plague these procedures. Additional modifications were made but the Services and agencies were unable to agree on the implementation of all provisions.[36] These additional changes were promulgated by MILSTRIP Interim Change No. 11-69, dated 15 May 1969.

c. The backorder reconciliation procedures and their management have slowly improved. They are important to the achievement and establishment of supply system effectiveness and cost savings inherent in cancelling unwarranted materiel requirements. However, the Director of DSA has had problems in attaining full agreement among Services on all provisions of reconciliation.

d. Although problems have been experienced with the backorder validation procedure by supply sources and requisitioners, the Services and agencies have been able to cancel nearly 7.5 million requisitions for materiel that were no longer needed.[37] Further, more than $2.2 billion in unneeded materiel requests were purged from the supply system. Additional statistics on the results of backorder validations by Service and agency for calendar years 1966 through the first half of 1969 are shown in Table 3.

e. Table 3 conclusively demonstrates the need for effective backorder reconciliation procedures. The DOD plans to amend again the procedures contained in the MILSTRIP Manual DOD 5140.17-M and to renew emphasis on cancellation during four scheduled quarterly reconciliation cycles of calendar year 1970. It is evident that if problems were not encountered, many more unneeded requirements would have been cancelled and needless resources conserved.

10. FOLLOW-UP PROBLEMS

a. The volume of follow-ups requests creates problems at supply sources. The problem of volume is one that sharply decreases the time available for the processing of new requisitions and supply transactions. This was a problem for the U.S. Army during the buildup when communications and ADP were inadequate.

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[35] Memorandum for the Service Secretaries and Director of DSA, subject: MILSTRIP Reconciliation Procedures, 30 September 1966.

[36] Defense Supply Agency, Memorandum, DSAH-LSD, for the Deputy Assistant Secretary of Defense, subject: Improvement and Expansion of Backorder Validation Procedures for Calendar Year 1969, 15 May 1969.

[37] DOD, Memorandum. For the Service Secretaries and Director Defense Supply Agency, subject: Backorder Validation During Calendar Year 1970, 31 December 1969.

TABLE 3

RESULTS OF BACK ORDER VALIDATION

	Previous Calendar Years			1st HALF CALENDAR YEAR 1969						
	1966	1967	1968	ARMY	NAVY	AF	MC	DSA	GSA	TOTAL
Overage back-ordered requisitions subjected to validation	664,304	2,294,322	2,556,402	516,803	436,716	371,686	241,544	293,867	35,695	1,896,311
Back orders cancelled as no longer needed	104,952	277,445	288,295	42,947	47,354	68,153	44,693	32,022	5,327	240,496
Percentage cancelled	15.7%	12.1%	11.2%	8.3%	10.8%	18.3%	18.5%	10.8%	14.9%	12.6%
Total value of cancelled back orders (in millions)	$82.5	$570.5	$1,063.5	$222.6	$81.5	$151.3	$18.1	$9.0	$1.0	$483.5
Average value of each cancelled back order	$786.00	$2,056.00	$3688.00	$5183.00	$1721.00	$2220.00	$404.00	$281.00	$187.00	$2010.00
Overage back orders that the customer requested the supply source to cancel	Not Avail.	Not Avail.	413,524	97,722	63,398	67,980*	36,086	53,615	Not Avail.	318,801
Cancellation requests on which the supply source was able to stop shipment/procurement	77,469	197,549	217,963	33,670	40,644	67,963	19,288	22,417	3,459	187,441
Supply source cancellation effectiveness rate	Not Avail.	Not Avail.	52.7%	34.4%	64.1%	99.9%	53.4%	41.8%	Not Avail.	58.7%

*Estimated for both cycles

Source: DOD Memorandum for the Military Service Secretaries and Director, DSA, subject: Backorder Validation During Calendar Year 1970, 31 December 1969

b. The basic procedures allow follow-ups to be initiated by three activities: the requisitioner, the supplementary addressee, or the activity designated to receive status (coded in column 54). No order of submission authority is specified, therefore, more than one of these activities will frequently conduct a follow-up on the same requisition. Also, follow-ups are frequently submitted too early in the processing time frame before the Required Delivery Date (RDD) is reached, or before the supplier has had an opportunity to react. Unless the requisitioner annotates his records and keeps them current, he will continue to misidentify, misroute, or make follow-up requests, causing additional waste of research and processing time.[38] Volume of follow-ups is caused, in many instances, by a failure to use status information for its intended purpose.

c. Equally detrimental to the system are those follow-ups that are submitted by letter message or telephone. Such follow-up requests must be converted to MILSTRIP format before they can be processed. There were incidents of follow-ups originating with an activity which was not one of those designated by the requisitioner to receive status information. Procedural violations such as these can only make MILSTRIP unwieldy, detract from its effectiveness, and arouse unjustified criticism of the system.

d. For lack of clear understanding of the procedures, data elements are misplaced in the formats or inserted where they should not be inserted. This is pointed out by the example where attempts to use the variable data columns (67 through 80) for the perpetuation of internal management data have resulted in a loss of the data in follow-on documentation.

e. Another interpretive problem stems from the use of MILSTRIP provisions to perform extraneous functions or, in contrast, a failure to let MILSTRIP provisions perform to their full effectiveness. The first of these is exemplified by the requisitioner's use of follow-up mechanisms to accomplish reconciliation or updating of requisition records.[39] MILSTRIP was not intended to perform "housekeeping" chores. An example of deviation concerns problems created when normal status information is not used for its intended purpose to update or correct requisition records on an individual basis.

f. The unauthorized expansion of the intended purpose of MILSTRIP provisions, or failure to make full use of the existing ones, both create unnecessary and unjustifiable processing workloads and paperwork. In regard to workload, information gathered by DSA showed that during the Vietnam buildup period between 1 November 1965 and 31 March 1966, the ratio of follow-ups to requisitions was 45.8 percent.[40] These data included the number of requisitions and follow-ups processed by DSA, GSA, Army, Navy, and Air Force. Although it appears that during the buildup almost half of the total MILSTRIP requisitions processed were being followed up, this figure is only an average and does not reflect the fact that some requisitions were followed up repeatedly whereas others were never followed up. Ideally, if MILSTRIP procedures are followed and status information is used properly, the follow-up to requisition ratio should be near zero percent. The high follow-up percentage indicates an indiscriminate use of the follow-up privilege, either because status is not requested at the time the requisition is submitted, or the status information provided by the supplier is not properly annotated upon receipt. To ascertain if the situation has improved since the buildup an examination of the August 1969 DOD Supply Availability and Workload Analysis Report (page 19, Table 7) reveals that on stocked items for FY 70 and as of 31 August 1969 the percentage of follow-up was 31 percent of all demand documents received. This indicates a favorable decreasing trend.

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[38] Air Force Institute of Technology Study, An Examination of the Continuing Problems of MILSTRIP - SISR, 8-66, August 1966, p. 45.

[39] Ibid., p. 56.

[40] Ibid., p. 55.

11. NARRATIVE FOLLOW-UP MESSAGES. The use of narrative messages for follow-up causes unnecessary delay and manual workload on the follow-up activities having access to the Automatic Digital Network (AUTODIN).[41] Manually prepared narrative messages are not conducive to the advantages of speed and accuracy afforded by the communication system.[42]

12. PROJECT CODES

a. DOD MILSTRIP Operating Manual 4140.17-M defines project codes and purpose of their use in identifying:

(1) Requisitions and related documents applicable to specific projects, programs, and/or special exercises and maneuvers.

(2) Shipments of materiel for specific projects or programs.

(3) Special programs to provide for funding and costing.

b. The manual also assigned specific blocks of project codes to the Services and the Department of Defense. Project codes may be assigned by the Services, DOD agencies, Joint Chiefs of Staff, GSA, and by DSA for the DOD. It must be emphasized that this assignment is only for the purpose of identifying requisitions and related documents, shipments, and the accumulation of intraservice cost relationship.

c. Project codes do not provide or imply any priority or precedence for requisition processing or supply decisions. Project codes are not related to priority in any respect and these codes when used, do not alter or override the priority assigned a requisition or shipment requisition containing project codes and shipments related thereto are processed strictly in accordance with the assigned Priority Designators prescribed in Chapter 5 of the Operating Manual and UMMIPS.

d. During the Vietnam Operation,[43] numerous instances were found relating to the assignment, use, and processing of requirements of project codes that were in conflict with the guidance provided in the MILSTRIP Operators Manual. Examples of misuse of project codes are as follows:[44]

(1) Expediting internal processing of requisitions and shipment rather than strict application of Priority Designator and/or Required Delivery Date.

(2) Rationing of material.

(3) Recording of the demand.

(4) Special telephone and message status reports were requested from other than eligible status recipients within the requisitioning Service.

(5) Special packing requirements, special color marking consideration, and labeling requirements.

e. Further, supply sources had to maintain a matrix or "lock-up" tables of more than 700 project codes to determine if requisitions contained project codes and related transactions should be offered special treatment.

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[41] DSA, MILSTRIP Operations Review, Recommendations Requiring Resolution by the Office of the Asst. Secretary of Defense (I&L), dated May 1969, p. 37
[42] Ibid., p. 14.
[43] DOD, Report on Operations Review of the Military Standard Requisitioning and Issue Procedures (MILSTRIP), March 1969, p. 68.
[44] Ibid., p. 81.

f. The Services and agencies generally have not complied with the provision of MILSTRIP in assignment, announcement, and application of project codes. Misapplication of project codes has, in many instances, resulted in a lack of code effectiveness.[45]

13. PROJECT CODE LESSONS LEARNED

a. The present method of announcing project codes, which requires other Service and agency recognition, is considered satisfactory.

b. The Services and agencies generally have not complied with the provisions of the DOD Operating Manual 4140.17-M in the assignment, announcement, and application of project codes.

c. Misapplication of project codes has resulted in many instances in a lack of effectiveness of the intended purpose of project codes.

d. The volume of project codes assigned and the block assignment method used tend to preclude effective results of the intended purpose of this code.

14. LOSS OF REQUISITIONS

a. This is a term associated with requisitioner follow-up to supply sources when the source is unable to find a record of the requisition. Investigation of these cases has indicated that some requisitions actually were not transmitted and in some instances, even though material was shipped, the supply source failed to locate such information in its records. Frequently, the lateness of the follow-up complicated tracing of the transaction. Many instances relating to "lost requisitions" have not been documented, and data on this subject are generally not available. However, two Army reports were analyzed. The D. A. HAWK Supply and Maintenance Evaluation Team (HAWKSMET) CONUS Report, November 1965, indicates that in a sampling of 5,502 open requisitions, no record could be located in CONUS supply sources for 34 percent of the requisitioned line items. Further, a Project Check Lost/Delayed Requisition Study, Vietnam, performed by a team from USARPAC in December 1967, disclosed that "23% of all unit, DSU and ICCV replenishment requisitions samples could not be found at the appropriate supply source. The breakdown is 13% unit, 9% DSU and 1% of ICCV." From the foregoing it would appear that the greatest problem is below the ICC level. This high rate was caused by direct support units (DSU) not recording the passing action document number; the 14th ICC not maintaining status on requisitions processed; and failure by units to record cancellations.

b. Incorrect routing of requisitions was a very serious problem during the buildup as brought out by the OASD (I&L) Evaluation Report, Automatic Addressing Systems, August 1965. In this report, the application of sample statistics to daily transactions would indicate that 24,000 requisitions were misrouted daily at that time through the DOD supply system. The development of the Defense Automatic Addressing System (DAAS) has now practically eliminated this problem.

15. SYSTEM INCOMPATIBILITY PROBLEMS

a. There are system incompatibility problems that discourage the use of interservice supply agreements (ISSAs) (for any other common supply system.)[46] Although MILSTRIP is by definition a standard requisitioning and issue procedure, each Service has its own method of implementation. This creates incompatibilities that inhibit supply support of one Service by another Service. Examples of this problem are:

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[45] Ibid., p. 69.

[46] Ad Hoc Group's Common Medical Supplies Memorandum, Joint Logistics Review Board, subject: Common Support in Medical Supplies, MEDDD-SR, 31 December 1969, p. 6.

(1) Implementation of the common supply support would require that Navy and Air Force high priority requisitions for which stock is not available in the supporting Army depot be passed to CONUS for direct delivery to the activity designated by the Navy or the Air Force. Both Services require that on this type of transaction, the original document number and the supplementary address (or other data of significance to the requisitioner in the supplementary address field) be perpetuated on the requisition forwarded to CONUS. The Army system is incompatible and would require major revision.

(2) Another example concerns the use of Document Identifier Codes (DICs). The Navy and Air Force implementation of MILSTRIP provide for the use of the AT series of DICs. This series is for use by requisitioners as a follow-up on the supply source. If the supply source has no record of the requisition, the use of the AT series signifies to the supply source that follow-up is to be converted to a requisition and processed accordingly. The Army implementation of MILSTRIP does not recognize the AT series. Instead, the Army requires requisitioners to use the AF series of DICs that have no purpose but to inquire of the supply source as to the status of a particular requisition and places no responsibility on the supply source except to reply to the requisitioner. If the supply source has no record of the requisition, then, based on this information, the requisitioner must generate another requisition.

b. It is recognized that the problem of system incompatibility is capable of resolution through compromise and modification of supporting data system programs. However, the responsibility for data systems design and programming is becoming progressively more centralized at high levels of command. Thus, a local commander who has the capability to provide common medical supply support in terms of stockage, warehouse space and personnel may not have the capability to modify the computer programs that support his own mission in order to accommodate the requirements of the commander seeking common support. For example, normal requisition edit routines are programmed to recognize only the Service codes and fund codes pertaining to the Service operating the supply system. If requisitions originated by another Service are to be processed by computer, the necessary data system changes must be documented in detail and forwarded through command channels to the headquarters that has responsibility for maintenance of the data system. It is only after the necessary program changes have been approved and implemented that computer based supply support may be provided to another Service.

c. A problem area in the Pacom Utilization and Redistribution Agency (PURA) excessive program was reported to the JLRB by the Commander in Chief, Pacific (CINCPAC) as the "interface of automated systems among the Services with CONUS agencies involved. Despite a standard MILSTRIP System, Service implementation is not standardized in all cases to permit on-line handling of a large volume of transactions. Further, centralized systems design and programming by an agency of the Military Departments complicate the unified commanders role in attaining systems compatibility."[47]

16. VOLUME OF SMALL SHIPMENTS IN THE SYSTEM. The MILSTRIP single line item requisitioning system is conducive to generating large numbers of small shipment units. These shipments create massive documentation workloads at transshipment points and, by nature of the size packages, increase the probabilities of shipments going astray enroute[48] to counteract the problem of small shipment handling. The terminals attempt to consolidate small shipments in controlled containers, tri wall containers, and vans. Although consolidation at the terminals does facilitate the handling problem, the large documentation workload remains. Consolidation at the terminal increases the problem of identification of supply line items at the receiving installation under the current system.[49]

[47] JLRB, Report. Excess Monograph.

[48] The Department of the Army, Board of Inquiry on the Army Logistics System, Volume II, March 1967, p. XXVII-II.

[49] Ibid.

17. MILSTRIP STRENGTHS AND WEAKNESS

a. Strengths

(1) Appraisals of MILSTRIP reveal that as a requisitioning and issue procedure it is the best system devised thus far. Its strong point lies in being uniform and having Service-wide application. The standard MILSTRIP format is a major strength because it forces uniform processing.

(2) A great strength of MILSTRIP procedures is the 80-position card which is the very backbone of the MILSTRIP system.[50] As such, it can also be the system's greatest weakness if care and attention to detail are not adequately maintained by the originator of the document.

(3) Another strength of MILSTRIP is the ability of the using unit to requisition items as the requirement occurs; however, this also has an adverse effect on the supply system because it can be receiving several requisitions for the same item from the same unit in 1 day.

(4) One of the primary advantages of MILSTRIP is that it provides for the use of only three multiple use forms that are coded in standard format. A simple format for submitting material requests, follow-up requisitions, and the cancellation of requisitions via electrical message is also provided.

b. Weakness

(1) Although MILSTRIP is undoubtedly an excellent requisitioning tool, it does have some disadvantages. One disadvantage is that it greatly limits the use of some previously used status codes important to management. Interservice use problems developed during common supply support and PURA operations because the coding of one Service was not only meaningless to another but occupied card columns required for other purposes. Another disadvantage is that it is not as flexible as former systems, because any proposed changes must be staffed with the Services. This is a time-consuming matter and normally accompanied with Service differences and views.

(2) Another weakness in MILSTRIP may be attributed to its being entirely customer oriented without sufficient discipline and policing measures to ensure integrity of application.

(3) Problems have been continuously experienced with backorder reconciliation and cancellation procedures.

(4) Because of its complexity, constant supervision and requisitioner discipline are necessary.

(5) Misunderstandings or misapplications of procedures by the requisitioner were experienced.

18. SUMMARY

a. Concept

(1) JLRB review disclosed no disagreement with the overall concept of standardization of procedures - the philosophy of MILSTRIP. MILSTRIP functioned satisfactorily in its first exposure in a combat environment. MILSTRIP does not present obstacles that are insurmountable in due time; therefore, change in its basis philosophy is not recommended.

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[50] Department of Army, Memorandum, for the JLRB, subject: Requisitioning and Distribution Systems File LOG-SP-PPB 8847, 26 November 1969, Encl. 13.

(2) MILSTRIP is the keystone in the military standard system. Unless it is clearly understood, carefully applied, and its objectives of simplicity and flexibility preserved, the effectiveness of the other military systems can only be diminished. Because of this basic interdependence it becomes most important that MILSTRIP problems be eliminated as quickly as possible.

b. Misinterpretation and Lack of Understanding

(1) Misinterpretation and lack of understanding of MILSTRIP exists, especially at the working level.

(2) Reasons for this lack of understanding are as follows:

(a) MILSTRIP procedural manuals prepared by the Services and agencies vary in volume and detail. It is often difficult to locate definitive answers to questions without considerable research or without an extensive working knowledge of the system. The size of the manuals and the number of changes which occur in it, discourage one from attempting to interpret and understand all that they contain.

(b) The changes and addition to the MILSTRIP procedures are making the systems more and more complex for the customer.[51] Changes are losing sight of the customer and are oriented toward the satisfaction of problems at top management level of the Services and agencies. Changes of such a nature tend to further confuse those who do not completely understand the system.

c. Although the MILSTRIP system has resulted in improvements in the processing of requisitions, the maximum benefits of this system have not been realized because many requisitions contain erroneous, incompatible or inflated data and cannot be processed routinely.[52]

d. A significant cost is incurred in processing MILSTRIP requisitions containing errors.[53] It is extremely difficult to apply a price tag to another cost that is incurred when erroneous requisitions are submitted, that is the loss of operational capability of the equipment or weapons required to attain combat readiness.

e. MILSTRIP project codes were designed for two purposes, (1) to identify documents and (2) to assist in funding and costing of programs.[54] However, during the Vietnam operation they were misused in order to expedite depot processing, and to assign high transportation movement precedences. During this period thousands of project codes were assigned by the Services, which proliferated the priorities system.

f. Cancellation and backorder reconciliation procedures have slowly evolved and improved. However, because they are important to the achievement and establishment of supply system effectiveness and cost savings much more could have been accomplished if procedure and implementation problems had been eliminated much sooner and attainment of full agreement among Services been attained sooner.

g. MILSTRIP effectiveness was hampered during the early phases of Vietnam because of lack of adequate ADP support capability. Provisions for ADP capability upon initial deployment is considered to be essential for effective MILSTRIP operations. Logistic contingency plans must ensure adequate automatic data processing system (ADPS) support. MILSTRIP requires immediately available and adequate in-theater ADP capability when deployment begins.

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[51] DOD, Report on Operations Review of the Military Standard Requisitioning and Issue Procedures (MILSTRIP), March 1968.

[52] GAO Report To The Congress, Need for Improvement in the Processing of Requisitions for Materiel (B164500), 17 September 1968.

[53] Ibid., p. 6

[54] USAF Supply Manual AFM 67-1, Volume I, Part Four, 4 December 1967.

adequate in-theater ADP capability when deployment begins. This will allow interfacing with an immediately responsive CONUS ADP capacity to ensure logistics support to deployed forces.

h. Except for the use of common forms, codes, and generally standardized supply operations, MILSTRIP was configured to allow each Service leniency in continuing certain peculiar internal philosophies. This has resulted in interservice requisitioning and processing problems.

12. CONSLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) MILSTRIP is a sound concept and performed well during the Vietnam conflict. It continues to have problems involving backorder reconciliation and cancellation procedures (paragraphs 1a, 2a, 7, 8b, 9, 17a(1) and (3), and 18f).

(2) MILSTRIP is the keystone in the DOD Military Standard (MIL STD) systems. Unless it is clearly understood, carefully applied, and its objectives of simplicity, and flexibility preserved, the effectiveness of the other military standard systems can only be diminished (paragraphs 1d, 2a, 5b, 6a and b, 10f, 19a(2), and 18(g)).

(3) Service unique codings for MILSTRIP have caused system interface problems with respect to common supply, PURA, and other interservice transactions (paragraphs 5g, 12, 13, 15a(1) and (2), 15b and c, 17b(1)).

(4) Misunderstandings or misapplications of procedures by the requisitioner were experienced (paragraphs 4g, 5a and b, 6a and b, 10c, d, f, and g, 12, 13, 14a and b, 17b(5), 18g and h).

(5) Numerous systems changes and revisions were developed during the Vietnam era. Some were difficult to implement (paragraphs 3b, c, and d, 4b, 7, 8b, 9a, 17g(1), 18g).

b. Recommendations. The Board Recommends that:

(SM-1) The Director, Defense Supply Agency, as the MILSTRIP administrator, keep changes in the Military Standard Requisitions and Issue Procedures to a minimum, particularly during contingency operations, to avoid confusion and misapplication at requisitioner level (conclusions (2), (4), and (5)).

(SM-2) The Joint Logistic Commanders, in coordination with the Director, Defense Supply Agency, examine Service differences in MILSTRIP coding and make adjustments to facilitate interservice support (conclusion (3)).

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SECTION C

MILITARY SUPPLY AND TRANSPORTATION EVALUATION PROCEDURE

1. INTRODUCTION AND BACKGROUND

a. The Military Supply and Transportation Evaluation Procedure (MILSTEP) provides a standard method for measuring and evaluating supply system performance and transportation effectiveness throughout the Department of Defense (DOD). It provides the first system-wide management tool for tying together supply and transportation responsibilities and performance supporting the total logistics and distribution cycle. A requirement for the MILSTEP management information system was identified in a number of related Office of the Assistant Secretary of Defense (Installations and Logistics) (OASD (I&L)) studies. The Military Standard Requisitioning and Issue Procedure (MILSTRIP) evaluation in March of 1963 recommended a system for evaluating supply performance by the Services and the Defense Supply Agency (DSA). The study on Progressive Refinement of Integrated Supply Management (PRISM), dated March 1965, acknowledged the potential of MILSTEP to produce performance measurement, workload analysis, and priority indices. The Uniform Materiel Movement and Issue Priority System (UMMIPS) evaluation in October 1965 recommended retention of established time standards and priority groupings until otherwise proved invalid by the impending MILSTEP data collection system.

b. The MILSTEP data system became effective by authority of Department of Defense Instruction 4000.23, dated 12 June 1967. The ASD (I&L) directs the development, implementation, and evaluation of MILSTEP. Monthly reports are furnished to the ASD (Comptroller), who, in turn, provides analyses to the Assistant Secretary of Defense (Installations and Logistics) (ASD (I&L)) and other essential elements of the Office of the Secretary of Defense. Administration of the system is performed by the Director, Defense Supply Agency. Each Service and DSA designates a focal point responsible for liaison, collection and processing of source data, and preparation of analyses for submission to OSAD (Comptroller). The Air Force operates the MILSTEP Central Data Collection Point (CDCP) which receives in-transit data from all DOD activities worldwide and prepares the data in machine format for use by the Services and the DSA in preparing MILSTEP reports.

c. The purpose of this review is to determine if the objectives of MILSTEP are being achieved and what overall effect MILSTEP data are having on supply management decisions. The organization and administrative structure supporting the system is examined to determine if information produced by MILSTEP is valid and suitable for management use. The current application of MILSTEP data and the potential and basis for extending the procedures to additional areas of supply and transportation management are also discussed.

2. SYSTEM REPORTING

a. The basic design of the MILSTEP system is intended to provide management information for analysis of supply performance and transportation effectiveness. To facilitate this and to establish a common basis for developing reports, the logistics cycle is divided into five segments. Uniform logistics performance measurement reports are designed to measure lapsed time required for processing transactions or shipments in each segment as well as the total cycle. Following are the five uniform MILSTEP reports with a brief description of measurements intended.

Report	Format	Measurement
Pipeline Performance Analysis	Format 1A	Requisition submission and supply source processing time (Inventory Control Point (ICP) and Depot)
Pipeline Performance Analysis	Format 1B	Requisition submission, supply source processing and in-transit time (Total Order and Ship Time)
Supply Availability and Workload Analysis	Format 2	Selected supply performance factors and workload indices, by issue priority group (IPG) for stocked and nonstocked items.
Response Rate Analysis	Format 3	Responsiveness of consignees and ports in returning in-transit data documents
In-transit Time Analysis	Format 4	Point-to-point carrier performance within the continental United States (CONUS) (shipper use only)

b. Requisition submission and supply source processing time (Format 1A) reflects the number of line items processed by lapsed days, by issue priority group for each major cycle segment, i.e., requisition submission time, ICP processing time, materiel release processing time, total supply source processing time, and transportation hold time. Its data base consists of all lines evidencing shipment of stocked items during the reporting period except the following:[55]

(1) Non-MILSTRIP

(2) On-base local issues

(3) Vendor shipments directly to customer.

The source of data for this report is the ICP requisition history files.

c. Total Pipeline Performance (Format 1B) measures total time from the date of the receipt of materiel, either by the CONUS consignee or the overseas Port of Debarkation/Aerial Port of Debarkation (POD/APOD). It is based upon the number of lines delivered (minus exclusions) during the reporting period. It reflects the number of days by priority group (PG) on stocked items for the following segments of the logistics pipeline, i.e., requisition submission, ICP processing, depot processing, transportation hold, and in-transit time. There are a number of exclusions from this report, in addition to those of Format 1A, Foreign Military Sales (FMS) shipments, shipments to fleet operating forces, parcel post (optional), and Required Delivery Dates/Required Availability Dates (RDDs/RADs).[56]

d. The Supply Availability and Workload Analysis Report (Format 2) reports selected supply performance factors and workload indices as measures of supply distribution system performance. The data base is composed of source documents on stocked and nonstocked items created under MILSTRIP. It provides for uniform criteria for computing and reporting

[55] DOD Instruction 4000.23, Military Supply and Transportation Evaluation Procedures (MILSTEP), 12 June 1967, Enclosure 1, p. 2.

[56] Ibid., p. 3.

performance on all MILSTRIP demands and other resultant transactions for items centrally managed, procured, and distributed by an ICP. On-base local issues are excluded from this report.[57]

e. The purpose of the Response Rate Report (Format 3) is to evaluate the responsiveness of consignees in completing and returning In-transit Data Cards (IDCs) received on eligible MILSTEP shipments measured in the Total Pipeline Performance Report (Format 1B). The overseas report measures the responsiveness of overseas PODs/APODs (not overseas consignees) or export shipments. The data base consists of the measured response on shipments included in Format 1B (total pipeline). Therefore, the exclusions for this report are the same as in Format 1B.[58]

f. The In-transit Time Analysis Report (Format 4) is used by shipping activity (depot) transportation officers. Its purpose is to provide data for evaluating carrier performance, mode, and carrier selection in support of shipment planning. This report reflects the number of shipments, the CONUS shipper, the elapsed number of days of in-transit time by shipment, for a particular carrier, by mode of transport to a consignee, as well as, average shipment times by mode of shipments. This report is not submitted to the OASD (Comptroller); therefore, its frequency is left to the discretion of the Service and agency.[59] In most cases, like the others, it is prepared monthly.

3. MANAGEMENT USES OF MILSTEP DATA

a. Although, initially, very little internal Service and agency uses were being made of MILSTEP reports, there are indications that they are now receiving wider acceptance and much greater use. Services and agencies are performing in-depth analysis to improve reports and are increasing their use where valid and reliable.

b. MILSTEP reports are presently being used by the Office of the Secretary of Defense (OSD) for measuring supply performance and as a basis for examining selected items in the logistics Performance Measurement System, a top management tool for focusing attention on persistent logistic problems. The OASD (Comptroller) intensively examines the Supply Availability and Workload Analysis Report and provides narrative analyses and performance trends to ASD (I&L), the Services, and DSA. MILSTEP pipeline performance reports are being used by OASD (I&L) to develop time standards for future UMMIPS revisions.[60]

c. Format 1A, which measures supply source processing time, is of prime interest to DSA. ICP and depot processing times are areas where DSA can directly influence performance. From Format 1A, DSA develops a supplemental report that focuses management attention on late shipments over which they have direct control. This report includes backorders as well as shipments meeting customers RDD but exceeding UMMIPS time standards. DSA considers Format 1A the answer to a search for a single management report to measure center and depot processing performance. Extracting requisition file data for preparation of MILSTEP Format 1A produces other valuable information used by staff elements of headquarters and various supply centers as potential problem indicators, (errors, exclusions and invalid data). Because DSA has elected to exclude parcel post reporting, Format 1B (total pipeline shipments) encompasses only 20 percent of total shipments processed.[61] Plans are to measure parcel post shipments on a sampling basis only. Format 3, pertaining to response rates, is being analyzed to develop more meaningful data. Follow-ups being made are resulting in only slight improvement.

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[57] Ibid., p. 4.
[58] Ibid., p. 9.
[59] DOD Instruction 4000.23-M, MILSTEP, June 1967, Chapter 3, p. 3-8.
[60] OASD (I&L) presentation, MILSTEP Conference, 4-5 December 1969
[61] DSA, Briefing, at DOD MILSTEP Conference, 4-5 December 1969, p. 2

d. The MILSTEP Supply Availability and Workload Analysis Report (Format 2) is patterned after a similar report DSA has used successfully for many years.[62] For internal management purposes and due to the nature of DSA's mission, certain add-on information is applied and the report further broken out by Service. The data reported in Format 2 are used extensively by all levels of management within and outside DSA to evaluate performance and workload trends. Certain key indicators are extracted for presentation to the Director, DSA, and staff, at the center and depot commanders quarterly conference, and to the Services annually. DSA workload and performance data are used by various elements of OSD, DSA, and the Services to study logistical problems and analyze workload trends. DSA performance data receive wide distribution through highlight summaries, management reports, and statistical tables to support DOD performance data.

e. Because the Army became operational in MILSTEP as late as July 1969, their experience in using MILSTEP data is limited. MILSTEP forms the basis of two major items in the Army's internal management system. First, the monthly AMC Statistical Handbook distributed worldwide, displays supply performance, demand trends, stock availability, and backorders. Trends in each are discussed and problems are highlighted. The other is the Quarterly Performance Review presented by the Army Materiel Command (AMC), DSA and GSA for the Army staff.[63] MILSTEP provides a common yardstick for measuring supply support of the Army. Army transportation managers are examining the timeliness and lack of comparability of Format 4 in-transit data with local records.[64] The frequency of the report is being extended and provisions being made for Government Bill of Lading/Transportation Control Number (GBL/TCN) cross reference.

f. The Navy has used MILSTEP data as a contributor to performance evaluation efforts for approximately 1 year. Significant efforts are directed at program development and improvement with the belief that a good job now will ensure meaningful and acceptable top management utilization. MILSTEP (Format 1B) is the basis for Navy's Mean Supply Response Time, (MSRT), the measure of how well the Navy supply system is performing.[65] A use of MILSTEP, Format 1A, peculiar to the Navy, is a measure of processing time at initial point of entry and separately by an alternate stock point. Format 1A facilitated comprehensive review and subsequent improvement of requisition processing times. MILSTEP data provided support for an approved change in supply source processing time standard for Navy tidewater stock points. With the numerous exclusions exercised by the Navy, the data base for Format 1B represents only 3.6 percent of all issues processed. That percentage, however, is an accurate and meaningful measure of the Navy's most difficult issues.[66]

g. The information subsystem of the Marine Corps Uniform Materiel Management Systems (MUMMS) was replaced by implementation of MILSTEP, which also provided pipeline performance reporting—something never before attempted by the Marine Corps.[67] The Supply Availability and Workload Analysis (Format 2), and the Pipeline Performance Analysis (Format 1A) are considered to reflect reliable data and are useful for their intended purposes. Response Rate Analysis (Format 3) is reliable but reflects a marginal data base and unsatisfactory response rates. The Pipeline Performance Analysis (Format 1B) is unreliable for its intended purpose due to its present limited and erratic data base. Its potential is unquestioned and will receive extensive use as the data base broadens. The In-transit Time Analysis (Format 4) is only partially reliable but receives wide use by transportation officers for carrier selection. Changes are planned to facilitate cross referencing of data. Under the Services option of determining frequency, the Marine Corps produces this report quarterly using a 6-month data base.

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[62] Ibid., p. 9.

[63] Army Briefing, at DOD MILSTEP Conference, 4-5 December 1969, p. 4.

[64] Ibid., p. 2

[65] Navy, Briefing, at DOD MILSTEP Conference, 4-5 December 1969, p. 2.

[66] Ibid., p. 7.

[67] Marine Corps Briefing, at DOD MILSTEP Conference, 4-5 December 1969, p. 3.

h. From MILSTEP Supply Availability and Workload Analysis Report (Format 2), the Marine Corps produces a separate supply availability report that codes combat-essential items subject to special inventory rules to obtain optimum assurance of high availability. These data are used at the ICP to isolate and correct problems and determine effectiveness. It is useful to the comptroller in financial management. Format 2 data are useful in evaluating depot performance, measuring inventory record accuracy, controlling walk-through issues, determining completeness of in-transit data, and preparation of report narratives.

i. Formats 1A and 1B are used to determine performance in accordance with UMMIPS philosophy and highlights both good and unsatisfactory performance. Trend data are added for comparative analysis with current monthly reports. From MILSTEP data a Command Transaction Summary is created to provide visibility to the reject/error problem. The Marine Corps Program Progress Report used by the Commandant Marine Corps (CMC), Hq., Staff, MC, General Officers, and various staffs worldwide, always includes supply system performance charts reflecting MILSTEP data. The Quartermaster General of the Marine Corps (QMG) frequently uses performance data reflected in MILSTEP as a basis for decisions in the management of the supply system. MILSTEP data are also applied to the requirements of Assistant Secretary of the Navy (ASN)/ASD (I&L)).

j. The portion of MILSTEP designed to measure shipment in-transit times was patterned after a similar reporting system used by the U.S. Air Force (USAF) since April 1964.[68] Implementation of MILSTEP (1 January 1968) applied only to MILSTRIP transactions; however, to avoid major system change, the Air Force chose to continue reporting all shipments. Therefore, the data base for Air Force reports is much greater than those of other Services and agencies, which only conform to MILSTEP reporting requirements. From this data base, the Air Force prepared two in-transit reports, the required MILSTEP report and an Air Force J-75 response rate report. The MILSTEP report measures only to the APOD and covered Air Force shipments to all Services. The J-75 monthly response rate report includes only intra-Air Force shipments and is measured to the ultimate consignee. Both reports are used by USAF and Air Force Logistics Command (AFLC) for an overview of hold and in-transit times. The S-366 Materiel Pipeline Time Report is another sample of management reports produced from the MILSTEP data bank. These reports give detailed information on shipments from various ICPs to all Air Force bases, all major commands, and overseas theaters, by priority and mode of transport. In addition, summary reports reflecting the same general matter are produced, and both are distributed to all organizational elements involved. The Air Force measures shipments by the Military Airlift Command (MAC) and logistic airlift (LOGAIR) to define the effectiveness of the airlift system and air terminal operations. Because of the criticality of repairable materiel, retrograde shipments from overseas are also measured. USAF consignors worldwide are provided reports reflecting on-time shipments and details on those exceeding in-transit standards for both commercial and military modes of transportation. Using the option of the Services, Air Force has extended Format 4 from 1 to 3 months for a better data base in evaluating carrier performance.

4. CHANGE AND IMPROVEMENT

a. Coordination and publication of changes is a responsibility of the DSA system administrator. The system administrator may approve proposed changes with total (Service/DSA) coordination concurrence, or disapprove proposals receiving majority nonconcurrence, but where a minority does not concur the resolution is referred to OSD (I&L).

b. The majority of changes to MILSTEP are administrative in nature, involving clarification of definitions and instructions; however, some changes are significant and worthy of mention because they portray the status of MILSTEP implementation. For example, it was originally intended that Format 3, Response Rate Analysis Report, be furnished by each participating Service and agency for only the first year. However, present response rates are far below the DOD goal of 75 percent, thus OSD (I&L) has directed the report be continued.[69]

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[68] Hq., USAF, Briefing, at DOD MILSTEP Conference, 4-5 December 1969, p. 1.
[69] OASD (I&L) presentation at DOD MILSTEP Conference, 4-5 December 1969.

Further, it is directed that Military Traffic Management and Terminal Service (MTMTS) monitor ports for export shipments and the Control Data Collection Center monitor delinquent APODs as a means of improving in-transit data reporting. OASD (I&L) has requested that DSA develop and coordinate a proposal to prepare MILSTEP Format 1A (Supply Source Performance) and Format 2 (Supply Availability and Workload Analysis) for supply support arrangement (SSA) transactions. The purpose is to determine supply performance for foreign military sales (FMS) and other SSAs in the same manner as for troop support, less in-transit measurement.

c. Clarification was necessary regarding exclusions to ensure that all shipments entering the Defense Transportation System are included in MILSTEP reporting and all shipments involving local delivery are excluded. Requisitions previously excluded from MILSTEP reports due to postdating will be included and submission time for these transactions computed as zero.

d. System Improvement

(1) Inasmuch as the system does not facilitate identification of constantly delinquent consignees with respect to response rates, DSA performs special studies and reports major delinquents to respective Services.[70] DSA is taking steps to prepare Format 1A reports showing requisition submission times to DSA supply source, separately for Service action. Plans are being made for including parcel post shipments.in DSA reporting. Due to the large volume of parcel post transactions a sampling method is preferred. DSA is expanding Format 4 (in-transit time analysis) to include a 12- month average in-transit time by consignee which expands the data base and includes trend information.

(2) The Army is concentrating on implementing MILSTEP and is still involved in resolution of minor problems. Reprogramming is under way to identify the volume of RDD/RADS and backorder releases, and the effect of containerization on Format 1B (total pipeline). Procedures for measuring parcel post shipments are being refined.

(3) For internal use initially, the Navy plans to include direct issues from tidewater stock points (28 percent) only in Format 1A (supply source segment). The Navy is also studying the feasibility of measuring parcel post by sampling. Action is underway to report on issues to Fleet Operating Forces, which will add 20 percent to the data base of Format 1B (total pipeline).

(4) The Marine Corps is developing the use of GBL/TCN as a ready cross reference for transportation officers use of the In-transit Time Analysis Report, Format 4. Immediate plans call for improving the validity and data base for reports, improving performance, and devising techniques enabling evaluation of the great amount of data now produced. They are considering replacing the present performance reporting system for bases and deployable units, with a supply available and workload analysis report.

(5) The Air Force has no immediate plans for expanding present reporting, but acknowledges that certain on-going actions will tend to open new avenues for MILSTEP application. The Air Force is near completion of a Materiel Intransit Control System involving movement and documentation of DOD assets while in the air transportation segments. A special aircraft engine reporting system is contemplated that will utilize MILSTEP in-transit data and engine accounting data.

[70] DSA, Briefing, at DOD MILSTEP Conference, 4-5 December 1969, p. 8.

5. FUTURE OF MILSTEP

a. MILSTEP is proving to be a valuable tool for measuring supply performance and transportation effectiveness. It is receiving frequent top management use and provides the basis for policy decisions regarding allocation of resources and system effectiveness determinations. The basic foundation of MILSTEP is considered reasonably stable and most implementation problems are resolved. Plans are being made for future expansion and new applications for the vast amount of information in the data base. This expansion has been titled "Phase II of MILSTEP."

b. The area most eligible for immediate expansion is parcel post transactions both within CONUS and to overseas requisitioners. The Army is currently measuring all parcel post shipments, and the Air Force has extensive experience in measuring high-priority parcel post shipments. The operational experience of these Services will provide an excellent base for expanded reporting to include parcel post. There is unanimous interest in this area and preliminary plans are being made for full implementation.

c. A potential exists for extending in-transit reporting to retrograde shipments as is currently being performed by the Air Force. This concept would complement intensive management efforts for high-value and/or critical items such as those in the Army Closed Loop program.

d. MILSTEP facilitates measuring in-transit performance from the supply source (depot) through successive transportation phases to the ultimate destination (consignee). At present, measurement of the in-transit segment stops at PODs/APODs, but it soon will be extended to include the final segment.[71]

e. In-transit time on direct vendor shipments can be measured by MILSTEP. The total cycle of ICP processing, procurement processing, contractor performance, and transportation performance is within the current capability of MILSTEP.

f. Information contained in the Supply Availability and Workload Analysis Report (Format 2) will facilitate evaluation of additional supply performance elements. Examples are inventory control, receipt processing, denials, location accuracy, and adjustments.

g. A potential exists for establishing MILSTEP reporting at overseas shipping activities and direct reporting to the CONUS CDCP, or develop subsystems overseas interfaced with the CONUS system. U.S. Army, Europe (USAREUR) Supply and Transportation Evaluation Procedure (EURSTEP) is currently in operation for the Army in Europe.

6. EVALUATION

a. The concept and design of MILSTEP is basically sound. It provides logistics management with a capability of measure performance from initiation of a requisition to receipt of materiel by the requisitioner. Further, it individually measures performance of major segments of the logistics pipeline, the performance relationship of one segment to another, and of each segment to the total measurement. The system has clearly shown the need for revising UMMIPS time standards and has provided performance statistics necessary to develop many additional logistics performance standards, e.g., requisition submission time, ICP processing, storage processing, and each phase of transportation cargo handling and movement.

b. MILSTEP reports, in general, are producing valid and reliable data for management use. Format 1A (Requisition Submission and Supply Source Processing) consists of all lines evidencing shipment on ICP requisition history files. Allowing exclusions, this report provides a much larger data base than other reports, and the data, as well as segment time computations,

[71] DOD Report, Military Standard Data Systems Surveillance (MILSTEP), November 1969, p. 37.

are handled uniformly by all Services and DSA. Because Format 1A has more inclusive data, its use in evaluating supply source performance is preferred over Format 1B, which measures many of the same pipeline segments on a much smaller sample. The numerous exclusions of Format 1B cause reporting problems due to the low volume of applicable transactions.

c. Requisition submission time is a major consumer of order and ship time. UMMIPS provides no submission time standard, however MILSTEP reports reveal that total order and ship time standards are often exceeded before requisitions are received at CONUS supply sources.[72,73] Excessive submission times greatly reduce the possibility of meeting UMMIPS shipping time standards and, unless corrected, will cause inflated levels of support. Excessive submission times are attributed to holding requisitions after dating passing through successive echelons, and/or passing requisitions between distributed systems.

d. Format 2, Supply Availability and Workload Analysis, generally reflects the accuracy of the ICP requisition history file. Discrepancies in this report usually result from misinterpretation of definition. On the whole, Format 2 reports are valid and produce reliable management information.

e. The validity and usefulness of the Pipeline Performance Analysis (Format 1B - total pipeline) reports are directly related to the adequacy of in-transit reporting by field activities. Only those shipments for which valid in-transit data is received are used to form the basis of the Format 1B report. The allowable exclusions reduce the pipeline report data base in many cases to unmeaningful low volumes. The parcel post exclusion initially reduces the volume of the 1B report by an estimated 70-80 percent.[74] Current non-response rates from consignees reduce the remaining volume further by approximately 25-40 percent. Acknowledging these shortcomings, the Services and DSA are making extraordinary efforts to broaden the data base of Format 1B.

f. The In-transit Time Analysis Report (Format 4) is to provide data for evaluating carrier performance (CONUS) as well as mode and carrier selection for support of shipment of shipment planning. The small data base of these monthly reports does not enable shipping activities to determine performance trends. Exercising their Service options, the frequency of these reports is being extended to provide a broader data base and the formats are being revised to accommodate trend data. This will allow transportation officers to focus attention on exceptional (good and bad) performers. Information can be accumulated on unsatisfactory carrier performance and furnished to MTMTS for remedial action.

g. MILSTEP was not fully implemented by all Services in accordance with the DOD implementation plan. Although Service implementation began at the same time, the system has developed at widely varying rates. The MILSTEP Format 2 was patterned after a similar system DSA has used for several years. Also, the framework of MILSTEP in-transit measurement was taken from Air Force experience in that area. The DSA and the Air Force had fewer problems implementing MILSTEP and have reliable systems in operation. The other Services are in the final process of correcting system problems and refining reporting procedures. These are minor in-house problems caused by the varying complexity of Service concepts. Major changes and/or expansion will require careful coordination and planning to ensure uniform implementation.

h. MILSTEP reports are receiving wider acceptance and greater use. The Services and the DSA are performing in-depth analyses of reports to support supply management decisions and distribution studies. Special attention is being directed at improving the data base of those producing questionable data. MILSTEP data are presently being used by OSD for measuring

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[72] Ibid., p. 16.

[73] Some reports reveal as many as 50% of high priority requisitions require in excess of 6 days to reach CONUS supply sources.

[74] Ibid., p. 19.

selected items in the Logistic Performance Measurement System.[74] The OASD (Comptroller) makes extensive analysis of monthly reports and provides narrative analyses and performance trends to OASD (I&L) to develop time standards for future UMMIPS revision.[75] As reports are further refined, more reliable data will be available to validate not only current standards, but many additional standards for both supply and transportation elements.

i. The General Services Administration (GSA) has agreed to participate in the MILSTEP. Thusfar, however, only Format 1A and 1B reports are being forwarded to OASD (Comptroller) each month (not used in analyses). These reports reflect pipeline performance for requisition submission and supply source processing in Format 1A, and the total pipeline in Format 1B. GSA, like the DSA, is generally restricted to operations within the CONUS and must rely on MTMTS furnished transportation. As there are few areas in the total pipeline over which GSA and DSA can exert influence, it is appropriate that these agencies focus attention on ICP and depot processing segments.

j. Pipeline Performance Analysis (Format 1B) Report is designed to measure in-transit time for shipments from the supply source (depot) to actual receipt of materiel by the consignee. This segment contains additional in-transit information that could be valuable for transportation management. MILSTEP is capable of further subdividing in-transit time to reflect CONUS in-transit, surface, and aerial ports of embarkation hold time, overseas in-transit time, surface and aerial ports of debarkation hold time, and overseas in-transit time.[76] These data would serve to evaluate facilities and carriers, both Government and commercially operated.

k. MTMTS is the agency responsible for selection of mode and carrier for shipments of Defense materiel within CONUS.[77] They could benefit from MILSTEP Format 4, In-transit Time Analysis reports, which measure point-to-point carrier performance. Tape records from Service and agency central processing points could be used by MTMTS in evaluating routing, carrier and mode selection, and provide the basis for suspension actions or requiring carriers to improve performance. Sufficient in-transit data are available so that in-transit summary reports can be furnished to the Defense Transportation Single Managers (MTMTS, Military Sea Transportation Service (MSTS), MAC) at regular intervals.

l. MILSTEP possess excellent potential for application to new areas. Using the Army's and the Air Force's experience in measuring in-transit times for parcel post, extension of MILSTEP to parcel post system wide is possible without adverse impact on Service reporting procedures. Future expansion, however, should be based upon clearly defined management needs. Preimplementation plans must ensure that all participating activities receive sufficient detailed instruction to accomplish a uniform, controlled, and orderly phase-in of additional reporting requirements.

7. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) The system design for MILSTEP is basically sound and provides a uniform basis for analysis of supply and transportation performance by all levels of management. It has achieved its other objectives of measuring UMMIPS time standards and analyzing customer application of UMMIPS priorities (paragraphs 1a, 3a, 5a, and 6).

(2) Reports from all the Services and DSA measuring requisition submission and supply source (ICP and depot) processing times and ICP fill workload, are reliable (paragraphs 3c, and 3h).

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[74] Ibid., p. 37.
[75] Ibid., p. 28.
[76] Ibid., p. 17.
[77] Ibid., p. 29.

(3) Pipeline in-transit performance reports from the DSA and the Air Force are reliable. These reports from other Services are presently unreliable due to poor intransit data reporting and high error rates. Response rates currently used to validate pipeline performance range from 70-75 percent for CONUS and 45-55 percent for overseas areas (paragraphs 3j, 5c, and 5d).

(4) The recent addition of trend data to the shipping activity (depot) point-to-point carrier performance report provides a potential for using single reports to focus attention on good and poor performers (paragraphs 2c, and 2f).

(5) Full participation in MILSTEP by all Services occurred long after scheduled implementation and time required to resolve problems had been excessive. These difficulties indicate that preimplementation plans were not in sufficient detail and/or within the Services' capability to implement in an orderly fashion. Thus, long delays have been experienced in developing valid MILSTEP data (paragraphs 3e and 4).

(6) The MILSTEP system is producing useful management reports that are gaining wider acceptance and receiving increased use as the system improves and reports become more reliable. Data receives in-depth analysis for internal Service and DSA use to improve performance and is used extensively by OASD (I&L) for system surveillance and as a basis for selected items in the Logistics Performance Measurement System (paragraphs 3b, 3f, 3g, 5a, and 6).

(7) The General Services Administration is not participating fully nor is OASD (I&L) using GSA reports in overall analyses. Use of these reports would benefit comparative analysis of supply performance and broaden the in-transit data base for determining transportation effectiveness and trends (paragraph 6i).

(8) There are no formal provisions whereby MILSTEP in-transit data is routinely furnished the Defense Transportation Managers (MTMTS, MAC, and MSTS). A comparison of MILSTEP in-transit reports and MTMTS receipt and lift tapes will reveal CONUS intransit, POE/POD processing, POE/POD hold, and surface in-transit times. Similar information is available for MAC terminal and in-transit performance (paragraphs 6f and 6k).

(9) MILSTEP possesses excellent potential for more definitive measurements of the logistics cycle, as well as application of subsystems for use overseas. The system can develop time standards for each supply and transportation element involved in document processing and handling or movement of Defense materiel (paragraphs 5, 6c, and 6l).

(10) A very basic shortcoming is the frequency and detail of MILSTEP reporting. In that regard, OSD is reducing the level of detailed pipeline reporting, and extending the frequency to quarterly summaries. Further, as the data base for in-transit reports broadens and response rates reach acceptable levels, sampling techniques will replace 100 percent reporting (paragraphs 2, 3, and 6f).

b. Recommendations. The Board recommends that:

(SM-3) The Office of the Secretary of Defense secure early and full participation by the General Services Administration in the MILSTEP information system to allow analysis of performance data of all suppliers supporting Department of Defense requirements (conclusion (7)).

(SM-4) The Office of the Secretary of Defense make provisions in DOD Instruction 4000.23 (MILSTEP), whereby the Military Sea Transportation Service, the Military Traffic Management and Terminal Service, and the Military Airlift Command are furnished MILSTEP in-transit summary reports for analysis and use in evaluating transportation performance and trends (conclusion (1), (3), (4), (8), and (9)).

SECTION D

UNIFORM MATERIEL MOVEMENT AND ISSUE PRIORITY SYSTEM

1. INTRODUCTION AND BACKGROUND. In the requisitioning, issue, and movement of materiel it is necessary that competing demands be identified according to relative importance in order to ensure the most effective management of resources. The Uniform Materiel Movement and Issue Priority System (UMMIPS) is the vehicle to be used in both peacetime and wartime for the requisitioning and issue of materiel from the Department of Defense (DOD) and General Services Administration (GSA) distribution systems and in the movement in the Defense Transportation System. It sets forth maximum uniform requisition processing and materiel movement standards; provides a basis for managing the movement of materiel throughout the DOD distribution system; and prescribes for processing of materiel issue requirements in accordance with the mission of the requiring activity, the urgency of need, and the specific materiel management considerations.

a. The UMMIPS was designed in 1961 as part of the Defense Materiel Management Project 60-11 concurrent with design of the Military Standard Requisitioning and Issue Procedure (MILSTRIP). It was published as DOD Instruction 4410.6 under the date of 23 January 1962 with an effective date of 1 July 1962, concurrent with MILSTRIP implementation. The original instruction has been revised and republished, initially under the date of 20 August 1964 and again on 24 August 1966. Each of the Services designs, publishes, and broadcasts operational instructions and detail, including those pertaining to priorities, which are tailored to accommodate their respective requisitioning and distribution systems. Similarly, the Defense Supply Agency (DSA) and the General Services Administration publish internal operational instructions appropriate to their distribution system responsibilities. The UMMIPS is applicable to all military requisitioners requesting materiel from DOD and GSA distribution systems; to military assistance recipients; and, when authorized by Service instructions to defense contractors, for requisitioning materiel from the DOD distribution system and for contractor preparation of Government Bills of Lading. Additionally, it is applicable to materiel redistributed within the Services and materiel returned to DOD depots, stock points, and repair activities.

(1) The priority designator is an essential data element in a requisition, issue, and release/receipt document. Its entry triggers a series of events that impact upon many processing elements from the time the document is created until the materiel involved is delivered to and recorded by the ultimate consignee.

(2) Although the requisition or issue document is the normal means of obtaining materiel from a wholesale distribution system, complementing "push" systems, based upon asset visibility and/or transaction reporting methods, also exist. Additionally, and especially during the Vietnam era, "push packages" created by project and program managers were assembled for movement, with timing and destination a Service or command decision. In each of these types of transactions a priority designator played an essential role in fulfillment and delivery of the required materiel.

b. There have been numerous critical analyses conducted on the UMMIPS, both cursory and in depth, since implementation in its orignal form. Audit agencies, ad hoc groups, and the Analysis Staff of the Defense Supply Agency, acting for the Assistant Secretary of Defense (Installations and Logistics) (ASD (I&L)) have examined and recommended on this subject. The latter, a major re-examination and study entitled An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, published in August 1968, consisting of 274 pages, examines in detail each facet of the prescribed system; evaluates its application by the Services/ DSA/GSA and the Defense Transportation System; makes 27 major change recommendations directly and indirectly associated with it; and furnishes a proposed redesigned version of the instruction.

(1) These recommendations and the proposed revision of DOD Instruction 4410.6 were staffed by the Joint Chiefs of Staff (JCS), the Offices of the Assistant Secretaries of Defense (OASD), Departments of the Army, Navy and Air Force, and DSA and GSA. Marine Corps comments were included with those of the Department of the Navy. Of the 27 major recommendations, unanimity was attained in only three instances. Responses overwhelmingly leaned toward maintaining the status quo rather than reconfiguring the UMMIPS and related systems.

(2) In accordance with the Joint Logistics Review Board's Terms of Reference this subject, having recently been provided adequate coverage, is not again studied in depth. The explanations, matrices, and statistics are provided to facilitate general understanding and yet are deliberately brief in order to preclude redundancy.

c. The following is a functional portrayal of the UMMIPS, as prescribed by DOD Instruction 4410.6, and as implemented by the Services, with explanatory minutiae and operational detail deliberately omitted. Included are events that transpired during the 1965-1969 time period that affected the requisitioning and processing of requisitions and the handling and transporting of materiel resulting therefrom, many of which related directly to issue and transportation priorities and their resultant influences.

(1) Included with or following each of the explanations as to how the system was intended to function, are salient comments, criticisms, and impact statements relating especially to this time period.

(2) This section also touches upon the Armed Services Procurement Regulations (ASPR) as well as MILSTRIP, the Military Supply and Transportation Management Procedure (MILSTAMP), and the Military Supply and Transportation Evaluation Procedure (MILSTEP) without explanatory detail.

2. HOW PRIORITY DESIGNATORS ARE DETERMINED

a. In the requisitioning and issue of materiel, the priority designator (PD) is based upon a combination of factors that relate to the mission of the requisitioner (force/activity designator (F/AD)) and the urgency of need or end use (as indicated by a urgency of need designator (UND). The F/AD is assigned by the Joint Chiefs of Staff or by each Service as prescribed in the governing instruction (DODI 4410.6). The UND is determined by the requisitioning activity using criteria prescribed in the same instruction and promulgated by Service regulations and instruction. With certain exceptions (high-value immediate needs; high-value replenishments; medical or disaster supplies), which are explained in Service regulations, these two factors enable requisitioning activities to determine the appropriate PD from the following tabulation:

Force/Activity Designator	Urgency of Need Designator A	B	C	D	
I	01	04	11	16	Priority Designator
II	02	05	12	17	
III	03	06	13	18	
IV	07	09	14	19	
V	08	10	15	20	

b. Each activity with a F/AD has a choice of four PDs available, depending upon the urgency of a specific requirement. Additionally, supply activities, when requisitioning specific requirements for supported activities with different F/ADs, will use the PDs appropriate to the requiring activities.

3. <u>PRIORITY AND TRANSPORTATION GROUPS, AND DELIVERY STANDARDS</u>. The 20 PDs have been placed into four issue and transportation groups. These groups specified by the UMMIPS are compatible with the transportation groups prescribed in MILSTAMP. Each group qualifies for different processing time standards as follows:

Transportation Priority and Priority Group	Priority Designator	Processing Time Standards, Date of Requisition to Receipt of Materiel (Days)	
		CONUS & Canada	Overseas
One	01 through 03	5	7
Two	04 through 08	8	15
Three	09 through 15	20	45
Four	16 through 20	30	60

* Temporarily changed to 30 days (JCS Msg. 6945, July 1965) and still in effect through 1969

** Providing timely surface transportation is available. In remote overseas areas allowances must be made in order and shipping times (OST).

4. <u>SUPPLY SOURCE PROCESSING</u>

a. As a part of overall processing standards (preceding paragraph 3), supply source processing standards are prescribed as follows. These are from time of receipt of requisitions at the initial supply source to the time available to the consignor transportation officer:

Priority Group	Priority Designators	To Trans. Officer (Days)
One	01 through 03	1
Two	04 through 08	3
Three	09 through 15	10
Four	16 through 20	12

*May be exceeded to permit shipment consolidation if delivery to consignee can be made within Required Delivery Date or Priority Delivery Date.

b. Processing on a 7-day work week, 24-hour work day is prescribed for requisitions in priority groups one and two, and on a normal work week and regular shift work hour basis for those in groups three and four.

c. Applicable status information is also related to priority designators. Dispatch within maximums of 24-hours for PDs 01 through 08 and 2 working days for PDs 09 through 20 are prescribed.

5. ASSIGNMENT AND APPLICATION OF F/ADs

a. A 1965 study revealed that ". . . the present UMMIPS expression of F/AD criteria in certain general terms, such as positioned, ready for combat, and ready to deploy, results in inconsistent interpretations by the Services and overloding of the F/AD II and III categories. There is a clustering of forces particularly in the F/AD II category. . . As a result of this very broad criteria, it has been noted that the assignment of F/ADs by the Services lack uniformity both as to type of force and among forces of the same type. For example, the Army permits F/AD II for only forces deployed in certain areas of the world such as Asia and Europe, and for certain CONUS rapid response units in Readiness Category C-1. The Navy and Marine Corps have permitted F/AD II for only positioned units; their interpretation of positioned is deployment outside CONUS. The Air Force considers all combat units, regardless of locations, as extensions of in-place theater forces or contingency "hot spots" and places them all in a F/AD II."[78]

b. This same study illustrated F/AD assignments by Navy and Marine Corps for support of the F/RF-4 (Phantom) aircraft supported by the Air Force and used by all three Services. Although the Navy and Marine Corps had assigned F/AD II for deployed tactical use, they used F/AD III for those operationally ready in CONUS, for crew training, and for forming, and F/AD IV for Research, Development, Technology and Engineering (RDT&E). During this period the Air Force used F/AD II for all of these situations. "To receive equitable treatment, in the competition for critical assets, the Navy on 19 September 1965 granted its fleet commanders authority to upgrade F/AD assignments for ready forces and units from F/AD III to F/AD II regardless of position."[79]

c. The UMMIPS evaluation conducted in 1968 by the Analysis Staff of the Defense Supply Agency at the specific behest of the ASD (I&L) examined F/AD assignments, distributions, and review with the following results.

(1) Assignment authority in the Army, Navy, and Marine Corps is delegated to major commanders, each of whom controls and adjusts within his command in accordance with his interpretation of the assignment criteria. The major commander, in effect, determines and establishes his own F/AD distribution. In the Air Force, assignments are centralized at headquarters and are directive in nature, with the desires of major commanders being limited to recommendations and reclama.

(2) The definitions and statements in the DOD Instruction and Service implementing directives relating to F/AD assignments are vague and subject to misinterpretation.

(3) Decentralization of assignments can be effective if monitored and reviewed-the major advantage being that of nearness to the situation and the significant disadvantage being a lack of awareness of the service-wide picture. In this respect only the Air Force, because of centralized assignments, had knowledge of approximate F/AD distributions. The other Services do not ascertain distribution on a world-wide basis.

(4) Present practices result in incompatible assignments both within and between the Services, with examples noted where a major commander in the same theater assigned F/AD III to his activities. Additionally, one major commander assigned different F/ADs to different activities with the same mission.

(5) Some activities were not using correct F/ADs. An 8-percent error rate was revealed by an audit of one Service in which 400 out of 5,000 units were erroneously using F/ADs other than officially assigned.

[78] OASD (I&L) Performance Evaluation Report, UMMIPS, October 1965, p. 11

[79] Ibid. pp. 12 and 13.

(6) The importance of F/ADs to the entire priority structure is evident. Constantly changing tactical and strategic situations require updating of assignments, without which they may not serve their intended purposes and may create priorities not consistent with Defense needs. There are no formalized methods for reviewing them on a periodic basis in any of the Services and is a lack of supraservice review at either the Joint Chiefs of Staff or Office of the Secretary of Defense (OSD) level. To function as a defense-wide system, F/AD review and control must maintain cornizance of joint operational plans and operational priorities. Unilateral assignment without some degree of review and control cannot be expected to provide such objectivity.[80]

6. DETERMINATION AND USE OF URGENCY OF NEED DESIGNATORS

a. UND usage was examined in the DSA Analysis Staff's evaluation of the UMMIPS Their findings and comments are summarized in the following.

(1) UND assignment decisions, probably more than any other single factor, influence the effectiveness of the entire logistics priority system. These decisions can cause accurate or false representations of priority; create uniform or nonstandard approaches to priority usage between Services; and restrain or proliferate the number of high priority requisitions.

(2) The entire priority system is influenced by the reliance placed upon, and reactions to, UNDs which are often selected at low user level echelons. These decisions are made when unit commanders (or designated representatives), based upon organizational interpretation of indistinct definitons, select priority designators derived from one of four possible UNDs.

(3) Service promulgation of DODI 4410.6 in respect to UNDs, is characterized by general repetition, with some varying amplifications of definitions and a few scattered but significant specific rules for application. The definitions in the instruction, however, are broad in concept. The language employed is, in serval cases, nonspecific, and the concept employed offers widest possible latitude of selection at low organizational levels. These conditions are manifested in the form of almost unlimited varieties of interpretations of the definitions.

(4) An examination of Service implementation policies revealed significant differences among Services; among major commands within Services; and among subordinate activities within major commands. The bias was usually towards escalation, although not alway always so. Major commands within two Services directed use of UND B for stock replenishment purposes in contradiction to the DOD Instruction which prescribes use of UND D for this purpose. One Services prescribes a series of codes to be placed on issue requests which, when materiel is not available, facilitates uniform translation and conversion to UNDs (and thus to priority designators) for entry in requisitions.[81]

b. An examination into the assignment and use of UNDs at requisitioner level revealed that:

(1) Supply personnel at unit and field level were found to be generally aware of the UND criteria but the intent was frequently circumvented by local interpretation. Examples are equating Service oriented conditions of equipment such as not operationally ready - supply (NORS), anticipated not operationally ready - supply (ANORS), ships components inoperative for parts (SCIP), and equipment deadlined for parts to the high UNDs with little or no attempt being made to determine whether missions could not be performed or were otherwise impaired.

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[80] DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, pp. 20 - 25.

[81] Ibid., pp. 28 - 55.

(2) The arbitrary use of PDs 05 and 06 (UND B) for routine stock replenishments was observed with unacceptable system response being cited as a major reason. Extensive examples were noted wherein using units commonly felt and demonstrated that the only way to obtain adequate support from the supply system was to escalate UNDs.

(3) One activity provided details to show that their demand satisfaction for replenishment requisitions was an unsatisfactory 31 percent using the prescribed priority and was elevated to a more satisfactory 82 percent using PD 05 (UND B). Another, recognizing that the major inventory control point servicing it was backordering everything below priority group one (PDs 01 through 03) resorted to use of PD 02 to obtain most of its needed supplies. An overhaul facility with an assigned F/AD IV (PDs 07, 09, 14 & 19) could not obtain required parts in a timely manner using either priority groups three (PD 14) or four (PD 19) and, for the past 2 years has used groups one (PD 07) and two (PD 09) exclusively. Their experience shows that 30 days after submission of these high priority requisitions, 70 percent of the materiel is received.[82]

7. OVERSTATING OF PRIORITY DESIGNATORS

a. A coordinated audit was made by the Deputy Comptroller for Internal Audit (DCIA) and the internal audit organizations of the Army, Navy, Air Force, and the Defense Supply Agency during the period March 1968 to January 1969. Their individual reports were summarized by Service. The overall summary is as follows:

> "Issue priority designators were generally overstated on high priority requisitions submitted to the supply centers of the Defense Supply Agency and the General Services Administration. As a result, unnecessary processing and transportation costs were being incurred. Since these abuses in the assignment of priorities were so widespread, it is difficult for the system to regulate the requisitioning and issue of materiel from the Defense and GSA distribution systems and to provide appropriate priority precedence for the movement of urgently need materiel. Although the prescribed UMMIPS procedures are basically,sound, we found that urgency-of-need designators were not applied effectively at the locations visited. Personnel preparing requisitions did not fully understand the UMMIPS procedures. In many cases, they intentionally overstated priority codes in order to assure prompt receipt of requested supplies. Additionally, installation supply offices were not effectively reviewing or monitoring priorities on the requisitions."

(1) The summary report concludes with the statement "The Army, Navy, and Air Force audit organizations furnished the findings to personnel of the Service headquarters, who generally agreed with the findings . . ."[83]

b. The DOD, in their year-end report of the Logistics Performance Measurement and Evaluation System for 1969, refer to a DOD-wide audit conducted on the validity of high-priority requisitons that impact directly on inventory control points (ICPs) capabilities to process requisitions on time. Their finding revealed that more than 50 percent of the requisitions from 19 installations contained overstated priorities; that overstated priorities were related to improper determination of urgencies of need and incorrect assignment of force activity designators; that personnel did not fully understand the UMMIPS procedures; and that priorities were intentionally overstated in order to ensure prompt receipt of materiel. This report further states that: "Preliminary information on a General Accounting Office audit of PACOM activities revealed similar abuses of UMMIPS which are critically impacting on logistic effectiveness."[84]

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[82] Ibid., pp 56-57.

[83] OASD (DCIA), Summary Report on the DOD-Wide Audit of High Priority Requisitions under the Uniform Materiel Movement and Issue Priority System. May 23, 1969, p. 5.

[84] DOD, OASD (I&L), Logistics Performance Measurement and Evaluation System, Year-End Report, F.Y. 1969, pp. 33 & 34.

c. There are additional substantiating instances adding credence to the often shared opinion that many requisitioners assign high priorities to requisitions for competitive purposes rather than priorities relating to actual need dates. For example, DSA explains seven transactions totaling 1410 tons which fell within priority group two, with its implied 30-day priority deliver date (PDD), but in which were entered required delivery dates that were even greater than the PDD time frame of priority group four (replenishment requisitions).[85]

d. The Assistant Secretary of Defense's (Installations and Logistics) directed evaluation of the UMMIPS, which was performed by the Analysis Staff of the Defense Supply Agency during 1968, is critical of the system's operation in many specific areas, as well as in the following generalities:[86]

(1) Field research and examination of shipment challenge actions (which may result in downgrading from air to surface transportation) indicates that in numerous instances high-priority designators are assigned in order to effect timely supply decisions. Once supplies are released from stock, requisitioners are often willing to accept slower and less costly modes of transportation.

(2) The proliferation of high-priority requisitions has negated the original intent of the UMMIPS and has degraded the effectiveness of PDs 01 through 08 as a means of identifying true urgencies of need which, in turn, has contributed to a lack of confidence in supply system responsiveness.

(3) The level of confidence relevant to a priority system relates to beliefs regarding the system's ability to produce promised results; it relates to expectations regarding the consequences of system abuses; and it relates to opinions regarding what competitors are doing to obtain the materiel sought.

e. The Assistant Secretary of Defense (I&L), as recently as 7 October 1969, has informed the Secretaries of the Army, Navy, Air Force, and the Director, Defense Supply Agency, that: "Departmental and General Accounting Office audits have revealed that the UMMIPS Issue Priority Designator is improperly assigned more often than not, and in many cases, is deliberately overstated when the materiel requisition is prepared."[87]

f. The General Accounting Office, on November 20, 1969, advised the House of Representatives, Subcommittee on Military Operations, that the rate of high-priority requisitioning continues to be high and that the problems being experienced pertain to CONUS as well as SE Asia. During FY 69 almost 50 percent of all requistions received by the Services and DSA carried high-priority designators. Many were for such noncombat essential items as paper clips, refrigerators, salt-shakers, bookcases, carpeting, and football jerseys. They stated that "the excessive use and abuse of high priority designators on requisitions has compromised the effectiveness and intent of the priority system."[88]

g. Table 4 is illustrative of the percentages of high-priority requisitions submitted to Service ICPs and to Defense Supply Centers.

8. CONTROL OF PRIORITY DESIGNATOR UTILIZATION. The priority system requires discipline and control. There are compelling and often conflicting actions inspired by what is good for the total system as opposed to what is good for a specific unit or organization. Command initiatives and competitive motivations tend to influence such actions.

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[85]DSA, Stock Positioning and Transportation Study, September 1968, p. VI-15.

[86]DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, pp. 9, 60 & 73.

[87]ASD (I&L), Memorandum, subject: UMMIPS, 7 October 1969.

[88]General Accounting Office, Statement of Mr. C. M. Bailey, Director, Defense Division, before the Subcommittee on Military Operations, Government Operations, Government Operations Committee, House of Representatives, pp. 5, 6, & 7.

TABLE 4

PERCENTAGE DISTRIBUTION OF PRIORITY GROUPS ONE AND TWO REQUISITION BY SERVICE-TO-SERVICE WHOLESALE LEVELS AND BY SERVICE-TO-DEFENSE SUPPLY CENTERS

(Service-to-Service)

Service	FY 63	FY 65	FY 68 (Partial)
Army	20	42	54
Navy	13	16	58
Air Force	45	47	59
Marine Corps	30	28	60

(Service-to-Defense Supply Centers)

Service	FY 67	FY 68 (Partial)
Army	38%	38%
Navy	45	43
Air Force	48	47
Marine Corps	46	53

Source: DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, pp. 61-63.

a. The 20 August 1964 reissuance of the prescribing directive (DODI 4410.6) imposed controls upon commanding officers of requisitioning units that required review of priorities 01 through 08 transactions to ensure that priorities assigned were appropriate. A 1965 comprehensive study of the UMMIPS by the ASD (I&L) with representative of the Services, DSA and GSA resulted in reissuance of DODI 4410.6 under the date of 24 August 1966, which imposed even more stringent control by such commanders, in an endeavor to better police the system and reduce the number of high-priority demands.

b. The 1968 OASD evaluation of UMMIPS revealed many unsatisfactory conditions regarding the volume of overstated priority deisgnators and isolated many of the causative reasons. The ASD (I&L), on 26 June 1969, imposed additional criteria aimed toward more stringent application of UMMIPS. On 7 October 1968 they reiterated the latest control requirements, this time directing response to them by each Service as to the positive steps taken on their previous direction.

c. Several of the Services have attempted to restrain high-priority requisitions by imposing percentage standards. One Service prescribes that organizational requests to the installation supply officer will be restricted to 10 percent in priority group one; 15 percent in group two; 25 percent in group three, and 50 percent in group four. Another Service established an objective that not more than 25 percent of requisitions submitted to ICPs will be high priorities (PDs 01 - 08) which, they state, will provide management with the capability of being more selective in isolating the highest-priority users. In either instance it appears that the basic precepts of UMMIPS (e.g. F/ADs plus UNDs equal Priority Designators) are diametrically opposed to restraints imposed by percentage standards, whether attained or not.

9. COMMUNICATIONS. Priority designators entered in supply documents (requisitions, materiel release orders, and status) are instrumental in determining the transmittal procedure to be afforded them. Using the fastest means of communications available, to include the automatic digital network (AUTODIN) and electrical message, documents with PDs 01 through 08 will normally be transmitted under communications precedence "Priority" although those with PDs 01 through 03 may be transmitted as "Immediate" if circumstances so warrant. Although not specifically prescribed in UMMIPS, those with PDs 09 through 20 are normally transmitted as "Routine."

10. REQUISITION MODIFIERS. Requisitions previously submitted may be modified to upgrade or downgrade priority designators and/or to alter required delivery dates (RDDs) without the necessity for cancelling and resubmitting. This accommodates changes in F/ADs and provides greater flexibility in relaying information as to when materiel is required. The basic authority for these actions are contained in DOD Instruction 4410.6 (UMMIPS); however, the procedural aspects are developed and promulgated through Service broadcast of MILSTRIP.

11. SEQUENCING OF MATERIEL REQUESTS AND RELEASE OF ASSETS IN SHORT SUPPLY.

a. Automatic procedures for release of assets require that demands (requisitions and back orders) be sequenced by PD and by requisition document number date within PD. Assets are to be issued against the highest PDs and the oldest requisitions therein.

b. Assets are not always available to fill all on-hand requisitions and back orders. Additionally, high-priority requisitions might arrive that have greater entitlement and which cannot be filled because of out-of-stock conditions caused by issue of materiel to fulfill requisitions of considerably lower priority. UMMIPS provides a method for reserving assets for high priority requisitions by establishing a protection level that reserves stock for PD 01 through 03 requisitions only and, optionally, to reserve stocks for issue against PD 04 through 08 requisitions.

(1) Levels are also authorized to reserve assets for Joint Chiefs of Staff approved projects and for firm commitments for delivery of materiel to a military assistance recipient.

(2) Provisions are made for manual review of transactions pertaining to assets in short supply when release against other requisitions might result in failure to satisfy a firm commitment for delivery to a military assistance recipient or a requisition with a Joint Chiefs of Staff project code.

c. Actual methods for sequencing and releasing assets vary both within and between ICPs. A representative sampling of high-priority demand processing at eight ICPs of the Services, DSA and GSA revealed:[89]

(1) Sequencing of back orders only and processing of requisitions as received.

(2) Sequencing of back orders and processing ahead of sequenced requisitions.

(3) Sequencing of back orders and new requisitions as a single group. This is considered the most logical method to release limited stocks.

(4) Additonally, these methods were examined to determine the order of sequencing within priorities as relates to super priorities and project codes. Of the eight ICPs examined, one gave precedence to NORS requisitions ahead of other high-priority demands of the same PD. Another favored project codes Red Ball, 999, and NORS in that order before requisitions of the same PD. All others were sequenced by the PD and document number date within the PD without being mechanically influenced by these other factors.

[89]DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, pp. 95 & 97.

13. RELATIONSHIP WITH INDUSTRY. The UMMIPS directive does not address the problem of procurement of materiel other than to stipulate that the priority designators prescribed therein are not to be used with industry as industrial priority ratings. Under the National Priorities and Defense Materials System, deliveries from industry are governed by the DX and DO Industrial Priority Ratings and Authorized Controlled Material Orders in accordance with the Defense Production Act of 1950, as amended. An interface between UMMIPS and rated industrial orders is provided by means of the Required Delivery Date for each procurement.

14. RELATIONSHIP WITH PROCUREMENT

a. When requisitioned materiel is not available for issue, repair, or redistribution, and there is none on contract that can be expedited or redirected, the supplier's alternatives are generally to procure for direct delivery or to back order. There is no uniformity among the ICPs for determining when to procure and when to back order and each ICP generally reacts to locally established policies.

b. The Armed Services Procurement Regulation, in paragraph 3-202, provides for negotiated purchases and contracts "if the public exigency will not permit the delay incident to advertising." Included in the illustrative listings of when this authority may be applied without necessity for justifying the specific circumstances by means of a "Determinations and Findings" signed by the contracting officer in each case, are those purchases resulting from purchase requests citing UMMIPS priority designators 01 through 06.

c. As the SE Asia buildup accelerated the number of high-priority requisitions, the number of direct-delivery buys also increased. The number of procurement actions using ASPR 3-202 (Public Exigency) increased from 21,123 in the fiscal year ending in June 1965 to 89,662 in the fiscal year ending in June 1969.[90]

(1) Although this increase was four-fold (with the greatest percentage increase in FY 66 (300 percent), it indicated reasonable use of the public exigency authorization in making direct-delivery buys in support of high-priority requisitions.

(2) The public exigency authorization would have had greater use except for the fact that many direct-delivery buys total less than $2,500.00, in which cases small purchase procedures are used. The number of FY 66 procurements of not more than $2,500.00 increased 550,000 over those in FY 65.

15. TIME STANDARDS

a. System time standards related to priorities are intended to serve several purposes. They provide an estimate to the requiring activity of the maximum overall time expected to elapse between requisitioning and receipt of materiel, and they provide incremental time standards as management targets for requisition processing or materiel movement applicable to particular segments of the supply and transportation chain. The principle emerging from this rationale recognizes the need for time standards having a realistic basis and hence utility in relation to the activity and function associated with such a standard. A corollary principle is that unrealistic time standards lead to inaccurate management evaluations, overly optimistic customer expectations, degradation of system confidence, and resultant system abuses.

b. Processing time standards are predicated on timely receipt of requisitions. To evaluate total performance, the date placed in the requisition (part of the document number) is considered the date of transmittal from the requisitioning activity to the supply source. There are no DOD-prescribed standards for measuring initial receipt of requisitions by ICPs or by intermediate supply sources and not all requisitioners have direct access to rapid transmission

[90]DOD (I&L), Military Prime Contract Awards, 1965 and 1969.

media. The gravity of this situation, as concerns consuming of time within overall system standards, is reflected in the following.[91]

(1) An overseas inventory control activity reported that of the requisitions received by them 28 percent were received in from 0 to 2 days, 21 percent in 3 to 6 days, 24 percent in 7 to 14 days, and the remaining 27 percent in 15 days or longer.

(2) A continental United States (CONUS) supply center reported that 17 percent of its requisitions were received in the 0 to 1 day, 19 percent in 2 to 3 days, 25 percent in 4 to 7 days, 7 percent in 8 to 10 days, and 32 percent in 11 days or longer.

(3) A CONUS ICP reported that the average ages of priority group one (PDs 01 through 03) requisitions upon receipt was 5.5 days (of which over half were 4 or more days old), priority group two (04 through 08) were 7.9 days, priority group three (09 through 15) were 18.9 days, and priority group four (16 through 20) were also 18.9 days.

c. The requisitioner is required to consider system time standards in order to prepare a requisition.

(1) The priority delivery date is the maximum time standard for normal document processing and shipping required, measured from the document number date until the materiel is delivered to the consignee. These standards, and their relationship to priority designators and groups, are described in the preceding paragraph 3. No entry is made in the MILSTRIP requisition when delivery dates within these standards will satisfy the requirement.

(2) The required delivery date is the calendar date when materiel is required by the requisitioner. If delivery within PDD standards will be acceptable, an RDD entry will not be made in the requisition. When, in accordance with published definitive operational instructions, a shorter or longer date is appropriate, and RDD will be entered and the issuing activity will adjust internal processing and transportation selection to accommodate this date.

d. Submission and supply source processing times (preceding paragraph 4) notwithstanding, processing within these overall and incremental standards is inconsistent.

(1) Differences between and among the Services' supply structures are considerable. Direct requisitioning upon inventory control points, compared with flow of requisitions through one or more processing activities and supply sources, each of which performs some administrative or physical action, affects the timing on which these standards are based.

(2) Due to a lack of other prescribed goals, processing activities unable to furnish the requested materiel will still consume processing time. The supply source capable of filling a given requisition may be one or more echelons above the requisitioner in the distribution pattern. Each of the intermediate sources could consume part of the time alloted for supply source processing and, not having the materiel available, pass the demand to the next higher source. Depending on the number of processing levels and passes required, requisitions finally passed to an inventory control point have already consumed the supply source processing time one or more times before action to release materiel can be initiated.

(3) In addition to intermediate processing levels, there are numerous other situations that cause delays in release of materiel, each of which has a deleterious effect insofar as timely supply is concerned. Examples are citation of funds prior to release of requisitions; misaddressings; dispersal of requisitioners and lack of timely access to electrical transmission media; saturation and backlogs at initial and intermediate processing activities; technical edit rejects; critical item reviews; and warehouse refusals.

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[91]DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, p. 207.

e. Requisition receipt and recording for computer processing and the processing frequencies accorded at inventory control points affect meeting of overall time standards. A representative sampling of eight ICPs of the Services, DSA, and GSA revealed that:

(1) At several ICPs, recording time commenced at the AUTODIN terminal and at the others at time of computer input. These differences make it difficult to pinpoint activities responsible for delays.

(2) Although computer processing frequencies, and therefore, maximum possible supply source computer processing delays were ascertained for all priority groups, this discussion is primarily concerned with the high-priority demands (groups one and two). At four ICPs, maximums (4-6 hours) were reasonable; at two (12 hours), extraordinary actions would be required by storage and transportation to meet the 24-hour release to carrier criterion; and at three (24-48 hours), attainment of the prescribed time standards would be impossible.[92]

f. The system is predicated on each portion functioning within a time period approximating the designated time standards. A proviso is incorporated stating that "In the event data collected indicate these standards to be unrealistic, new standards developed from actual system operations will be promulgated by the ASD (I&L)."[93]

(1) When all segments of the processing cycle are added, the results show that established standards for shipments to overseas areas (worldwide) are not realistic, as shown in Table 5.[94]

TABLE 5

COMPARISON OF OVERSEAS TIME STANDARDS TO ACTUAL TIME RANGES

Mode	Priority Designator	Priority Group	UMMIPS Time Standards (days)	Actual Time Ranges (days)
Air	01-03	1	7	9-28
Air	04-08	2	15*	15-35
Surface	01-03	1	7	34-101
Surface	04-08	2	15*	39-106
Surface	09-15	3	45	55-125
Surface	16-20	4	60	57-125

*Temporarily changed to 30 days in July 1965. Still in effect through 1969.

(2) The major difference in physical handling aspects of processing group three and group four materiel is that the former is to be released for transportation within 10 days and the latter within 12. Materiel in group three may be consolidated with that in group four providing the timeframes of the former are met. Similarly, both of these time standards may be exceeded to permit greater consolidation, again providing that the earlier PDD or RDD is met. Both groups are normally accorded routine handling and cost-favorable transportation and are often moved in the same transportation unit or by the same surface method.

[92] Ibid., p. 91.
[93] DOD Instruction 4410.6, August 24, 1964. p. 10.
[94] DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, p. 219.

(3) Factually, however, the time frames of group three are seldom, if ever, met. The time ranges exhibited in the preceding subparagraph (1) substantiates this contention.

f. A requirement exists for realistic worldwide time standards measuring each major element of order and ship time, by priority group, commencing with requisition transmittal and terminating with recording of received materiel on stock records of the ultimate consignee. In developing these standards, consideration should be accorded overseas areas by geographical location, including the availability and nonavailability of air and surface transportation, including frequency thereof; the proximity of requisitioners to electrical transmission media; and the intermediate administration and processing activities that become involved.

16. PROJECT CODES. In addition to the previously discussed escalation of high priority requisitions by means of F/AD and UND applications, a diffusion of the basic priority system was brought about by use of project codes.

a. MILSTRIP, as initially conceived and implemented, assigned specific series of project codes to the Services, DOD agencies, and the Joint Chiefs of Staff and prescribed the specific card columns in which they would be entered. It was intended that these codes be used on an exception basis only for the purpose of identifying requisitions and related documents and shipments pertaining to special projects, programs, operations, exercises, and maneuvers. Their entry in requisitions and subsequent documentation has a direct effect on what materiel should or should not be included in shipment and transportation consolidations; allows transaction identity for the purpose of accumulating cost and/or fill-rate data on specific projects, if required; identifies intended end use; influences box markings; and identifies containers for purposes of holding, staging, consolidating, reporting of receipts, and release for onward movements.

(1) MILSTRIP states that project codes do not provide nor imply any priority or precedence for requisition processing or supply decisions. Project codes are not related to priority in any respect and these codes, when used, do not alter or override the priority assigned a requisition or shipment. The Joint Chiefs of Staff applied project codes are entitled to a review of asset balances relative to release of assets.

b. The 1965 OASD (I&L) evaluation of the UMMIPS included visits to selected activities and ICPs that were considered to be representative. Examination into use of and attention accorded the project-code field revealed that, although all Services retained the ability to use this field as intended, it was also being used for many diverse purposes. Some of these uses had nothing whatsoever to do with priority aspects of processing; however, many did indicate situations in which superior handling and decision aspects were applied. It was observed that project coded requisitions and shipments get better handling and service than those without project codes. Because of human nature, if for no other reason, even those project codes of relatively lesser importance get better service when, for any reason, they are examined by persons rather than by automatic data processing systems. It was also observed that it is natural for a manager, clerk, packager, or transporter to make the invalid assumption that a project coded requisition or shipment is at least as important, and probably more important, than one without a project code. Other salient observations during this study, as related to project codes are:[95]

(1) At one ICP it was observed that the fill rate on project-coded requisitions was 5 percent higher than on nonproject-coded transactions; that during manager review these transactions are examined ahead of nonproject-coded transactions; that in the procurement of materiel project-coded items in priority groups three and four are moved ahead of other items within these groups; and that they are often requested to accord more expeditious processing to certain project codes. Another ICP of the same distribution system reported that they released project-coded shipments immediately.

(2) Four General Services Administration regions acknowledged that they afforded certain project coded requisitions special handling and/or preferential treatment in issue and

[95]OASD (I&L). Uniform Materiel Movement and Issue Priority System (UMMIPS) Performance Evaluation Report, October 1965, pp. 18 - 25.

release. One advised that they did not challenge transactions in priority groups one and two when specific project codes were entered.

(3) Instances were observed where one Service disseminated project codes to DSA and GSA centers stating that these codes were to be considered overriding priorities as relating to other project codes pertaining to that Service. This practice made it possible for personnel at such ICPs to use these instructions for the purpose of overriding requirements of other Services having equal priority entitlements under UMMIPS.

(4) One Service required project codes on all requisitions emanating from their requisitioners and challenged those in which none were entered. Certain codes were accorded preferential treatment. An ICP of another Service stated that those specific project codes disseminated as important were given preferential handling during manager review and were afforded use of long-distance telephone for locating and processing of assets. They, too, react to certain codes for the purposes of special and expedited handling. Another ICP of the same Service advised that they processed in accordance with instructions from their higher authority and, therefore, at times disregarded Priority or Required Delivery Dates as originally entered.

(5) The Military Traffic Management Terminal Services (MTMTS) at the Oakland Army Terminal allowed certain project codes to form the basis for overriding transportation priorities when they were so advised by activities in authority. The air clearance authorities of all Services at Travis AFB were queried as to their attention to project codes. The Army advised that they looked for and expedited codes of the "C" series; the Navy expedited codes 777 (Crossfire) over other shipments within transportation priority one; and the Air Force did not look to project codes for expediting purposes.

c. The 1968 DSA evaluation of the UMMIPS, directed by the ASD (I&L), also included examination of the project code relationship to issue and transportation priorities. Some of their findings are summarized as follows. [96]

(1) In some cases ICPs and Services are using unilaterally identified projects to establish precedence of materiel requests both within priority designator and, in some cases, to override priority designators.

(2) The transportation system handles great quantities of shipments to which project codes are associated. Research was unable to quantify project-coded shipments, but inspection of shipments and related documentation in all terminals visited revealed project-coded transactions to be numerous.

(3) It has become a very common practice on the part of the logistics commands of the Services, plus theater and other activities, to request special expediting action on shipments having certain project codes. The result is that, despite MILSTRIP and UMMIPS, project codes do become tacitly approved "transportation priorities" in themselves in that they call for and obtain preferential treatment of certain shipments from among a larger group of shipments, ostensibly all on an equal footing, within their particular assigned UMMIPS transportation priority. With MILSTRIP, to the contrary, reaction and response is being given to movement expediting of project codes in the CONUS and overseas aerial and water ports.

(4) Project codes assigned for monitoring and control purposes are being responded to wherever practicable to do so. However, the large volume of shipments with super priorities and selected movement expediting codes appeared to monopolize the attention of terminal personnel whenever there was any departure from the preferred first-in, first-out routine.

(5) Difficulties in responding to project codes in the terminals occur once the project-coded shipments start arriving. At a major aerial port of embarkation (APOE)

[96] DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, pp. 163 - 165.

terminal personnel ridiculed the use of even a limited number of project codes because of their volume and the burden generated when cargo is being selected for selective aircraft loading. At others, considerable effort was being made to react to certain codes and holding areas were set aside for them when space was available.

(6) At some overseas APOEs, aerial ports of debarkation (APOD) and break-bulk points, the policy was that if boxes were not plainly marked to signify the particular code, the shipment would be handled like any other in the same priority group. Traffic volume was considered too great to permit scrutiny of transportation control movement documents for significant project codes. It was stated at one break-bulk point that the shipment without a project code and special label is the exception rather than the rule, and that these codes, therefore, are meaningless.

d. The General Accounting Office, in their 20 November 1969 statement to the House of Representatives, Subcommittee on Military Operations (referred to in the preceding subparagraph 7f) having discussed the "compromised effectiveness and intent of the priority system" went on to state that "The resulting weakening of the system has caused each of the individual military services to unilaterally devise and super-impose special priority systems over and above that prescribed by the Office of the Secretary of Defense (OSD)." They cited examples of the Army's "Red Ball" and "Fast-Fix" systems; the Navy's "Tiger Tom"; the Air Force's "Pacer Vital"; and the OSD's "Flagpole" systems. Their discussion on this subject concluded with "Needless to say, these special systems are costly in that each involves the establishment of monitoring organizations at every level of supply. In our opinion, if the prescribed system was conscientiously adhered to, there would be little if any need for the special systems." [97]

e. There are literally thousands of project codes assigned although not all, by any means, have priority handling or even reporting requirements. However, the magnitude of the project-code problem that does have priority or additive workload implications was apparent at the Naval Supply Center (NSC), Oakland, which supplies materiel, including DSA items, to customers of all Services. Their computer was identifying 743 special project codes of all Services. [98]

17. SUPER PRIORITY SYSTEMS

a. The Army's Red Ball Express program was established in December 1965 as a result of a visit to Vietnam in November 1965 by the Secretary of Defense. Designed to reduce the Army's high-deadline rate of critically needed aircraft and equipment, the program had two objectives: (1) to remove immediately aircraft and equipment from deadlined status, and (2) to keep them operational. It was modified in November 1966 to include NORS items. [99]

b. In order to provide greater uniformity for expedited handling of items in transportation priority one, an expediting system commonly referred to as the "999 Procedure" was established as a super priority system in May 1966. It has application only to materiel for U.S. forces overseas and to forces alerted for deployment within 30 days of the requisition date. Its use is restricted to activities assigned F/AD I, II and III; for items causing primary weapons to be NORS (resulting in casualty or similar reporting) and for items required to prevent such primary weapons from becoming NORS with a 5 day period from the requisition date. [100]

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97 U. S., General Accounting Office (GAO) Statement of Mr. C. M. Bailey, Director, Defense Division, before the Subcommittee on Military Operations, Government Operations Committee, House of Representatives, p. 7).

98 NSC, Oakland, Briefing, to Transportation Task Force, JLRB, 8 September 1969.

99 ASD (I&L), Memorandum, for the Assistant Secretary of the Army (I&L) Expansion of RED BALL EXPRESS PROCEDURES, 11 November 1966.

100 ASD (I&L), Memorandum for Assistant Secretaries (I&L) of Army, Navy, and Air Force and Director, DSA, subject: Expedited Handling of Critically Needed Items, 13 May 1966.

(1) For identity purposes it requires entry of the figure "999" in the required delivery date field of requisition and transportation system documents. It did not alter the procedure for the Army's Red Ball Express project in support of SE Asia except that in addition to the "RED" entry in the project code field of Red Ball requisitions, Army requisitioners are required to insert "999" in the RDD field.

(2) This procedure requires that when inventory levels do not permit positive supply actions or all requisitions with a given priority designator, supply procedures will provide for manual review of demands to consider the 999 entry as the most important RDD. It makes provisions for expedited handling of shipments requiring clearance prior to release and provides for appropriate handling and processing to and in channel airlift.

c. MILSTAMP was amended to provide that expedited handling shipments (UMMIPS priority group one for which code 999 is entered in the RDD field) be afforded the highest precedence of handling, overriding all other priorities, projects, and RDDs.

d. By mid-1966 these super priorities were averaging 20-28 percent of the total air cargo moving overseas, although initial planning envisioned only approximately 3 percent.[101]

18. EXPEDITING PROJECTS WITHIN SUPER PRIORITIES

a. Use of 999 super priorities notwithstanding, each of the Services established special project codes to expedite intraservice handling within the 999 category. These codes are entered in MILSTRIP requisitions and are directed to be provided priority attention in resource allocation ahead of other requisitions of the same priority. A significant difficulty is that this type of action was not intended by the 999 procedure and cannot be readily accommodated outside the Services within established 999 procedures. Although these types of project codes may have been intended for intraservice use only, they permeate other systems and are handled along the way by personnel of the other Services.

b. The subject of the project codes and super priorities as related to the basic priority system, is succinctly summarized in the 1968 DOD directed study of the UMMIPS, which is quoted in part: "Project codes, special names, derivations of IPD assignment without regard to mission importance (force activity designator) or mission impairment and item essentiality (Urgency of Need Designator), and special category designations having an explicit or implicit priority significance, generally tend to diffuse the basic priority structure, create inconsistencies in application and practice, and cause confusion in allocation and sequencing decisions ... As a system principle, the use of any type of supplementary priority designator is considered detrimental." 102

19. TRANSPORTATION PRIORITIES. The transportation priority system is an integral part of the UMMIPS. The method of transportation employed in satisfying requisitions is dependent upon the priority designator and the required delivery date. Priority designators convert to transportation priorities (which are identical to issue groups), as depicted in the preceding paragraph 3. In the case of the materiel movements resulting from "other than requisition and issue" UMMIPS prescribes priority designators that likewise convert to appropriate transportation priorities. Redistributions and returns of critical items, intensively managed items, automatic returns, and movement of excesses are accommodated by this feature.

20. HANDLING AND MODE OF TRANSPORTATION. The most economical mode consistent with the urgency of need, as depicted by the priority designator and required delivery date (if entered), is employed. Requisitioning activities do not normally specify the method of transportation. Special handling and high-speed transportation is considered the normal means of

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[101] Military Airlift Command, Message 220513Z Oct 66, to Joint Transportation Board, subject: Impact on Handling Expedited Cargo at Travis Air Force Base.

[102] DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, p. 11.

meeting requirements for high priority (PDs 01 through 08) material in transportation priorities one and two. Routine handling and cost-favorable transportation will generally be used for materiel demands falling within transportation priorities three and four (PDs 09 through 20), with meeting of priority delivery dates (or required delivery dates, if entered) being salient considerations. Generally speaking, transportation priorities one and two are air eligible, whereas transportation priorities three and four are moved by surface.

21. TRANSPORTATION IMPACT. The rapid buildup in Vietnam, which resulted in the escalation of the use of high priorities, projects, and super priorities, generated requirements for priority delivery of such a great volume of materiel that the transportation priority system was diluted and airlift capability was strained. (Details on airlift problems are incorporated in Chapter III of the Transportation Monograph.) The volume and percentages of high-priority requisitions, and shipments resulting therefrom, processed by the Sharpe Army Depot during the 1965 through 1969 time frame, are graphically portrayed, as but one example, in Figure 1. In order to expedite the movement of high-priority materiel through and around the aerial ports, other methods were employed:

a. Green and Pink Sheeting. These names devolved from the color of the forms used. Green sheeting is a technique for rearranging cargo movement sequence through an aerial port and thereby serves as another form of movement priority. It is performed in connection with shipments sponsored by any of the Services through their respective liaison representatives at the port. Pink sheeting is a method of one Service, wherein critically needed items that do not qualify for the 999 super priority, and whose flow through an aerial port has been interrupted, can preempt other transportation priority one cargo of that Service, other than that with 999 entitlement.

b. Critical Items Lists. In late 1966 and early 1967 the deficits in transportation resources resulted in backlogs of materiel awaiting transporation. During this period the Pacific Command Movements Priority Agency (PAMPA), as an agent of the Commander in Chief, Pacific (CINCPAC), published a weekly Critical Items List. These items were afforded precedence over other priorities and shipments were leapfrogged to meet immediate in-country requirements.[103]

c. Sea Express. With aerial ports saturated with cargo, an alternate means of expediting portions of air-eligible material was sought. As a result of a Joint Chiefs of Staff Joint Transporation Board meeting in March 1965, the Military Sea Transportation Service was requested to provide weekly sailing direct from the west coast to Saigon.[104] The Sea Express system, which diverted to water ports air-eligible cargo that could not be airlifted, was operational during the period April 1965 to March 1968. It prescribed top loading on ships as a means of facilitating expeditious discharging in Vietnam. In July 1965 the Joint Chiefs of Staff temporarily extended UMMIPS overseas priority delivery dates for transportation priority two (PD 04 - 08) shipments from 15 to 30 days in order to accommodate this surface movement.[105] This amendment was still in effect at the close of CY 69.

d. Air Force Weapon System Pouch. This is an Air Force expansion of air parcel post, with several special features, for shipment of mailable high-priority materiel only. Distinctly colored and marked separate mail pouches are used. Arrangements with local post offices allow pickup and delivery during and after normal work hours. The DSA also uses the system for shipment of materiel to Air Force activities and offered to accommodate the other Services by the same method.

e. First-in First-out (FIFO) System. Although subsequent to the period when there was a serious shortage of airlift, and therefore not tested under conditions of over-saturation of air terminals, the Military Airlift Command (MAC) developed and tested a system which, with

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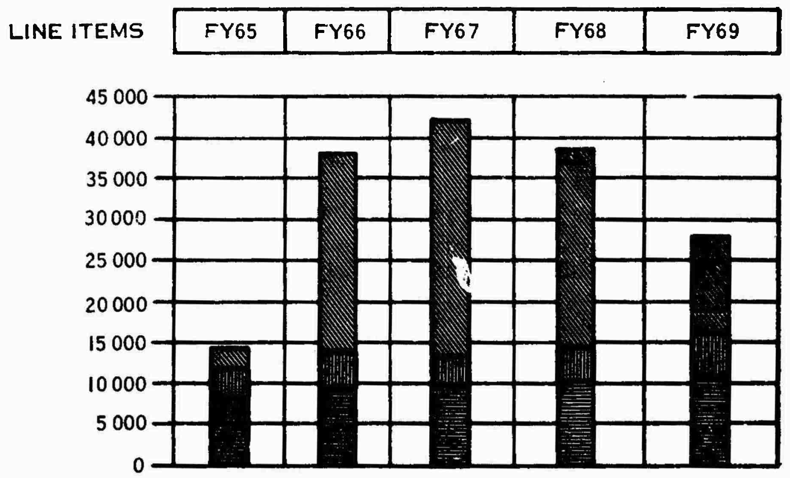
[103] Western Area, Military Traffic Management & Terminal Svc. (WAMTMTS), Briefing, to Transportation Task Force, JLRB, 3 September 1969.

[104] Minutes of JCS JTB meeting of 17 March 1965.

[105] JCS, Message 6945, July 1965.



PRIORITY			PERCENTAGE		
01 – 03	18	64	68	54	42
04 – 08	23	10	10	11	18
09 – 20	59	25	22	27	40

FIGURE 1. SHARPE ARMY DEPOT AVERAGE MONTHLY SHIPPING WORKLOAD

limited exceptions, processes outbound air-eligible cargo in order of its arrival. Preferential treatment is afforded to green or pink sheeted cargo, and to 999 and Red Ball shipments that have been on hand for more than 48 hours.[106] The system was fully implemented in January 1970 after a test at Travis AFB, from January through July 1969, showed that average port-holding time for all cargo decreased from 42 to 33 hours. Average hold times for super priorities increased from 22 to 29 hours whereas transportation priority one cargo decreased from 39 to 34 hours and transportation priority two cargo from 64 to 34 hours. Other benefits include improvement in cargo inventory records, increased aircraft utilization, less confusion in loading pallets, less warehouse space required in terminals, and increases in weight handled per manhour.

22. CHALLENGES

a. In addition to the screening and approving of high-priority requisitions at the initiating level and the screening for errors and excessive quantities at the supplying level, the UMMIPS directive requires that shipping activities contact requisitioning activities to confirm the urgency of requirements when certain conditions exist with respect to shipments that are candidates for premium transportation. Additionally, MTMTS, through the Military Airlift Clearance Authority (MACA), challenges airlift offerings either as to air worthiness, correct routing, or in controlling the flow of cargo into the airlift system.

[106] Lang, W. G., Col., USAF, Hq., MAC, Presentation at USAF World-Wide Transportation Conference, 23-25 April 1969.

(1) Conditions for challenge are outsized dimensions, hazardous materiel, excessive weight, improper commodities (examples are cited in DODI 4410.6), and shipments in which there are suspected errors in data. Controls are specified to preclude undue delay by requiring partial shipments in certain instances, while awaiting responses from requisitioners.

(2) Certain types of shipments, such as dated items with short expiration dates, critical items (when specifically broadcast by the Joint Chiefs of Staff), and Joint Chiefs of Staff designated project coded shipments are exempt from challenge.

b. Because each Service is responsible for the effective logistics support of its forces, it is an inherent Service responsibility to perform the screening and challenging necessary to determine whether airlift is justified. Thus, each Service challenges shipments (generally those over 1,000 pounds) prior to starting them on their way. This is accomplished by offering the cargo to the appropriate activity shown below, which performs the challenge and offers the resultant air-eligible cargo to the MACA at the Western Area, MTMTS, Oakland, California. MACA's primary responsibility is to control the movement of air-eligible cargo to the aerial port of embarkation based upon airlift availability and capability:

Army	Logistics Control Offices, Ft. Mason or New York
Navy	Navy Transportation Coordinating Offices, Alameda or Norfolk
Marine Corps	Marine Corps Remote Storage Activities (RSAs) challenge shipments from their activities. Shipments sponsored by the Marine Corps but made from sources outside the Marine Corps are challenged by the Navy Transportation Coordinating Offices, Alameda or Norfolk
Air Force	Cargo Movement Division, McClellan AF Base

(1) Examples of results of challenges are illustrated in Table 6. The continued high rate (68 percent) of diversions to surface of challenged transportation priority one and two shipments is a commentary on the lack of faith in the supply system in general and the priority system in particular. These statistics give credence to the statement: "The high success rate which has been achieved during the process of challenging proposed air shipments and the high volume of cancellation request ... establish that many of the requisitions which are not immediately satisfied by in-stock materiel are not valid - - either in terms of the total requirement or in terms of the assigned priority." [107]

23. EXPANDED USE OF AIRLIFT

a. Although not always adhered to, the UMMIPS prohibits use of high priorities for replenishment of other than high value items.

(1) As discussed in the Supply, Maintenance, and Transportation Monographs, there are distinct advantages to be gained by reducing range and depth of overseas stocks and by replacing components rather than performing piecemeal overhaul in theaters of operation.

(2) Additionally, Air Force worldwide resupply of repairable type items in a buy or repair position is by high speed transportation. Replenishment requisitioning priorities (UND D) are used; however, at the time of distribution decision to release the requested materiel, the priority designator is automatically upgraded so that materiel will move by air rather than surface.

[107] DSA, Study, An Evaluation of the DOD Uniform Materiel Movement and Issue Priority System, August 1968, p. 129.

TABLE 6

AIR CARGO CHALLENGES AND DIVERSIONS
(Short tons)

	Challenged Cargo	Diverted Cargo	Percent of Diverted Cargo To That Challenged
1 May - 31 Dec 1967 (8 months)			
Army	208,474	159,142	76
Navy	36,115	32,271	89
Air Force	42,188	31,651	75
Total	286,777	223,064	78
1 Jan - 31 Dec 1968 (12 months)			
Army	420,230	285,879	68
Navy	83,983	44,574	53
Air Force	64,822	46,484	72
Total	569,035	376,487	66
1 Jan - 31 Aug 1969 (8 months)			
Army	230,185	164,670	72
Navy	47,911	22,116	46
Air Force	23,019	16,898	73
Total	301,115	203,704	68

Source: SASM Statistical Digests, Aug. 1968, April 1969, and Sept. 1969.

b. In order to accommodate the foregoing, and with due consideration of the increased airlift capacity anticipated as being available during the 1970-1975 time period, the UMMIPS transportation criteria should provide for air as the normal means of moving the aforementioned commodities and selected items.

24. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) Most requisitioners, especially those overseas (including Vietnam), do not receive materiel within UMMIPS time standards, regardless of issue and transportation priority. Poor response is largely attributable to time standards based upon goals and desires rather than on realistically attainable measured standards embodying the entire process making up order and shipping time (paragraph 15).

(2) Criticism regarding abuses and abridgments are substantive:

(a) Evidence exists relative to the escalation of force/activity designators by Services; of unauthorized application of F/ADs by requisitioners; and of unauthorized application of urgency of need designators. Additionally, imprecise terminology and lack of clear distinction between UND categories defined in UMMIPS causes wide variances and interpretations leading to selection of an improper (one out of four possible) priority designator (paragraphs 5, 6, and 7).

(b) Super priority systems (Red Ball Express and 999) of temporary and permanent durations became necessary during this era and were authorized by the Assistant Secretary of Defense. They are additives to UMMIPS, influencing issue decisions as well as expediting handling and transportation of materiel (paragraph 17).

(c) Each Service has access to a distinct series of project codes which were intended for the purposes of identifying the end use of materiel, accumulating cost data, identifying items to be consolidated, and providing distinctive box markings. These project codes have resulted in special priority handling during many phases of supply and transportation operations.

(d) The level of issue by ICPs and depots is influenced by priority designators in requisitions. Although not all systems respond to the same depths of issue, requisitioners are aware that the higher the priority assigned, the more competitive their position becomes in terms of issue, back order release, and even procurements (paragraph 6b, 7a and c, and 11).

(e) The history of challenged shipments in which surface transportation is agreed upon gives credence to the fact that many high-priority requisitions use priorities for competition purposes rather than to attain delivery by the priority delivery date associated with the priority group (paragraph 22b).

(f) The follow-on impacts of submitting these competitive requisitons, such as compressed processing time requiring around-the-clock workload, negotiated procurements, overloading of air transportation and associated terminal handlings, are not being sufficiently considered by requistioners (paragraph 1a (1), 3, 4, and 7a and c).

(3) UMMIPS allows consolidation of UND C shipments (priorities 11 through 15) with those in UND D (priorities 16 through 20), providing the time frames of the former are met. Factually, UMMIPS surface time frames are seldom met, especially for overseas shipments. Inasmuch as materiel in both UNDs move by surface, and often in the same shipment and/or transportation unit, the necessity for continuance of 20 issue priorities and 4 transportation priorities appears unnecessary (paragraph 4a and 15f).

(4) Reduced funding programs, with accompanying reductions in procurements, require alternative stockage and delivery policies. Evaluations should be made to compare the total costs of supply by air versus investments required under stockage policies based upon surface methods. When the former is determined to be advantageous and to be implemented, these decisions must permeate to the requisitioner in order that appropriate order and shipping time factors can be applied. These actions should be selective in application with consideration being afforded to such factors as excesses, buy and repair positions, volume, and weight (paragraph 23).

b. Recommendations. The Board recommends that:

(SM-5) The Office of the Secretary of Defense, using Military Standard Evaluation Procedures as the vehicle, develop and adopt realistically attainable time standards to cover each significant element of the communications, supply and transportation spectrum from time of requisition origin until the delivery of materiel to the ultimate cosignee (conclusion (1))

(SM-6) In addition to assignment and review of F/AD I, the Joint Chiefs of Staff periodically review assignments of F/AD II to preclude abuses and unwarranted escalations, with resultant increased competition for materiel and transportation. (conclusion (2) (a))

(SM-7) The Office of the Secretary of Defense, with Service participation, prescribe use of Urgency of Need Category C instead of D for replenishment requisitioning purposes and eliminate the latter category. This will, in turn, reduce the number of priority designators from 20 to 15, simplify selection and application of correct requisitioning priorities, and reduce the number of priority groups and transportation priorities, from four to three. (conclusion (3))

(SM-8) The validation of priorities 01 through 08 requisitions, required prior to release to supply sources (to authenticate requirements for compressed processing time and high-speed transportation), be in the form of a significant entry in a specified requisition column, and that those not containing this validation be processed as priority and transportation group three requisitions and be moved by surface methods. (conclusion (2) (e))

(SM-9) Special procedures be incorporated into the Uniform Materiel Movement and Issue Priority System for use during periods of emergencies that will clearly allow elevation of specific combat requirements and projects of the Joint Chiefs of Staff and Secretary of Defense above those having equal priority designators and that implementation and termination features be under control of the Joint Chiefs of Staff. (conclusion (2) (b) and (c))

(SM-10) That the Services, with due regard for the total costs involved, place increased dependence on air transportation for the movement of infrequently demanded items of materiel and consider air as the normal means of transporting selected commodities. (conclusion (4))

SECTION E

CATALOGING

1. INTRODUCTION AND BACKGROUND

a. During the Vietnam operation the Department of Defense (DOD) was inundated with a flow of reports stating that a substantial volume of changes to cataloging data (management data element changes) were causing an untenable situation in regard to increased workload and inaccurate requisitioning practices.

b. The Assistant Secretary of Defense (Installations and Logistics) (ASD (I&L)) visited the Vietnam area in November 1967 to obtain firsthand information concerning the adequacy of materiel support.[108]

c. Immediately upon his return, the ASD (I&L) directed that a moratorium be declared on unit of issue changes.[109] He discovered that changes were one of the prime factors contributing to confusion at the requisitioning level and, to a large degree, responsible for the generation of long-supply and potential "excess."[110]

2. OBJECTIVES. The objectives of this portion of the review are to determine and assess impact of catalog changes (management data elements) and cataloging on the requisitioner during Vietnam operations and to develop recommendations.

3. SCOPE. This portion of the study will be limited to review and analysis of the various problems caused by cataloging and management data changes with emphasis on impact at requisitioning level.

4. THE FEDERAL SUPPLY CATALOG

a. Prior to the development of the Federal Supply Catalog, each military department had its own method of describing and numbering items, and frequently two activities of the same Service stocked the same item under different identification. After World War II prominent members of the Government as well as the Hoover Commission pointed out the benefits to be gained from a uniform supply catalog. By enactment of Public Law 436 and a revision of title 10, U.S., Code 145, the Congress directed the Department of Defense to establish the Federal Catalog System. Under the directed system each item of supply was to be given a "Single Name, a Single Identification, a Single Classification, and a Single Federal Stock Number."

b. The Federal Catalog System, if properly administered and managed, provides the U.S. Government with a very significant tool for improving supply management. It is designed to provide a common identification language, to eliminate different identification of like items, reveal interchangeability among items, aid in standardization, facilitate inter- and intra-departmental support, assist industrial mobilization, and strengthen Government-to-industry relationship.

c. The Federal Supply Catalog (FSC) consists of an Introduction to the Federal Supply Catalog, a Master Cross Reference List (RL), an Identification List (IL), and a Management

[108] DOD Study Report, The Unit of Issue in Materiel Management, May 1967, p. 15

[109] ASD (I&L) Memorandum, For Assistant Secretaries of the Services and Director, DSA, subject: Moratorium on Unit of Issue Changes, 28 November 1967.

[110] Ibid.

Data List (ML), plus their related Change Bulletins and Change Notices. Other publications, such as Technical Orders, Technical Bulletins, Technical Manuals, and Parts Lists may contain varying segments and combinations of identification, cross reference, and management data, but these publications are not included within the concept of Federal Supply Catalog publications. The Joint Logistics Review Board) review included a perusal of many publications used in the performance of logistic functions, including The Federal Supply Catalog. The review indicated that the non-Federal Supply Catalog Publications (listed above) were usually maintenance, overhaul, repair, and operator-oriented, whereas the Federal Supply Catalogs were developed for general logistic application and used for a combination of logistic functions.

d. The respective purposes of the RL, IL, and ML are:[111]

(1) Master Cross Reference List. To provide the means for identifying the reference number to the Federal Stock Number (FSN) and the Federal Stock Number to the reference number.

(2) Identification List (IL). To provide in printed form the federal item identification and related data requied to identify or select items of supply.

(3) Management Data List (ML). To provide requisitioners with data necessary to acquire and account for an item of supply.

e. One of the earliest decisions made was that the federal item identification number (FIIN) would consist of seven numeric digits and be "nonsignificant"; that is, the number would have no relationship whatsoever, for example, to any alphabetic arrangement of the identified items.[112] The reason for this decision was that almost all such numbering systems used previously had broken down, in some cases more than once, notwithstanding the adoption of larger numbers with more space between numbers. It was also decided that the seven-digit item identification number would be independent of the classification system; that is, items would be numbered within classes, but without regard to whatever classification structure that might be later adopted. Each item included in the Federal Supply Catalog is identified by a Federal Stock Number consisting of a four-digit Federal Supply Classification Code, and the recently added two-digit NATO Country Code and a seven-digit Federal Item Identification Number (See Figure 2).[113]

f. In order to meet the requirement of one name and one name only for each item of supply, it was necessary to establish a list of approved item names.[114] It is important to note that the item name was not, and still is not, a complete description of an item. Oversimplified, it is merely the basic noun and enough further verbiage to distinguish broad types of items. For example, "PAPER, ABRASIVE" is an item name and was chosen instead of "SANDPAPER," "PAPER, SAND" "PAPER, GRIT" etc. It serves only to distinguish abrasive paper from mimeograph paper, toilet paper, etc.

g. If one number and one number only was to be assigned to each item, it was necessary to array and compare all of the items in the several Government supply systems, plus, of course, the new items entering these systems.[115] The method chosen was the use of a "description pattern," which might better be described as a questionnaire, designed to elicit for easy comparison all of the facts about each item under a standard pattern or format. There are essentially two types of p[illegible]ns:

(1) Descriptive (Type 1), which brings out the characteristics and features of items such as shape, dimensions, etc.

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111 Federal Manual for Supply Cataloging, Catalog Manual M1-7.

112 Office of the Assistant Secretary of the Army (I&L), A Study of Turbulence In Federal Catalog Data, 24 March 1970, p. 8.

113 Department of Defense, Supply Management Reference Book, May 1969.

114 Office of Assistant Secretary of the Army (I&L), A Study of Turbulence In Federal Catalog Data, 24 March 1970, p. 8.

115 Ibid.

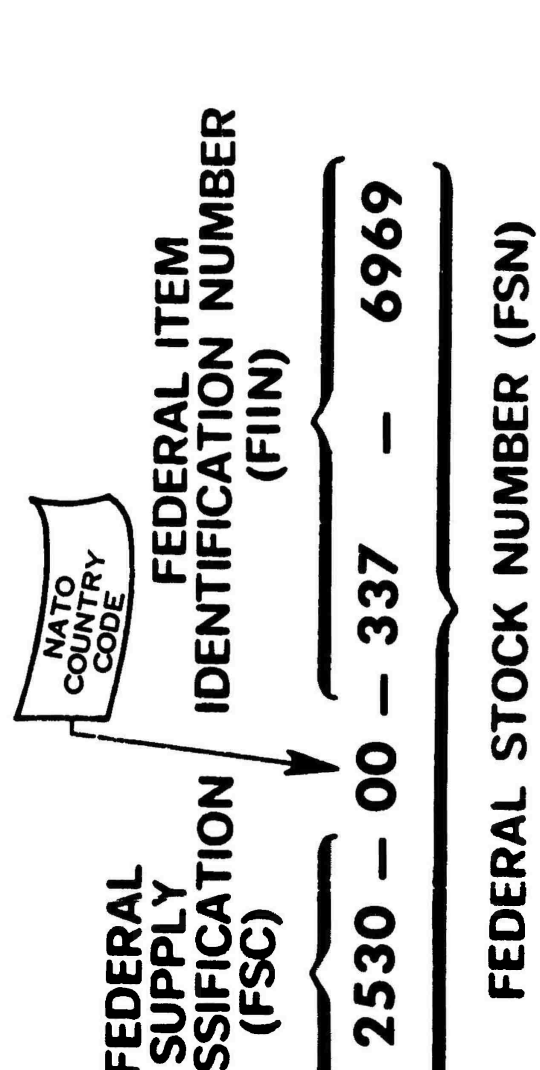

FIGURE 2. FEDERAL STOCK NUMBER STRUCTURE

(2) Reference (Type 2), which essentially covers repair parts proprietary or peculiar to a given manufacturer.

h. The Assistant Secretary of Defense (I&L) is responsible for the overall administration of the Federal Catalog System and for final approval of cataloging plans, policies, and programs. The Director, Defense Supply Agency (DSA), administers the operation of the Federal Cataloging System. The Secretaries of the military departments advise and assist in all elements of the system to ensure its practical value and participate in the development, establishment, and maintenance of the system.

i. The DOD policy is to build a standard catalog system on the following goals:

(1) Elimination of duplication

(3) Controlling entry of duplicate items into the system

(3) Adoption of standard items of supply

(4) Preparation of valid allowance lists and tables of allowance

(5) Timely preparation and distribution of parts lists and cross-reference lists

(6) Identification of interchangeable or substitute items

(7) Timely purging of inactive items from the supply systems

(8) Cataloging support for all Services.

5. DEFENSE LOGISTICS SERVICE CENTER (DLSC)

a. DLSC, one of DSA's field activities, has the task of accumulating and maintaining data on each item required for supply operations. DLSC concentrates on the process of item identification, the assignment of Federal Stock Numbers, and the dissemination of this information. It is also responsible for central processing of all Federal Catalog data and the maintenance of complete master files of Federal item identification data.

b. DLSC also gathers management data (catalog responsibility, inventory management, supply status, procurement status, standardization status codes, and freight classification). This inclusion of management data has caused the files to grow from the basic nine files containing 1.4 billion characters of information in 1962 to 32 basic files containing 3.9 billion characters of logistic information. Current plans call for the development of an integrated management information bank and data system improvement program of 13.5 billion characters for management use. This program is called the Defense Integrated Data System and is scheduled for operations in 1972.

c. Specific cataloging responsibilities of the DLSC follow:

(1) Superintend the execution of the Federal Catalog System. Table 7 shows Service item use and DSA, and Service management.

(2) Manage the Government-wide system and centralized operations required for maintenance of the Federal Supply Catalog. Table 7 shows FSC alignment.

(3) Approve, publish, and monitor use of the Federal item identification data.

(4) Develop procedures for and provide provisioning screening services.

TABLE 7

FSC ALIGNMENT

591	-	Total Federal Supply Classes
300	-	Service Managed
3	-	Army Assigned (Plus 2 Partially Assigned)
65	-	GSA Assigned
223	-	DSA Assigned
48	-	No IMC (DPSC)
175	-	IMC (DCSC, DESC, DGSC, DISC)

Source: Hq., DSA, Presentation to JLRB, October 1969

(5) Develop, maintain, and publish manuals, handbooks and other guides and instructions for operation of the Federal Catalog System.

(6) Prepare, maintain, and furnish item identifications and other cataloging services to North Atlantic Treaty Organization (NATO) member nations and other friendly foreign governments.

d. DSA's responsibility for preparation and distribution of DOD sections of the Federal Supply Catalog is decentralized to the individual Defense Supply Centers (DSCs). The Services are authorized to publish catalogs for items in classes not assigned to DSA management.[116] They are also authorized to include DSA-type items in other publications for which there is a valid operational need. Accordingly, the DSCs maintain complete Federal Supply Catalog for all items in their assigned FSG/FSCs regardless of how the items are managed within the DOD. From these data, each DSC prepares two types of publications.

(1) The Identification List provides identification data for all items of supply in the FSC Group or Class assigned to the DSC.

(2) Management Data List arranged in FSN sequence, provide supply and management data applicable to each assigned item of supply. This includes price, unit of issue, managing activity, supply status, and the Services' peculiar management data. The ML is printed and distributed with one primary purpose in mind, the preparation of requisitions.

(3) In agreement with recommendation number B-9 of the PRISM Report, dated March 1965, it is planned that all Identification Lists will be transferred to DLSC concurrent with the implementation of the DLSC Integrated Data System (DIDS).[117] The development of the Services' portion of Management Data Lists is covered below.

e. The term "catalog data" or "management data elements" means all of the facts about an item carried in the identification segment of catalogs.[118] A complete list of all these coded facts about supply items are rather extensive and would differ according to Service and functional area. Listed below are representative catalog data elements that are common on a DOD-wide basis:

(1) Federal stock number (FSC & FIIN)

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[116] Ibid., p. 2.
[117] OASD (I&L) PRISM, Report, Progressive Refinement of Integrated Supply Management, March 1965.
[118] Ibid., p. 20.

(2) Unit of issue

(3) Responsible inventory manager

(4) Unit price

(5) Item description (or item name, or nomenclature)

(6) Quantity per unit pack code

(7) Acquisition advice code

(8) Physical security code

(9) Shelf-life code

(10) Repairability and recoverability code

These data elements are disseminated to cataloging agencies by the Catalog and Management Data Notification (CMDN) cards. The CMDN card currently has one primary purpose, which is to transmit data from the manager to the publication activity for inclusion in the ML. To keep catalogs in current status, Change Bulletin's (CBs), and Change Notice's (CNs) are published as required.

f. In addition to the management data flow systems described above, each Service has a system, using electrical accounting machine cards and/or magnetic tape, for preparing and distributing item management data additions, deletions, and modifications to their respective user/consumer levels.[119] Card tape transmissions may be accompanied by comparable item listings.

(1) In the Army, item additions and data element changes flow from the inventory control points (ICPs) and/or Army class management activities (ACMAs) into the Army Master Data File (AMDF) at the Army Material Command Catalog Data Office (AMCCDO). AMCCDO is responsible for transmitting the additions and changes to the field activities.

(2) In the Navy, additions and data element changes flow from the ICPs to the Fleet Material Supply Office (FMSO) Navy Master Data File. FMSO forwards EAM cards, documents, or tape, in change notice card format, to the Navy field activities, as appropriate.

(3) Air Force item additions and data element changes flow from the Air Force Logistics Command (AFLC) to Air Force bases through a system referred to as the Stock Number Users Directory (SNUD), which is tailored to the item interest range of the receiving base.

(4) Marine Corps item additions and data element changes flow from the Marine Corps Supply Activity (MCSA) to the eight major field installations. Output of Field File Changes is in tape format.

g. Due to the varied Catalog Publications Cycles in the Services, the change data (except for critical changes) are furnished by the Integrated Manager at least 120 days prior to the effective date.[120] The Services are to respond to these changes and have the data published and in the hands of the user at least 30 days prior to the effective date. In addition, the Services also distribute the data changes by mechanized means to their appropriate field activities e. g., Army Master Data File, Navy Change Notice Card, Air Force Stock Number User Directory, Marine Corps Change Notice Card.

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[119] DOD Report, The Management of Logistics Item Data In the Department of Defense, March 1968, pp. 132-133.

[120] DSA Publications Task Group, Materiel Management Data Publications Study, 2 September 1969.

6. CATALOG MANAGEMENT DATA CHANGES AND MIGRATION DURING VIETNAM ERA[121]

a. During the SE Asis crisis, millions of catalog changes have had a severe impact on all echelons of the supply system from the customer level to the inventory control points. This paragraph will address the problems created in the supply system by mass item migration and management data changes. It will also illustrate the magnitude of the problem and the need for more effective controls.

b. The following are five general categories of changes that generate turbulence.

(1) The first category deals with item management transfers resulting from logistical reassignments. The development of DOD Instruction 4140.26 in April 1965, resulted in the promulgation of a uniform inventory management coding (IMC) criteria. This also resulted in a retroactive program requiring the review of all items retained by the Services in the classes managed by DSA to determine if the new criteria would require transfer of service-managed items to DSA. In addition to transfers, accomplished on a programmed or scheduled basis, it has been necessary to continuously resolve and refine individual item assignments among the ICPs, the Services, the DSA, and the GSA. These are shown under the maintenance category below.

Item Management Transfers and Provisioning	FSNs Involved
Retroactive IMC (1 July 1965 to 3 Dec. 1967)	535,000
Maintenance IMC (FY 66 to Oct. 1969)	468,500
Provisioning (FY 66 to Oct. 1969)	439,200
	1,442,700

(2) The second category includes management data changes such as unit price and unit of issue changes that are originated by items managers and have the potential to create turmoil in the requisitioning and supply process.

Unit Price and Unit of Issue Changes	
Unit Price (FY 66 to mid-1969)	385,000
Unit of Issue (FY 66 to March 1968)	25,235[122]
	410,235

The preceding tabulation reflects the volume of unit price and unit of issue changes over the period shown. Although the number of unit of issue changes appear rather small compared with other types of changes, the importance of stability cannot be overemphasized.

(3) The third category, item reduction actions, create confusion when not carefully coordinated before implementation or when information concerning replacement items is not made concurrently available.

DOD Item Reduction Action	
Standardization (1962 to Oct. 1969)	530,819
DSA Inactive Item Review (1963 to Oct. 1969)	543,000
	1,073,819

[121] Data and statistics for this paragraph provided by Hq. DSA, in October 1969 Briefing to the JLRB.
[122] DOD Report. The Management of Logistics Item Data in the Department of Defense, March 1968, p. 137.

(a) The essential function of review and standardization of items from 1962 to mid 1969 has consisted of approximately 1 1/2 million standardization reviews that have resulted in over 530,000 item deletions.

(b) Complementing the Standardization Program is the Project for deleting inactive items. Within the DSA assigned classes, during the period 1963 to mid 1969, over 1,300,000 items have been forwarded for review and the Services have concurred in the deletion of over 543,000 items.

(4) The fourth category of catalog changes, such as revisions to item descriptions and reassignments between and among Federal Supply Classes, often require logistical reassignments to other ICPs as a follow-on action.

Catalog Changes	
Acquisition Advice Codes (Nov. 1967)	4,000,000

Under this category changes, the DSA and the Services began conversion in 1967, under DOD directions, from the use of "Supply Status Codes" to the newly developed "Acquisition Advice Codes" (i.e., requisition and or fabricate, local purchase, etc.). This recently completed conversion effort generated over 4 million catalog changes.

(5) The "other change" category includes the item name reclassification and the test restorative action projects. The item name project involves revising and refining the Federal Supply Class structure to provide for greater homogeneity within Federal Supply Classes. For example, bearings having a peculiar application were previously classified with the next higher assembly, and will now be placed in one Federal Supply Group as a result of this program. It is estimated that over 500,000 items will be reclassified among Federal Supply Classes over a 2-year period beginning January 1970. Items transferred to DSA assigned Federal Supply Classes will then be subjected to Item Management Coding and DSA estimates that 226,000 of these items will be transferred to DSA for Integrated Management. This will generate a second series of mass changes on these same items due to the logistical reassignments involved. In support of the DOD program to improve shelf-life management, each DOD item must have a test and restorative action code assigned. Consequently, within the next 24 months, numerous catalog changes must be disseminated.

Other Changes	
Item Name Reclassification Project	500,000
Test Restorative Action Coding	84,000
	584,000

c. Full cognizance of the total impact of a management data change or a change of item managers on all echelons of the logistics support may not always be appreciated. Often overlooked are the numerous activities and records affected by a single change from the inventory control point down to and including the end-use consumer. Also overlooked is the fact that all activities may not be comparably equipped to process all necessary adjustments at the same rate and within the same time frame.

(1) In the attempt to provide the most effective and economical support at the wholesale level of the system, sight sometimes is lost of the limited capabilities of the ultimate end-use consumer to perform efficiently in a logistics system that is becoming increasingly more complex. In 1968 the DOD Joint Unit of Issue Study Group concluded that "In the effort to facilitate and speed up operations at the inventory control point and at distribution points, a system of codes and "uncertainties" was forced upon those individuals who are least able to cope with them."[123]

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[123] DOD Study, The Unit of Issue in Materiel Management, May 1968, p. 5.

(2) Item transfers and management data changes require updating of numerous records in many functional areas and of depot stocks. Identified below in summary form are some of the major records affected, actions required, and functions involved. Maintenance of these records on a current basis by all concerned at every echelon is absolutely esstential for the supply system to be responsive in an efficient and effective manner. It seems obvious, therefore, that the more uncontrolled item changes are made, the more potential is incurred for confusion and reduced effectiveness.

Records/Functions Affected by Changes

Cataloging	Stock Remarking
Standardization	Warehousing
Production Management	Technical Manuals
Packaging	Allowance List
Engineering	Funding
Transportation	Financial Accounting
Distribution	Maintenance Records
Inventory	

d. There are approximately 25,000 recognized DOD requisitioning activities affected by changes; this results in a pyramid effect.[124] Because of this worldwide impact, the advantages of changes should be carefully weighed against the disruptions and reduced effectiveness that they create.

(1) Inventory Control Points produce Catalog and Management Data Notification (CMDN) cards for distribution to the cataloging and technical elements of the Services as well as changes to internal records. These changes are then rebroadcasted to all posts, camps, stations, and bases holding stocks of the item being changed. The changes are then disseminated to the individual using and requisitioning organizations, of which there were over 25,000 such agencies during the Vietnam era.

(2) Considering the impact of a single item change in terms of the number of activities affected, the functional interfaces required, the number of item records, warehouse location, stocks which must be updated, and the essentiality for maintaining them on a current basis, it would be appropriate for inventory managers to consider the volume of gross change actions at all levels and the impact on organizations that must implement the programs they develop.

e. In summary, the problem of mass migration and resulting data changes have created logistic turbulence and costs of a major magnitude. The significant impact on the overall system demonstrated the need for far better controls than have existed, particularly in time of war or emergency.

7. CONSEQUENCES OF THE CHANGES IN CATALOG MANAGEMENT DATA ELEMENTS

a. The need for a high degree of integrity in the stock number, unit of issue, and other data elements has been greatly accentuated by the Military Standard Requisitioning and Issue Procedure (MILSTRIP) requirements. The following catalog data element have been selected because changes in these data have had the most adverse impact on supply operations during Vietnam.

(1) Federal stock number (including both the FSC and FIIN)

[124] Hq., DSA, Briefing, to JLRB, subject: Item Migration, October 1969.

(2) The unit of issue (and related quantity per unit pact code)

(3) The responsible inventory manager (which cannot be disassociated from the stock number because a change in the manager generally results in a change in the stock number)

(4) Unit price.

b. No longer is a requisition submitted on hard copy with brief nomenclature to validate the stock number and often the unit of issue; the MILSTRIP requisition shows nothing but the 11-dight FSN and a two-letter abbreviation of the unit of issue.[125] Prior to the use of MILSTRIP and the computer, the requisitioner was likely, for example, to ask for "PAPER, abrasive, garnet, 9 x 11-in, grade 5/0, 50 sheets to package, PK, 5350-271-7930." Under MILSTRIP all the requisitioner shows is "5350-271-7930, SL." No longer is there nomenclature under the MILSTRIP requisition for comparison to the stock number, nor any indication that the requisitioner was aware of the quantity conveyed by the unit of issue. The MILSTRIP system is predicated on the integrity of the FSN and the unit of issue shown. Instability of the data can cause serious problems, as the Vietnam experience has amply demonstrated.

c. The type of change that has caused the most confusion and errors during the Vietnam conflict has been the units of issue. In 1965, DSA and GSA converted existing units of issues to agree with commercial packs in dealing with items procured in cartons, bags, drums, cans, reels etc.[126] For example, if an item was procured in a 100-pound bag, the unit of issue was converted from "pound" to "bag"; if manila rope was procured in 600- or 1200-foot reels, the unit of issue was changed from "foot" to "reel." The effect of these changes is best illustrated by the following.

(1) The Army's experience in Vietnam,[127] Korea,[128] and Europe[129] indicated that catalog changes had a particularly adverse effect on logistical operations, with the unit of issue creating the major problems.

(2) An Office of the Assistant Secretary of Defense (OASD) study report[130] on the unit of issue concluded that requisitioning problems can be minimized and supply efficiency and effectiveness improved through the establishment and use of standard unit of issue terms and criteria, making it easier for the requisitioner to do the right thing and difficult for him to do the wrong thing.

(3) Next to the Federal Stock Number, most warehousemen agree that the unit of issue is the most important element of management data used in their operations because they have a major impact on warehousing and storage operations.[131] A change usually necessitates a physical inventory recount, repackaging, remarking, and, at times, relocation. However, there is no alternative but to perform the tasks if proper shipment identification and accurate charging to customers is to be ensured. The DOD study on the "Unit of Issue" disclosed that many problems in the receipt, storage, and issue functions can be directly related to the type and frequency of unit of issue changes.[132] Further, warehouse supervisors recommended that: "the right unit of issue should be established when the item is first stocked, and then it should be left alone".[133]

[125] Office of the Assistant Secretary of the Army (I&L), A Study of Turbulence In Federal Catalog Data, 24 March 1970, p. 4.

[126] Ibid., p. 42.

[127] Memorandum For: Army Member, Joint Logistics Review Board, subject: Request for Information Concerning Catalog Changes, File LOG-SP-PPB 7160, 5 September 1969, paragraph 2.

[128] Ibid., paragraph 3.

[129] Hq., EUSA G4, Fact Sheet, Subject: Supply Data Changes, May 1969.

[130] DOD Study, "Unit of Issue" Study Group Report, May 1968, p. 1.

[131] DOD Study, The Unit of Issue in Materiel Management, May 1968, p. 67.

[132] Ibid., p. 68.

[133] Ibid., p. 69.

d. The next major type of change that most adversely affects supply operations, particularly during a buildup, is a change in the responsible inventory manager. The impact on the wholesale system is severe because of the transfer of records, technical data, and assets. Assets may not be physically transferred until directed by the gaining Service, which causes some time loss before stocks become available for issue. A change in the inventory manager is generally accompanied by a change in the stock number (that is, the FSC portion of the number) and a change in the budget code. A recent DOD policy has been adopted to defer the general announcement of such a transfer below the Continental United States (CONUS) wholesale system and, instead, to notify those field activities which do not route a document through the Defense Automatic Address System (DAAS). The new policy plus the expanded capability of the DAAS should provide improvements in this area.

e. This inflationary spiral of the last few years required a large number of unit price revisions.[134] These changes have been the result of a recent period of the highest rate of climb of the consumer price index in history: 2 percent in 1965; 3.3 percent in 1966; 3.0 percent in 1967; 4.6 percent in 1968, and 5.9 percent through the first 10 months of 1969. Here, the problem is not so much how to avoid the changes, but how to control their promulgation and processing to reduce the necessary turbulence to a minimum. Changes in item descriptions not accompanied by a change in stock number cause a minimum of turbulence under our mechanized systems, although they do confuse the requisitioner attempting to identify the item he wishes to order. The quantity per unit pack code is related to the unit of issue code and is embraced in the coverage of turbulence in the unit of issue code. Except for the impact of initial installation of the codes, data elements such as the acquisition advice code, physical security code, shelf-life code and repairability or recoverability code do not change frequently.

f. In summary, catalog changes cause turbulence, add to workloads, cause delays, and increase the opportunities for error, not on a one-time basis but for an indefinite period after a change is made. Vietnam experience indicated that restrictions must be placed on the frequency of changes and their broadcast to avoid serious impact at requisitioning level. Further, if changes must be made a method must be devised to lessen the burden on the requisitioner.

8. THE AIR FORCE STOCK NUMBER USER DIRECTORY[135]

a. SNUD is an Air Force data system established to provide automatic distribution of stock number oriented supply management data. Distribution of supply data processed through SNUD is on a selective basis, that is, the range of transactions disseminated are tailored on a stock number basis to meet the individual needs of each[136] user of the system. This tailoring is based on a user's recorded interest in a specific stock number. At present, catalog change data are being disseminated to 360 Air Force subscribers by mail or Automatic Digital Network (AUTODIN) and in listing or punch card format, at the user's discretion. Some of the typical data elements disseminated through the SNUD system are as follows:

(1) Stock list change data (source of supply, unit price, unit of issue, etc.)

(2) Interchangeability and substitution

(4) Repairable item movement control data

[134] Office of the Assistant Secretary of the Army (I&L), A study of Turbulence in Federal Catalog Data. 24 March 1970, p. 3.

[135] Information for this paragraph provided to JLRB action officers in visit and Briefing at Hq., AFLC, Dayton, Ohio, 23 September 1969.

[136] AFM, 67-1, Chapter 9, Part One, Volume II.

(4) Transaction data

(5) DLSC excess availability data

b. The SNUD system was specifically designed to provide the principal benefits as follows:

(1) Minimized need for numerous hours of manual research of reference document.

(2) Simplified base supply record keeping

(3) Improved accuracy and eliminated human errors

(4) Ensured compatability of record keeping

(5) Significantly reduced reaction time to implement supply management data changes

(6) SNUD is subscriber oriented and eliminates review of changes for which the subscriber has no interest.

c. The Air Force established the Standard Mechanized Base System during the period April 1966 through October 1967. The system provided logistics communication over standard computer equipment for major bases worldwide. That program facilitated the application of SNUD as a computer to computer information system. Review of the Standard Mechanized Base System operation in Vietnam since 1967 revealed that it provided the following advantages.

(1) Records are updated mechanically by punched cards and forwarded to Vietnam by AUTODIN.

(2) In 1967, all Vietnam bases were placed on the SNUD and only those changes that affected the bases concerned were forwarded.

(3) Use of the Standard Mechanized Base System reduced the amount of rewarehousing involved.

(4) Publications have been limited to a confirmation document role rather than an authoritative document. Changes are received and processed in a timely manner.

(5) As opposed to the 120 manhours of effort per 10,000 record changes on a manual basis, the Air Force now uses 160 manhours of effort per 100,000 items to maintain the accountable record systems, the manual time standard of .012 hours per item has been reduced to .0016 hours per item.

d. After implementation of the Standard Mechanized Base System and the SNUD, the Air Force was able to cope with the change problem with minimum impact and turbulence in logistical support. Since then voluminous changes have been accomplished, backlogs eliminated, time standards reduced, dependency on publications eliminated, and records updated in a timely fashion. In view of its performance, the system must be considered a strength and success.

9. EFFECT OF CATALOGS ON REQUISITIONING

a. It is difficult to disagree with the objectives and benefits to be attained from the Federal Catalog System, however, the federal cataloging program has been characterized by changes and refinement programs since it began.[137] Further maintenance of the FCS has resulted in extensive clean up programs that required voluminous data changes.

b. Although the Federal Catalog System has been in operation over a decade, numerous studies and findings indicate that the desired degree of success toward achieving its goals has been fully attained.[138]

c. This paragraph will focus on an analysis of catalog-related problems having adverse impact on the requisitioner.

(1) The GAO in its report to the Congress on the need for improvement in the processing of requisitions for materials[139] reported that:

> "MILSTRIP has improved the processing of requisitions. However, maximum benefits of MILSTRIP have not been realized because large numbers of requisitions contain erroneous or incompatible data and cannot be processed routinely. One of the principle causes of erroneous data being used was that current information was not available to the requisitioners. Military organizations that prepare requisitions often are not able to keep their catalogs updated. As a result, many requisitions are returned to the originators for additional information or for resubmission as corrected requisitions. Research procedures and resubmission of requisitions are time-consuming and cause delays in the supply support."

(2) Field visits by a Department of Defense Joint Study Group on The Unit of Issue confirmed the fact that end-user consumers are using outdated technical manuals and obsolete Service catalogs as a source of reference to obtain the management data required for requisitioning purposes.[140]

(3) The Department of the Army Board of Inquiry on the Army Logistics System (January 1967) page A-117, Volume VI stated that item identification data contained in current equipment publications do not reflect the latest stock numbers for thousand of items. Consequently, user requisitions frequently cite obsolete stock numbers. This situation cannot be corrected by issuing new catalogs because of the rate at which stock numbers are being changed and the prohibitive cost involved. A reasonable solution is to provide cross-reference data in some machine coded form.

(4) Field research by the Analysis Division, Plans and Programs and Systems, Headquarters, Defense Supply Agency,[141] determined that reference numbers often remain in maintenance manuals when they are no longer valid numbers for inventory management and procurement purposes. Consequently, these out-of-date numbers are deleted from DLSC data bank by the appropriate inventory control point. Since these invalid numbers do not appear in cross-reference lists or in the DLSC reference number screening program, frustrated requisitions based upon data in technical manuals result.

(5) The Commanding General of the U. S. Military Command, Vietnam, reflected that:[142]

(a) The Publication and Distribution system is not timely in distributing supply catalogs and equipment manuals. This creates confusion in requisitions from the field

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[137] Office of the Assistant Secretary of the Army (I&L), A Study of Turbulence in Federal Catalog Data, 24 March 1970, p. 41.

[138] Army Board of Inquiry, Report, Army Logistics System, February 1967, p. X-22.

[139] Report B-164500, 17 September 1968, p. 1.

[140] DOD Study, The Unit of Issue in Materiel Management, May 1968, pp. 38 and 39.

[141] DOD, Report on the Management of Logistics Item Data in the Department of Defense, March 1968, p. 293

[142] CG, U. S. Military Command, Vietnam, Letter, to Chairman, JLRB, subject: Commanders Logistical Check List, file MACJ44, 6 October 1969, p. 5, paragraph g(1).

to key depots in CONUS. Top level command emphasis must be applied to expedite transmission of such documentation in a timely fashion.

(b) All logistical materiel should contain effective dates. When dates or issues are changed priority message traffic should advise requisitions to avoid mix-ups.

(6) Early in the development of the cataloging effort, it was decided to avoid as much as possible the broad nouns such as, "machine," "rod," "block," "base," and "plate," by using a compound basic noun or phrase. For example, instead of "Machine, embossing" it would be "Embossing machine." However, execution of this concept proved a little different.

(a) Although there is a list of "Approved Item Names" there has been no universal application of these approved names. For example, body armor was first designated "Armor, body," but it was later changed to "Body armor." Current catalogs show both versions.

(b) These inconsistencies have the effect of scattering rather than grouping similar items in identification lists.[143]

(c) The impact on the requisitioner is great because the IL does not pull together all of the same type item. As an example, when a requisitioner is looking for repair kit, if he looks up a "kit, repair," he might not realize that there are also "repair kits," "part kits," and "maintenance kits." This complicates the requisitioner's search for the required item and is a cause of errors in requisitioning.

(7) The FCS has been plagued by insufficiency and inaccuracy of the data submitted by the catalogers to obtain an FSN or to maintain existing data. Of particular concern is the unduly high rate of invalid and erroneous data being submitted to the Defense Technical Review Activities (DTRA) under the DOD Item Entry Control Program.[144] This results in erroneous assignment of FSNs or unnecessary assignment of FSNs, excessive time expended in research and delays in expeditious assignment of FSNs. Reports available to DOD indicate that quality control exercised by the Services in the cataloging functions are either nonexistent or not working effectively. Apparently, the Services are experiencing problems with the complex rules and regulations governing the extraction and posting of FCS data and that these rules are not being interpreted uniformly. The Assistant Secretary of Defense in a Memorandum to the Secretaries of the Services and Director DSA, subject: Quality Control Porcedures for the Federal Catalog System, dated 24 October 1969, outlined the importance of Quality Control Procedures for the Federal Catalog System. This memorandum further outlined a program for improving the quality of inputs.

Service within a 120-day (maximum) complication cycle directed by the Catalog Management Data Notification Card and Management Data Lists procedures.[145] Although a 120-day leadtime seems adequate the U. S. Army did experience problems in implementing this procedure. During the SE Asia buildup the Army required 150 days leadtime from the date of submission of the CMDN card.[146]

(1) The Change Bulletin and the Change Notice are used to keep publications current.[147]

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[143]Office of the Assistant Secretary of the Army (I&L), A Study of Turbulence in Federal Catalog Data, 24 March 1970, p. 39.

[144]OASD, Memorandum, subject: Quality Control Procedures for the Federal Catalog System, 24 October 1969.

[145]DA (DCS/Log) Memorandum for Assistant Secretary of the Army (I&L), subject: Data Lists, 18 August 1968.

[146]Ibid., Enclosure 2.

[147]Federal Manual for Supply Cataloging, Chapter 7, Cataloging Manual M1-7, August 1969, Section 726.

(a) The CB is a scheduled publication designed to announce catalog data additions, deletions, or revisions. They are cumulative and issued monthly, bimonthly, or quarterly as required.

(b) The CN is an unscheduled publication designed to announce essential catalog data additions, deletions, or revisions, when required, between issues of CBs and/or a revised catalog. Change notices are non-cumulative and may be published to a ML as a monthly supplement, if required.

(2) Because the supply system consists of a number of echelons or levels and documents are constantly flowing upward and sideways through the system, changes must be made simultaneously in basic operating records as well as the documents moving through the system. The present practice, probably the only tenable choice, is to fix a date for a change far enough into the future to permit conversion of all operating records and documents simultaneously. Notwithstanding the long leadtime required to get the word to every requisitioning activity and ensuring that these agencies change every record and document has proved more feasible in theory than in fact. Review indicated that data changes distributed on an annual basis would be a burden because of workload created, particularly, for customers not possessing automatic data processing equipment. Quarterly broadcast of required data changes offers the best potential as far as timeliness and workload is concerned. The computer to computer customer-tailored change broadcasting technique of the AF-SNUD has advantages for computer-oriented customers. The microform technique described in paragraph 11 offers advantages to noncomputer-oriented customers. This technique is used by the Army for AMDF broadcast. In conclusion it would appear that changes must be held to an absolute minimum and change distribution held to quarterly broadcast.

e. The development of the Pacific Command (PACOM) Utilization and Redistribution Agency (PURA) for the disposal of excesses generated as a result of the Vietnam operation created a requirement for identification data. The specific requirement was for additional nomenclature for more precise identification of excess items so that these items could be utilized either to fill current requirements, or be redistributed or disposed. This additional information was not available because the status reports on excesses made available to PURA by the various Service participants were based on the minimal federal catalog program nomenclature or on DSA-GSA service-interest catalogs prepared by these agencies for the specific use of that Service. Although additional identification was available in cross reference catalogs and in identification list publications these identification data were not considered acceptable, because it is difficult and time consuming to look up. To improve identification of PURA items for its customers, PACOM developed an arrayed and extended nomenclature catalog that gave more precise information for identification. It further compiled the items in simplified and characteristically arrayed nomenclature sequence within a federal stock group. This catalog was laboriously developed in Okinawa under Department of the Army cognizance.[148] The arraying of nomenclature was accomplished manually as automated files of expanded nomenclature of the type required were not available. To reduce its size, the scope of the catalog was limited. This PURA catalog is published monthly to provide a ready reference of items of long supply within PACOM that have an accumulated extended dollar value of $5,000 or more per federal stock number. Items are also arrayed alphabetically within the federal stock group to provide for ease in determination of possible substitution of like items. The PURA catalog improved marketing of excess by providing item identification and visibility tothe Services that was not available, and had to be developed in-theater to improve system effectiveness. Need is indicated for the availability of properly arrayed extended nomenclature catalog information for excessing operations.

f. Service supply facilities in the Pacific and CONUS are involved in execution of retrograde programs. The tonnage of materiel involved is constantly increasing, and the identification of materiel and source of support information becomes a critical requirement. Services have problems identifying service-interest items that are retrograded. Further, mixed lots of unidentified items that are packed in Conex containers are being received by CONUS and

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[148] Department of the Army, Office of the Assistant Secretary, Memorandum, for the Assistant Secretary of Defense (I&L), subject: Marketing of PURA Excesses, 5 December 1968.

off-shore supply facilities. This creates a sizeable problem of identification and manager source determination. Source of supply information can currently be furnished by DAAS but no rapid or effective means of identifying returned materiel is available. A possible solution indicates a simplified, properly arrayed, extended-nomenclature catalog for Services requiring same.

g. The general availability of GSA and DSA catalog publications throughout the DOD has at times caused confusion at requisitioning activities. Certain items are listed in both catalogs with different units of issue and, in many instances, different prices. Examples are listed in Table 8 below. Some DOD activities, when requisitioning items under dual (DSA/GSA) management, are often directing their requisitions to the GSA supply system rather than to the authorized Defense Supply Center, thus contributing to conflicts in management data, user interest, and requirements calculations. This problem will be eliminated with the achievement of the goal of "one item, one number" throughout the Federal Government.

TABLE 8

DUAL MANAGEMENT CONFLICTS: DSA VS. GSA[149]

Federal Stock Number	Item	DSA U/I	DSA Price	GSA U/I	GSA Price
4010-228-944	Chain, Weldless, Sash (500 ft. reel)	Foot	$ .05	Reel	$25.00
4010-165-5607	Link, Chain, Connecting, 1/2"	Each	.53	Box	2.60
4010-149-5575	Chain, Welded, Log, 3/8"	Drum	137.00	Foot	.35
5305-010-2093	Screw, Wood, Brass, #4, 1/2"	Gross	.41	Box	.35
7210-171-114	Towel	Each	.18	Dozen	2.75
6840-082-2541	Insect Repellant (6 oz can)	Can	.66	Box	9.30
7290-125-9069	Hangar, Coat, Steel Wire	Hundred	1.10	Carton	6.50
6840-656-1630	Insect Repellant (20 oz Bottle)	Bottle	.40	Box	12.80
6850-063-2843	Bleach, Laundry (50 lb Drum)	Each	11.30	Drum	11.30
6850-292-9700	Cleaning Compound (5 gal)	Pail	4.58	Drum	6.70
7210-171-1099	Sheet, Bed	Each	1.84	Dozen	26.50

10. NEED FOR SIMPLIFIED CATALOG TECHNIQUES. Review of cataloging during the Vietnam era confirmed the fact that end-use consumers are using outdated technical manuals and obsolete Service catalogs as a source of reference to obtain the management data required for requisitioning purposes.[150] The requisitioner is well aware that thousands of catalog changes have been made during the past few years particularly in the common hardware and general use commodities areas. He also knows that if he does not use the correct and current data requisitions will be rejected for manual review at the first automatic data processing (ADP)-equipped level to which his requisition is forwarded.

[149] DOD, Study, The Unit of Issue in Materiel Management, May 1968, p. 85.
[150] Ibid., p. 89.

a. Many of the identification lists published by DOD agencies, as well as by the Services, contain item descriptions that have not been tabulated by common characteristics.[151] This practice, no doubt stemming from the ease with which the data on the item description cards can be copied, results in two things; first, the publications are a good bit thicker than they need to be; and, second, the user must wade through long descriptions to determine what the differences among the listed items are. It would be a lot cheaper for a cataloger to spend the time once to arrange items by common characteristics, than for every user to do so every time such a series is referred to.

b. Because the items in identification lists are arranged in alphabetic sequence and the nonsignificant FSNs are in random sequence, there must be an index in the front of each identification list arranged in FSN sequence to enable the user to find the description for an item for which he has only the nonsignificant FSN.[152] The common practice has been to assign "index numbers," often consisting of from six to nine or more digits, which are in the same sequence as the alphabetically arranged descriptions. To look up a FSN, the user looks in the index arranged in FSN sequence, ascertains the index number, and then looks for the index number in the body of the catalog. To find a 7-digit FIIN, he must write down the too-long-to-remember index number. In some cases his search is further complicated by reference to tables and then to index numbers within the tables. Instead of such index numbers, it would appear to be advantageous to have items on each page assigned an item number and the index, by FSN, merely show the page and item number on the page where the FSN can be found in that particular catalog. This would simplify referencing and save many manhours for the requisitioner.

c. Supply procedures and instruction require that personnel preparing a requisition refer to the latest ML to obtain pertinent supply management data; i.e., source of supply, unit of issue, and unit price. On the assumption that he has a copy of the applicable ML, he proceeds to transfer the required data to the requisition form. Should he find the unit of issue to be nondefinitive and expressed in a coded abbreviation, i.e., BG (bag), CT (carton), and RL (reel), he is again faced with a reference problem. His only source of reference to obtain actual quantitative information is the Identification List, which not only has limited distribution, but also limited descriptive data, particularly in regard to packaged-for-issue information. More often than not, he makes an educated guess based on past experience with the item or commodity.

d. The problem outlined above occurs most often in the category of general use items, i.e., those items not characterized by specific equipment application. Hopefully, a large percentage of the nondefinitive units of issue applicable to these items will eventually be eliminated, with the adoption of recommendations made by "The Unit of Issue" Study Report.[153]

e. The Secretary of the Army in a message to major Army commands[154] stated that one of the underlying causes of supply problems in the Far East was the need to restrict the number of types, sizes, and grades of items which the Army in the field is authorized to requisition from DSA and GSA. This problem resulted when the responsibilities for furnishing so-called common supplies were transferred from the Army to DSA and GSA, and the Department of the Army lost control of these commodities. The old allowance tables that controlled the range and quantities for consumable items units may draw practically disappeared. Initially, few, if any, constraints were imposed by DA on what the theater may order from DSA and GSA. Before constraints were established, the situation got out of hand and customers requisitioned and received an excessive variety and range of items.

[151] Office of the Assistant Secretary of the Army (I&L), A Study of Turbulence in Federal Catalog Data, 24 March 1970, p. 40.

[152] Ibid., p. 40.

[153] DOD Study, The "Unit of Issue" in Materiel Management, May 1968.

[154] DA, Message DA 888077 to CINCPAC, subject: Secretary of Army Comments on 15 and 18 October 1968 Report of Visit by Mr. C. Cook, OASD (I&L), 21 November 1968.

f. A possible solution to the above is the development of an individual service-oriented tailored version, and limited size and scope mail order type publications such as the GSA stores catalog or Navy's Shipboard Shopping Guide. This could provide a consolidated IL/ML that greatly simplifies the item identification and requisition preparation functions of the need-use consumer, technician, or mechanic. This publication arrangement should provide selection by noun name and essential features, including multiple container/package quantities, and also permit substitute shopping. This type catalog could also be used to limit the scope of items authorized for requisitioning and therefore reduce stockage. To simplify the job for the requisitioner, it is proposed that all general use type items, i.e., hardware, office, and housekeeping supplies, be included in a requiring service-oriented, limited-scope general illustrated catalog, without regard to materiel manager assignment and responsibility.[155]

g. Review of the Department of Defense Report on the management of logistics item data in the DOD reveals[156] that although the current guidelines and plans call for illustrations and tabular presentations, they emphasize that illustrations will be utilized only when considered necessary to identify properly the item and generally will not be utilized for commercially available or common-use items. This philosophy is contrary to the expressed needs of catalog (IL) users. In fact, these users point to GSA's Supply Catalog, the Navy's Illustrated Shipboard Shopping Guide, and DSA's Medical Catalog as examples of usable ILs.[157] Each of these contains a significant range of commercially available, common-use items, and each makes extensive use of illustrations. The production of more useful catalogs (ILs) requires more use of illustrations.

h. The cited DOD report findings indicate that, in order to improve the usefulness of catalogs (ILs) and thereby assist in the control of item proliferation, more illustrations along with more narrative descriptions would materially improve catalogs for the requisitions.[158]

i. Review discloses that the USAF computer-to-computer oriented SNUD system was a very satisfactory method of achieving simultaneous data update and reduced requisitioning errors. During the catalog turbulence period its benefits occurred because data utilized are consistent, compatibly tailored to users requirements, and easily disseminated. The receipt of products from SNUD eliminates the time consuming maintenance problem at base level when the change contained in books or manuals must be manually gleaned for all stock numbers in use at base level.[159]

11. MICROFORM

a. The traditional method for distributing catalogs and item management data elements to users and consumers has been published in book-like format. The publication of catalogs has gone through a long evolutionary process and has been confronted with the problems of long leadtimes, format, standardization, volume, printing, and transportation or distribution leadtime. As item ranges grow, catalogs (and other documents) become larger, and ML covering service-interest items occupies several linear feet of wall space.

b. As a result of the deficiencies mentioned above and the development of new equipment and techniques, each Service is considering the use of MICROFORM as a means for distributing item management data and other published information to data users. The most progressive effort to date, and a system that is operational, is the Army system for distributing the Army Master Data File information to user/consumer activities.[160]

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[155] Ibid.

[156] DOD, Report on the Management of Logistics Item Data in the Department of Defense, March 1968, p. 175.

[157] Ibid., p. 175.

[158] Ibid., p. 293.

[159] Department of the Air Force, Air Force Supply Manual, AFM-67-1, 1 July 1962.

[160] DOD, Report on the Management of Logistics Item Data in the Department of Defense, March 1968, p. 178.

c. The publication of cataloging data in a simplified, standard format, featuring a minimum range of essential data elements, would be an aid to users. It also shows promise in minimizing the burdensome problems of catalog updating.[161] Some recent developments in the Electronic Composing System (ECS) offer great potential towards the elimination of production, leadtime and updating problems. ECS offers high-speed quality production of catalog data at speeds not possible with normal catalog production methods.[162] DSA is exploring the use of ECS for cataloging purposes.

d. The AMCCDO AMDF Reader Microfilm System (ARMS) is a means for providing field activities with item management data on microfilm. The item management data for the 1.2 million Army interest items (consisting of 400 volumes extending 163 linear feet) can be placed in 12 cartridges of 16 millimeter microfilm occupying less than one cubit foot.[163] Data retrieval and observance are accomplished using a microfilm reader (viewer) in portable or console form. Data retrieval of any item within the 1.2 million item range can be accomplished in approximately 30 seconds by personnel at the lowest organizational level. The Army microfilm system has been tested under operational conditions in Vietnam with considerable success and is being phased into use at user and consumer level as microfilm readers become available and as personnel can be trained in the system's use.

e. The Army microfilm project has been the first large scale effort aimed at producing, distributing, and testing a catalog micromation system. The initial success of the project is related to the following advantages of using microfilm: (1) compact size, (2) ease of handling, (3) low shipment cost, and (4) simplicity of use.[164] Further, microfilm and other micro-techniques offer an important improvement in the area of data updating. Using such techniques entire data files can be replaced periodically, and system requisite can be established that would force the return of replaced data (in cartridge form) to the data issuing and monitoring activity. This would alleviate the update problem and ensure the currency of data. At user and consumer requisitioning activities such an approach would have great value.

f. Although the Army has been the leading proponent of catalogs in microform, the Navy, the Air Force, and the DSA have adopted it for certain applications and are considering catalog data distribution in microfilm and micro-fiche. A Service test has been initiated by DSA to determine the feasibility of producing the IL from magnetic tape for distribution in 16mm microfilm format.[165] Results to date indicate that equipment capable of producing 16mm microfilm versions of the IL from magnetic tape is currently available. The first IL (sample) has been produced and is currently being reviewed. Cost effectiveness and user acceptance of this product is to be determined. It is anticipated that the trend toward broader use of microfilm will continue, and that the demand for catalog data production in such format will increase.[166] Microform has a particular advantage to requisitioners not possessing computer-to-computer links with suppliers.

g. Although a continuing need exists for Federal Catalog Publications in book form, a growing need has evolved for catalog publications and distribution in microform.

h. Printing and transportation are a problem in preparation of catalogs. Because of the size and volume of book-type catalogs, only surface and water transportation is authorized. Catalog data in a microform can be produced in much shorter time frames and qualify for distribution by airmail and parcel post.[167] This narrows the gap between the information accumulation cutoff date and users receipt of data.

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[161] Ibid., p. 169.
[162] Hq., DSA, Materiel Management Data Publication Study, August 1969.
[163] Hq., AMC, Study Phase III, Profile of Cataloging, P. 83.
[164] Ibid., p. 181.
[165] DSA, Materiel Management Data Publication Study, August 1969.
[166] Ibid., p. 183.
[167] Navy Supply Systems Command, Evaluation Report, Feasibility Study on Miniaturization of Federal Catalog Data by the U.S. Navy, 1969, p. 3.

12. FUTURE OUTLOOK. Review indicates that the Federal Catalog System has been subject to a tremendous amount of turbulence from the very beginning. There has not been a brief interlude when some kind of cleanup program has not been underway.[168] Thus, the turbulence experienced during the Vietnam conflict was not new; the wartime impact was merely felt a little more acutely, and heard a little louder because the impact came to the attention of some top logisticians who were not previously aware of the situation.[169] There are indications that future OASD programs will require continued management data changes that will affect supply activities. Typical programs are as follows:

a. The ASD (I&L) announced a program on 2 June 1969 to reclassify certain common-type items now classified by the next higher assembly into the common classes, principally managed by DSA, for such items. For example, bearings having a peculiar application to an end item would be reclassified in the common class for bearings. However, the Army requested the ASD (I&L) to defer action on the program until the Vietnam conflict is ended. The ASD (I&L) agreed to defer most of the program, but directed the Services to proceed with a part of the program immediately. DSA has estimated that the total program involves approximately 500,000 items now managed by the Services, which will be transferred principally to integrated classes now managed by DSA.

b. The Defense Organizational Entity Standard (DOES) program, announced by DOD Directive 5000.17, dated 14 January 1969, will have an impact on records used throughout the Federal Government. The basic function of this program is to standardize codes used to reflect an address. Currently, accountable records use a two-position code to indicate an inventory manager and a three-position code to indicate a routing identifier. Under the DOES program these must change to a six-position code. All Services field activities will be affected since the routing identifier is a key to requisitioning. The DOD directive indicated that all changes to records must be accomplished prior to 1 July 1970.

c. OASD (I&L) established a DOD task group by memorandum, dated 1 February 1969, charged with standardizing unit of issue policy. The study was completed, and a standards of issue redefined and reduced in number from 181 to 69. These were transmitted to the Services and agencies for implementation by a memorandum from the ASD (I&L), dated 17 February 1970.[170] This will result in some changes, but should alleviate the situation that occurred during Vietnam.

d. The Federal Item Identifier Guides Improvement Program (FIIG) and the long-range system design for the Defense Logistics Service Center, the Defense Integrated Data System, were both announced in the ASD (I&Ls) 27th Semiannual Report on the DOD Cataloging and Standardization Programs, dated February 9, 1966. The FIIG was heralded as "...the medium best suited for the orderly determination, collection and transfer of item characteristics, interchangeability and substitutability criteria, and supply management data to a highly mechanized central repository or item intelligence bank. The data, in machine sensible coded form will be readily available for retention, conversion, and dissemination to users as required. The FIIG will include those data requirements specified by engineers, procurement, standardization and supply specialists to satisfy the particular technical or managerial needs of their respective areas of interest."

(1) The FIIG Program had as its genesis the concept that the item identifications and more specifically the descriptive method item identifications resulting from the existing guides are marginally adequate for cataloging purposes and are inadequate for other logistic functions.[171] In the simplest terms, the FIIG program is an effort to establish standard codes

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168 DOD, Report on the Management of Logistics Item Data In the Department of Defense, March 1968.
169 Ibid., p. 295.
170 ASD (I&L), Study Report, Review of Unit of Issue Terms Used in Materiel Management, January 1970.
171 DOD, Report on the Management of Logistics Item Data in the Department of Defense, March 1968.

for item characteristics that the computer can translate into clear text from stored tables which show the clear text for each code. The scope of this program is suggested by the fact that the DLSCs specification for ADPE for processing such coded item description calls for an on-line memory capacity of 13.5 million characters.

(2) As of 31 December 1969 some 79 FIIGs had been published, of which 74 had been implemented. Another 139 were in process. Approximately 616,000 items had been redescribed under the published FIIGs. Plans were to publish 104 "priority" FIIGs and to update the records under them by 31 December 1970, but that date has been slipped to 31 December 1971. The rejection rate of submitted data continues high and lack of adequate controls over the item descriptions submitted to DLSC resulted in a loss of 90,000 item descriptions ostensibly prepared and submitted, but not found in the DLSC files. In addition, 19 FIIGs are being revised and the item descriptions already prepared under them must be reworked.

(3) It is estimated that the 104 priority FIIGs will cover approximately 1.15 million of the 1.9 million items in the DLSC file prepared under the descriptive method. In the meanwhile, DLSC is working on the conversion of the remaining 750,000 items (1.9 million minus 1.15 million) to the FIIG format with a target date of 30 June 1971. Exclusive of the costs of preparing the item descriptions under the 19 FIIGs being revised and the DLSC costs of redescribing the 750,000 items not covered by the priority FIIGs, it was reported that so far the redescriptions have required about 347,000 manhours at a cost of about $1.9 million.[172]

e. The Defense Integrated Data System is a comprehensive program under which the Defense Logistics Service Center at Battle Creek, Michigan, is to maintain a central data bank by a very large-scale computer of much of the supply management data not maintained and disseminated to users by the Services. The program also includes the processing of item descriptions prepared under the FIIG program, including inquiries.

(1) The relationship of the DIDS program to catalog turbulence is simply that most of the changes will emanate in the future from DLSC rather than from the Services because DLSC's data bank is to contain the "master" record of the inventory managers to which items are assigned, substitutability and interchangeability data, freight classification codes, packaging data, weight and cubage data, and even such service-peculiar codes as the budget or financial management codes. Stock number changes, unit of issue changes, etc., are to be distributed worldwide from this central data bank.

(2) The principal item of interest is probably the fact that the implementation of the DIDS program will be accompanied by the change in a number of codes now in use; for example, the codes that indicate Service interest in an item, the item status codes, the DOES codes, the manufacturers codes--and finally the federal stock number will be changed from 11 to 13 digits to agree with the number used by the NATO countries. A little more future turbulence may therefore be expected.

13. SUMMARY

Changes in catalog management data, i.e., stock numbers, unit of issues, and item migrations among managers, have created problems in overseas supply operations and with the requisitioner. These problems were particularly acute during the RVN buildup. Distribution of changes to all users and the required adjustments to records, remarking of locators and stocks, were extremely difficult and in many cases impossible. These changes resulted in hundreds of line items in the depots with old FSNs that could have been issued to satisfy requirements. Lack of nomenclature added to the identification problem. Unit of issues changes caused mistakes in requisitioning, issue, and excesses. Identification and disposition of excesses during PURA were hampered by lack of properly arrayed and sufficient nomenclature for identification. Migration of items among managers caused misrouting and delayed action

[172] Principal source of data: DSA, Memorandum to ASD (I&L), subject: FIIG Improvement Quarterly Report, 2nd Quarter, FY 70, 11 February 1970.

on requisitions. The workload to accommodate the large number of catalog changes was at the expense of already overloaded resources. Outdated catalogs, inadequate data, and incomplete nomenclature caused requisition rejection problems. Simple mail-order type service-oriented catalogs for "General Use" items would simplify item identification. The Air Force with its Stock Number Users Directory tailored to subscriber needs and its standard base system appears to have escaped serious handicaps caused by the turbulence in the cataloging area. From all indications, catalog data changes will continue and in many instances are desirable. Distribution of tailored catalog data to lower echelons via microform would reduce handling time, reduce bulk of cataloging data and facilitate referencing. Microfilm offers particular advantages to lower echelons not possessing computer-to-computer link up.

14. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) The chain reaction of changes, particularly at user level must be considered before implementation (paragraphs 1a, 6c, 6e, 7, 9c, 11, and 13).

(2) The large number of catalog changes contributed to supply management problems, made record keeping difficult, and slowed supply response and effectiveness. The number and frequency of changes must be kept to an absolute minimum (paragraphs 1c, 6a, 6c, 6d, 8, 9, and 13).

(3) Catalog changes, particularly in units of issue, contributed to excess stocks of certain items in Vietnam (paragraphs 1c, 6b (2), 7, 12c, and 13)

(4) Lack of readily available, often properly arrayed catalog information with expanded nomenclature made identification of excesses and substitution difficult. This problem was particularly acute during the development of PURA operation. A special program had to be initiated to array and describe PURA high-volume excesses to facilitate utilization of those assets. Lack of expanded nomenclautre handicapped utilization and distribution of excess (paragraphs 4f, 9c(6), 9e, 9f, 10, and 11).

(5) Item manager changes resulted in supply source conflicts among inventory managers and delayed supply actions (paragraphs 6b(1), 6c, 7d, 9g, and 13).

(6) Although many catalog data elements were changed, the following elements caused the most problems:

(a) Federal stock number (composed of FSC-FIIN)

(b) Unit of issue

(c) Responsible inventory manager

(d) Unit price

(e) Quantity per unit of pack (paragraphs 5e, 6 and 7a).

(7) Broadcast of total changes to users instead of only those changes pertinent to the items they carried needlessly increased the work of users. Broadcast of subscriber tailored catalog data elements eliminates unnecessary workload and reduces confusion. The USAF SNUD system has this desirable feature for providing only applicable catalog data to subscribers in the manner specified by the subscriber. Micromation that saw some use in catalog data dissemination has the advantages of being tailored to subscribers' needs, reducing bulk, and simplifying reference work (paragraphs 5e, 5f(3), 5g, 7f, 8, 9c, 10, 10i, 11, and 13).

(8) Review indicated that for the requisitioner there is a need for catalog simplification, reduction in catalog scope, improvement in quality of data, and a Service-oriented general-use catalog (paragraphs 5b, 8, 9c, 10f, 10g, 11, 13).

b. Recommendations. The Board recommends that:

(SM-11) The Office of the Secretary of Defense develop and promulgate policies designed to:

(a) Hold in abeyance or strictly limit the migration of items among materiel managers during periods of hostilities (conclusions (1) and (5)).

(b) Limit catalog data element changes, particularly to those that have an impact on the requisitioner, e.g., unit of issues during contingency operations (conclusions (1), (2), and (6)).

(c) Restrict federal stock number and other data element changes to a quarterly interval unless there are cogent reasons for an immediate change to minimize impact on the retail system (conclusion (2) and (7)).

(SM-12) The Services develop systems to tailor changes to the item carried at each level instead of broadcasting all changes to all users (dominant feature of USAF SNUD system). If computer-to-computer capability is not available, the advantages of micromation for broadcasting user-tailored catalog changes should be explored (conclusions (2) and (7)).

(SM-13) The Services not possessing a general-use catalog, develop and test a simplified, easy-to-read, tailored, limited-in-scope, range, and requisitioning authority "general-use" catalog (conclusion(8)).

SECTION F

DEFENSE AUTOMATIC ADDRESSING SYSTEM

1. INTRODUCTION AND BACKGROUND

a. The identification of the proper source of supply is sometimes a difficult problem for the requisitioner. The problem has been compounded by the proliferation of supply sources caused by the single manager concept and the establishment of the Defense Supply Agency (DSA) and the General Services Administration (GSA). This, coupled with the everchanging replacement and modernization of weaponry, created a difficult file-maintenance situation for requisitioning activities. The magnitude of workload required to maintain current valid sources of supply for items was, and still is, a burden. The burden of trying to find the correct source fell on the requisitioners, users, and the operating forces. The Defense Automatic Addressing System (DAAS) was developed to alleviate these problems.

b. The purpose of this section is to review the performance of DAAS during the Vietnam conflict and to ascertain if it accomplished its assigned functional mission.[173]

2. THE PURPOSE OF DAAS. The Department of Defense established the DAAS for the following:[174]

a. It was designed as an on-line processing center to automatically address requisitions to the proper supply action source.

b. To relieve requisitioning activities from maintaining valid supply source data for materiel.

c. To be an open-ended service that may be expanded at any time consistent with the system's physical capabilities and the worth of the contributions that the DAAS could make through such expansions. Expansion may be in any direction, i.e., in the range of documents the DAAS might process, or in the variety of services it might perform.

d. To receive and transmit, at a single point, all transactions from requisitioning activities.

e. Route designated documents to the source of supply specified by item managers.

f. Accumulate documents and batch by destination, supply priorities, and established time standards.

3. THE TEST AND DEVELOPMENT

a. DAAS was developed by a Department of Defense task group, established in 1964, to design and service test a system that would automatically route machine-sensible Military

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[173] OASD (I&L), Memorandum, subject: Automatic Addressing of Logistics Communications, 17 December 1963.

[174] Department of Defense Directive 4140.29, subject: Defense Automatic Addressing System (DAAS), 23 February 1968.

Standard Requisitioning and Issue Procedure (MILSTRIP) documents through the Automatic Digital Network (AUTODIN).[175]

b. The concept was tested at Gentile Air Force Station, Dayton, Ohio, during the period 4 March to 15 September 1955. Test data were accumulated and an evaluation was made by a task group consisting of representatives of the Office of the Assistant Secretary of Defense (Installations and Logistics) OASD (I&L), the military departments, the Defense Communications Agency, (DCA), GSA, and DSA. The task group concluded that the concept was feasible, practicable, and desirable, and that the automatic addressing operation should be continued and expanded.[176] By memorandum of 11 October 1965, the OASD (I&L) approved DAAS as a permanent part of the DOD logistic system complex;[177] assigned responsibility for its operation and further development to DSA; and directed that a phased implementation program be undertaken.

c. The task group reported that the system had improved accuracy in the routing of logistic documents and had saved time in the message preparation by the requisitioners. During the test, the following volume of changes (Table 9) was processed without disruption of DAAS effectiveness.

TABLE 9

CHANGES PROCESSED DURING SERVICE TEST

(For 6 1/2-Month Period)

Total FSN Records	4,568,551
Total Number of Changes	1,816,857
(1) FSN Status Changes	616,347
(2) Source of Supply	1,200,510

Source: OSD Service Test Report, August 1965.

d. A DOD directive provided for a second or short-range phase to establish a backup or alternate facility, expand, reprogram the Dayton test facility and add additional subscribers scheduled by the Services.[178] Then, based upon development experience acquired in the second phase, the direction provided for a long-range expansion of service in Phase III.

4. OPERATING PRINCIPLES[179]

a. The DAAS facilities are designed to operate with AUTODIN. This AUTODIN tie-in with the Automatic Addressing System (AAS) facility and switching centers is shown in Figure 3. The DAAS AUTODIN network is shown in Figure 4. The DAAS is designed to interface with the Department of Defense (DOD) telecommunications system. The concept was based on the premise that formatted logistics data, i.e., the MILSTRIP requisition or the Military Standard Transaction Reporting and Accounting Procedure (MILSTRAP) type transactions document, were capable of being routed on the basis of computerized "table look-up" techniques in association with automated communications systems.

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[175] Secretary of Defense, Memorandum, for Service Assistant Secretaries, and Directors DSA, DCA, subject: Auto-Addressing System Service Test, 7 March 1964.

[176] OASD (I&L) Report, Service Test Report, Automatic Addressing of Logistical Traffic in Autodin, August 1965, p. 36.

[177] OASD (I&L), Memorandum, for the Service Assistant Secretaries and Directors DCA, DSA, subject: Automatic Addressing System (AAS), 11 October 1965.

[178] Ibid., p. 2.

[179] DOD Instruction 4140.29-M-DAAS, Defense Automatic Addressing System, March 1969.

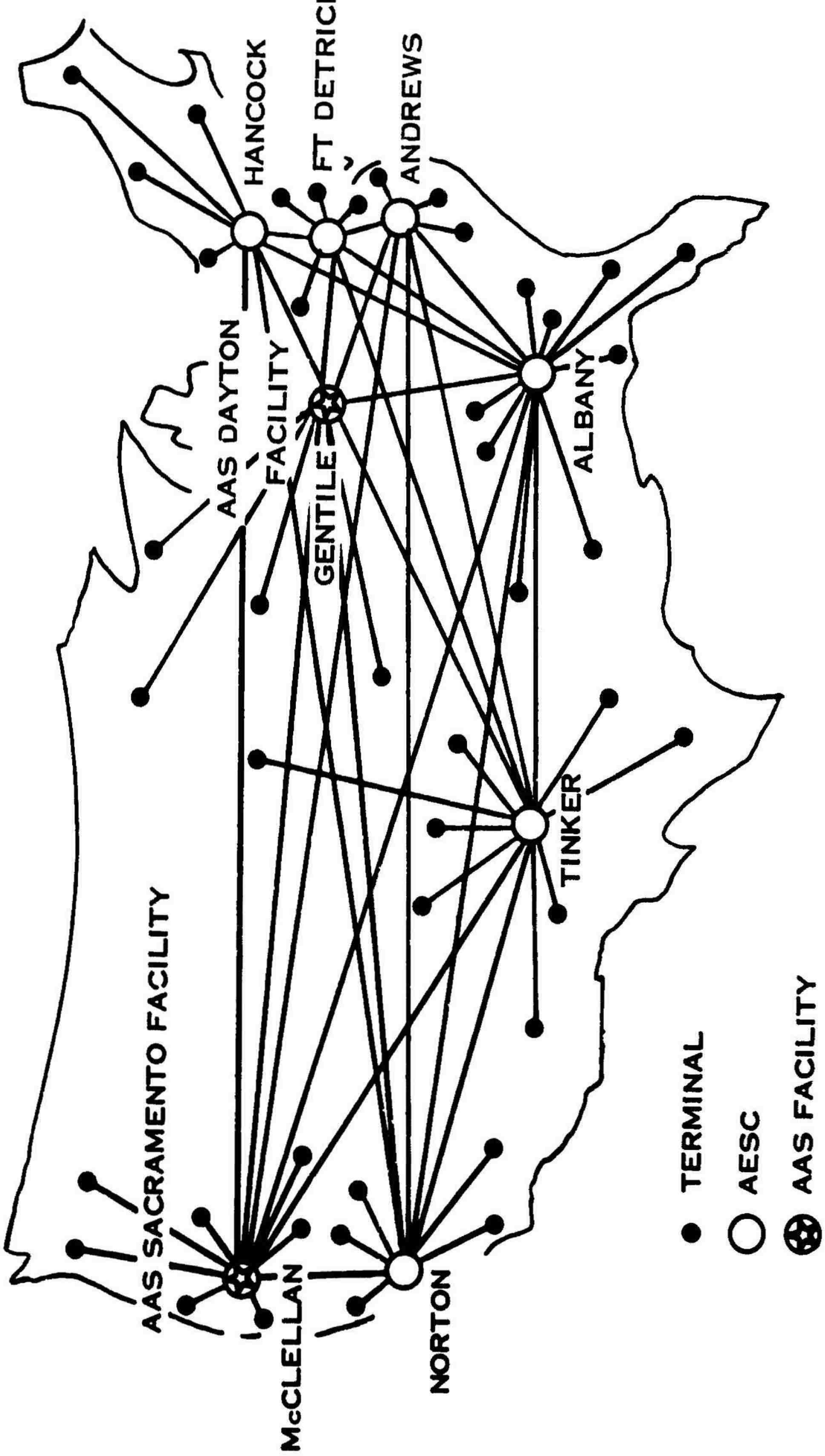

FIGURE 3. AUTOMATIC DIGITAL NETWORK AND AUTOMATIC ELECTRONIC SWITCHING CENTERS

SOURCE: DSA HQS - DAAS OFFICE

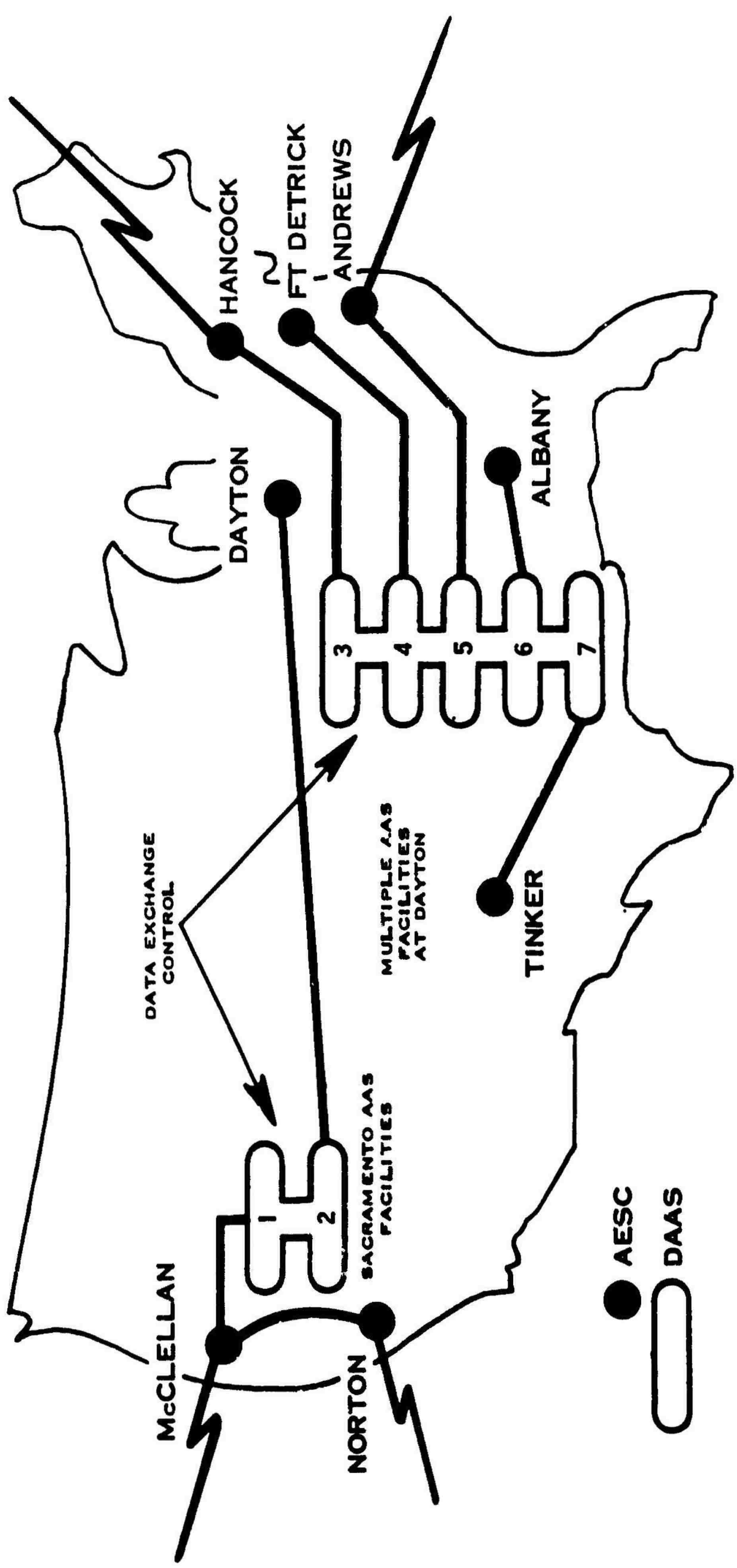

FIGURE 4. DAAS—AUTODIN NETWORK

SOURCE: DSA HQS - DAAS OFFICE

b. The DAAS concept of operation is based on the use of the Federal Item Identification Number (FIIN) as the key to system operation. The FIIN is composed of the last 7 digits of the 11-digit federal stock number and represents, in each case, a unique number. The DAAS files are set up by FIIN sequence as established and maintained by the Services, the Defense Supply Centers (DSCs), and the General Services Administration. Basically, the DAAS matches the FIIN indicated on a customer requisition with the same FIIN in the official catalog file, and further:

(1) Indicates the proper addresses on the requisition.

(2) Consolidates by priority transactions going to the same source.

(3) Determines the communication terminal that services the addressee.

(4) Automatically advises requisitioner whenever the addressee is changed in the requisition in order to facilitate follow-up or cancellation action.

5. ADVANTAGES TO THE REQUISITIONER. Although the most obvious benefit of the DAAS is the service it performs for requisitioners in getting the requisitions to the right source of supply. It also processes all supply transactions, requisitions or not, which are transmitted in MILSTRIP/MILSTRAP format. Based on information provided by DSA reported by customers, additional benefits are:

a. Easier to prepare message header and trailer cards

b. Reduction in the number of cards required

c. Elimination of routing identifiers and separate batching

d. Reduction in number of messages

e. Reduction in human error in assignment of MILSTRIP routing identifiers and communication routing indicators.

f. Assurance of transmission of requisitions to correct source of supply.

6. GROWING PAINS

a. As with most new systems DAAS had problems during its evolution and growth. Initially, computer capacity and alternate switching capability were limited. These capabilities have been enhanced. Some misrouting of requisitions was experienced during early file buildup stage. Initially, basic file maintenance problems were experienced.[180] Backup capability to ensure around-the-clock operations was not available initially, but has been acquired. In addition, some source of supply conflicts were encountered. This was due to record differences between the DAAS and source of supply.

b. Currently, workable procedures are available whereby the DAAS records may be quickly changed when it is found that an incorrect source of supply is recorded.[181] The DAAS provides item managers the necessary visibility for source of supply incompatibility between the Services, the DCSs and the GSA. It also provides the necessary information to correct such incompatibilities, by a monthly report of source of supply conflicts.[182]

c. The principle cause of misrouting of requisitions was due to the lack of responsiveness by inventory managers in correcting and disseminating source of supply records and

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[180] DSA, Study, subject: Defense Automatic Addressing System (DAAS), file DSAH-LST, 2 June 1969.
[181] Ibid., p. 12.
[182] Ibid., p. 15.

information.[183] It is imperative that sources of supply provide the DAAS with supply rule changes and the effective date in a timely manner.

7. DAAS SUBSCRIBERS

a. The system became operational in March 1965 with a limited number of designated subscribers, (Naval Supply Center (NSC), Norfolk, Ft. Knox, Lockbourne AFB, Defense Electronic Supply Center (DESC), and Region 9 of the GSA). This service was expanded to indicate additional subscribers. The U.S. Army Pacific (USARPAC) was given priority consideration. The current DAAS subscribers are shown in Table 10.

TABLE 10

DAAS SUBSCRIBERS

Activity	Number	Type of Subscribers
Army	110	Field Forces, Inventory Control Points, and Depots
Navy	60	Stations, Naval Supply Centers, and Depots
Marine Corps	1	Marine Corps Supply Activity
Air Force	154	Air Force Bases
Defense Supply Agency	6	Defense Supply Centers, and Depots
General Services Administration	11	10 GSA Regions and GSA National Inventory Control Center
Total	342	

Source: Hq., DSA, September 1969.

b. The total DAAS transaction volume of service subscribers by year through September 1969 is shown in Table 11. The statistics include:

(1) Documents processed by DAAS (MILSTRIP/MILSTRAP) and designated financial transaction (F series) documents.

(2) The yearly transaction volume increases reflect the progressive expansion of DAAS capacity and the addition of DAAS subscribers.

(3) Volumes reflected for 1965 represent March-December 1965.

(4) Volumes reflected for 1969 represent January-September 1969.

c. The total volume of transactions by specific document type by service subscribers is shown in Table 12.

8. PLANS FOR ADDING SUBSCRIBERS.[184] The following are planned to be added as DAAS subscribers.

[183] Ibid., p. 16.

[184] Hq., DSA, Memorandum, for the Chairman, Joint Logistics Review Board, File DSAH-LST, Inc #3, 21 October 1969.

TABLE 11

DAAS, TOTAL TRANSACTION VOLUME BY SERVICE AND YEAR

Year	Army	Navy	Marine Corps	Air Force	Total
1965	1,939,708	4,466,636		3,457,220	9,863,564
1966	5,312,429	10,748,598		5,893,410	21,954,437
1967	21,864,018	17,660,546	2,039,915	8,903,338	50,467,817
1968	33,639,798	24,593,529	5,311,582	15,455,398	79,000,294
1969	35,413,359	27,821,690	5,202,349	24,393,890	92,831,288
Total	98,169,312	85,290,999	12,553,846	58,103,243	254,117,400

a. Army. Missile stovepipe transactions being considered for routing through DAAS.

b. Air Force. The Air Force Logistics Command (AFLC) Air Materiel Areas (AMAs) are to be added upon implementation of expanded DAAS mailing service and the AFLC Advanced Logistic System. The mailing service and evaluation was successfully completed in February 1969. Additional mail processing equipment is required. This is on order and will require approximately 6-months leadtime. This will delay full participation by the Air Force until some time after June 1970.

c. Navy. The Navy plans to add in the near future:

(1) Aviation Supply Office.

(2) Navy Shipyards (NSY) in Boston, San Francisco, Portsmouth, and Norfolk.

(3) Naval Ammunition Stations (NAS) in Albany, Georgia; Corpus Christi, North Island, Lakehurst, Mimar, Patuxent River, Point Mugu, and Lemore.

d. Marine Corps. Plans are not yet formulated.

e. DSA. Plans are being formulated to add depots.

f. GSA. GSA is fully subscribed to DAAS.

9. NONSUBSCRIBERS TO DAAS. In general, the development of compatible automatic data processing (ADP) programs or gradual phase over are the main reasons for being nonsubscribers. The following activities are not current subscribers.

a. Army (Ft. Mason, California)

(1) Missile stovepipe documents generated by activities in Vietnam. (As prescribed by logistics procedures for control purposes.) These are being considered for routing through DAAS.

(2) U.S. Army Medical requisitions are routed by DAAS to the U.S. Army Medical Materiel Agency, Phenoxville, Pa., rather than to the source of supply.

b. Air Force. AFLC Air Materiel Areas (Warner Robins AMA, Oklahoma City AMA, San Antonio AMA. Ogden AMA, and Sacramento AMA) are not currently using DAAS

TABLE 12

DAAS, TOTAL DEMAND TYPE DOCUMENTS BY SERVICE AND YEAR

Year	Document Type	Army	Navy	Marine Corps	Air Force	Total
1965	Requisitions	271,098	230,808		408,253	910,159
	Passing Orders	20,869	334,093		40,581	395,543
	Referral Orders	1,659	910,898		4,921	917,478
	Total	293,626	1,475,799		453,755	2,223,180
1966	Requisitions	1,239,920	339,588		510,849	2,090,357
	Passing Orders	27,856	628,517		35,283	691,656
	Referral Orders	1,116	2,034,802		4,809	2,040,727
	Total	1,268,892	3,002,907		550,941	4,822,740
1967	Requisitions	3,457,814	327,074	128,146	1,230,618	5,143,652
	Passing Orders	530,321	893,359	2,446	6,403	1,432,529
	Referral Orders	818	2,135,003	2,898	3,077	2,141,796
	Total	3,988,953	3,355,436	133,490	1,240,098	8,717,977
1968	Requisitions	4,068,319	496,282	224,[illegible]	2,674,063	7,462,791
	Passing Orders	908,591	1,794,280	24,110	48,137	2,775,118
	Referral Orders	6,911	2,263,984	12,584	3,310	2,286,789
	Total	4,983,821	4,554,546	26[illegible],821	2,725,510	12,524,698
1969	Requisitions	3,908,050	776,368	174,020	5,272,830	10,131,268
	Passing Orders	605,179	2,332,591	28,856	59,792	3,026,418
	Referral Orders	9,541	2,026,804	12,671	3,659	2,052,675
	Total	4,522,770	5,135,763	215,547	5,336,281	15,210,361
TOTAL	Requisitions	12,945,201	2,170,120	526,293	10,096,613	25,738,227
	Passing Orders	2,092,816	5,982,840	55,412	190,196	8,321,264
	Referral Orders	20,045	9,371,491	28,153	19,776	9,439,465
	Total	15,058,062	17,524,451	609,858	10,306,585	43,498,956

1. The yearly demand volume increases reflect the progressive expansion of DAAS capacity and the addition of DAAS subscribers.
2. Volumes reflected for 1965 represent March-December 1965.
3. Volumes reflected for 1969 represent January-September 1969.

Source: DSAH-LST, 31 Oct. 1969.

pending reprogramming of the Air Force system and complete implementation of the DAAS mailing service.

c. Navy

(1) All ships.

(2) All overseas activities except NSC Pearl Harbor.

(3) All CONUS activities except those included in Table 10.

d. Marine Corps. All activities except Marine Corps Supply Center, Philadelphia.

e. DSA. All depots.

f. GSA. None.

10. DAAS PROCESSING TIMES.[185] Processing speed is generally limited to the output line capacity. Current daily capacity is 175,000 transactions per site, for each of the seven DAAS sites. The current DAAS average daily traffic amounts to 500,000 transactions. DAAS is designed to receive traffic in continuous mode and can process that traffic at a higher rate than is accepted by the connected AUTODIN switching center (ASC). DAAS computers are in continuous operation (24 hours per day, 7 days per week). All output transactions are batched in consideration of destination, time, supply priority, and suspected duplicates. Processing is accomplished as follows:

a. Priority supply transactions MILSTRIP priorities 1 - 8, up to 10 minutes.

b. Routine supply transactions MILSTRIP priorities 9 - 20 accumulated, up to 1 hour.

(1) A core-to-core transfer technique was developed to permit the transfer of documents between DAAS facilities. The technique does not speed up DAAS processing, but does permit DAAS to rapidly transmit between facilities. The transfer rate between DAAS facilities is approximately 30,000 transactions per second compared to 200 per minute by trunk line between ASCs. The technique is of special significance in those situations in which the ASC traffic is heavy and when trunk lines are saturated or not available. It also provides alternate routing of all supply traffic from one facility to the other in event of a mechanized or electrical failure that would render a facility inoperable.

(2) DAAS transmission throughout the network has been improved to a significant degree. Manual relays have been replaced, which has reduced the manual handling problems associated with delays and operator errors. Terminal capacity has been increased to many locations. This has improved delivery to those terminals, but probably more significant, there are fewer instances in which an ASC must delay traffic to a high-speed terminal while awaiting acceptance of a message by a slow-speed terminal.

(3) Message preparation and communications operations have been simplified for subscribers to DAAS. The subscriber no longer sorts documents by supply activity addressee since documents can be included in a message without regard to destination. There is no longer a need to associate the addressee to the communication terminal serving the addressee as all messages are addressed to the single constant Communication Routing Indicator (Comm R.I.) of the designated DAAS facility. The reduction in workload at the subscriber level has had a corresponding reduction in the time required to prepare and transmit logistics documents.

(a) The improvement in accuracy of message preparation by DAAS also has an impact upon getting logistics documents to the correct destination more quickly. Review of the the Communications Operating Performance Summary, prepared by the ASCs indicates that DAAS operates with an extremely low error rate and very high operating efficiency.[186]

(b) There have been other improvements such as the ASC machine program and terminal operator training that resulted in improved transmission times.

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[185] DSA, Memorandum, for the Chairman, JLRB, subject: Joint Logistics Review Board; Request for DAAS Information, 21 October 1969, Enclosure #4.

[186] Hq., DSA, Inter-Office Memorandum, subject: DAAS Communication Performance Statistics for November 1969, file DAASO (70-4), 6 January 1970.

11. DAAS AND PROJECT STOP/SEE

a. The Army, in its endeavor to reduce excesses in Vietnam, has made progress in preventing the additional accumulation of excesses. Projects Stop, Stop/See, and Stop/See Expanded initiated during 1968 have resulted in the cancellation of over $350 million worth of requisitions, and shipment frustrations of $11.8 million.[187]

b. The DAAS played a key role in the Army's Project Stop/See. This was accomplished by a program modification to the system's look-up procedure which diverts items on the Stop/See list to Logistic Control Office-Pacific (LCO-P). There are 140,000 items on this list. The following number of requisitions was diverted to the LCO-P during the 6-month period (Aug. 69 - Jan. 70):[188]

August	241
September	1,202
October	393
November	1,329
December	1,042
January	1,668

c. During the period of September to October 1969 the DAAS blocked and passed to LCOP 3,700 requisitions. This resulted in cancellation of over 2,000 requisitions and frustration of over 75,000 measurement tons (MT) of cargo valued at $9.5 million.[189]

d. The DAAS has an interrogation capability that allows its subscribers to request source of supply information. This service is particularly useful in retrograde programs. An example, the Army utilizes the interrogation capability in its retrograde, Pacific Utilization and Redistribution Agency (PURA) and in T-day planning programs.[190]

e. The volume of interrogations of the DAAS item source of supply file for the 6-month period August 1969 to January 1970 is as follows:[191]

August	15,936
September	451,571
October	106,219
November	419,532
December	118,020
January	135,735

f. In summary, the DAAS system facilitates the passage of customer's requisitions to the current source, and it also expedites the transmission to these sources without delay.

187 DA (DCS/LOG), Briefing, to JLRB, subject: Program for Utilization and Redistribution of Materiel (PURM) project coordinator Office (ADSCLOG) (S&M).
188 Data furnished JLRB, Hq., DSA, DAAS-0, 15 February 1970.
189 Hq., AMC LCO-P, Briefing, to JLRB, September 1969.
190 Hq., DSA, Letter, subject: Justification of Sole Source, Acquisition of ADPE for Augmentation of the Defense Automatic Addressing System (DAAS), DSAH-LST, 1 December 1969, p. 8.
191 Hq., DSA, DAASH, 18 February 1970.

12. DAAS POTENTIAL AREAS OF IMPROVEMENT

a. The DAAS, based on operational experience possesses a potential for further development and enhancement.[192] To comply with DOD direction a phased plan has been developed to expand and enhance the system.[193,194]

b. The following outlines improvements that have been recognized as requirements and which are considered significant.[195]

(1) Expanding the DAAS capability to include the processing and routing of part number requisitions for document routing/conversion functions. This would provide a basis for:

(a) Rapid, on-line conversion and cross referencing of part numbers to Federal Stock Numbers and accurate routing to the registered source of supply. The following volume of part number requisitions received by the DAAS indicates the need for conversion or cross referencing capability:[196]

Year	No. of Part Number Req.
1965	599
1966	2,323
1967	77,713
1968	85,348
1969	269,573
1970	37,398 (January)

The above shows the increase in activity as the system expanded and took on more subscribers. Although the volume of non FSN is sizeable, it is a small portion of total DOD-wide volume. A DOD ad hoc committee estimated that the monthly income is approximately 200,000 non-FSN requisitions.[197] The bulk of part numbered requisitions by pass DAAS because they are either mailed or electrically transmitted to estimated sources by the requisitioners. Currently, DAAS forwards part numbered requisitions to source specified by requisitioners. This source performs a manager review and edit. This current method is time consuming, not responsive, and requires manual research. If the DAAS could cross reference part numbered requisitions to FSNs and route them expeditiously to source of supply, the following advantages would be realized:[198] (1) once the DAAS source file was developed, the need for technical data and personnel for review purposes would be minimized at supplier activities, (2) the requisitioners role would be simplified and a reduction in requisitions to be mailed or transmitted in narrative message format would result, (3) part number requisitions would be handled more expeditiously, (4) the requisitioner would be provided the correct FSN for future use, (5) the volume of part number requisitions would be reduced, and (6) it would facilitate FSN assignment by identifying those part numbers that need FSNs.

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[192]Data furnished JLRB by ASD, Memorandum, to Director of DSA, subject: Defense Automatic Addressing System, 23 October 1967.

[193]Hq., DSA, Study, Broad System Concept for Phase III of the Defense Automatic Addressing System, 1 September 1969.

[194]DOD Directive 4140.29, Defense Automatic Addressing System (DAAS), 23 February 1968.

[195]Hq., DSA, Memorandum, for the Chairman, JLRB, subject: Joint Logistics Review Board; Request for DAAS Information, Enclosure #6.

[196]Data provided JLRB by Hq., DSA, DAAS Office, 5 March 1970.

[197]DOD, Report of Ad Hoc Committee on DAAS Routing of Part Number Requisitions, 8 March 1968, p. 2.

[198]Hq., DSA, DSAH-LST, Justification for Sole Source Acquisition of ADPE for Augmentation of the Defense Automatic Addressing System (DAAS), 1 December 1969, p. 8.

(b) Complying with North Atlantic Treaty Organization (NATO) agreements to utilize NATO stock numbers in document flowing among NATO countries, DAAS could convert the NATO stock number to an FSN when routing to a DOD activity or from FSN to NATO number when routing to a NATO country.

(c) Eliminating the need for frequent dissemination of item manager changes to activities at the retail level, DAAS can respond to source of supply changes and route documents to the current source. Those records can also be used to provide the requisitioner with last known source when appropriate or upon interrogation by requisitioner.

(d) Expanding DAAS edit procedures to include other than those data elements used for routing. Documents failing the edit would be returned by DAAS to the originator for correction rather than delayed until rejected by the recipient. Because of the speed with which DAAS would perform this edit, the inventory control point (ICP) manager review problems would be alleviated.

(e) Expansion of DAAS to handle mail and MILSTRIP format message traffic (teletype).[199] At the request of the Services, a proposed change for expansion of DAAS to handle mail and MILSTRIP format message traffic was approved by Hq., Defense Supply Agency, Memorandum DASD(SS), 7 February 1969. The approval provides for expansion of DAAS capability to transmit MILSTRIP, MILSTRAP, and financial transactions to destinations, after processing, by the additional communication media or mail and MILSTRIP format message traffic (teletype). DAAS now transmits these documents through AUTODIN but not by mail or MILSTRIP format message. With implementation of this proposal, subscribers to DAAS would not be required to separate traffic according to communication media and transmit only the AUTODIN traffic to DAAS. DAAS would receive all of the subscribers' traffic by AUTODIN, then process and transmit to destination by AUTODIN, teletype or mail, as appropriate. Although a detailed analysis has not been made of the potential benefits and savings that would accrue with implementation of this proposal, they are believed to be substantial. For example, during a service test on use of DAAS by the Defense Construction Supply Center (DCSC), an annual saving of $29,162 was identified if DCSC could discontinue the mailing of customer status documents and send these documents to DAAS. By projecting this saving to other ICPs and depots, this would constitute a substantial annual reduction in operating cost of more than $1.5 million.

(f) Management information service is possible as a by-product of the system. Currently, some management information is generated. This area has not been given a high priority.[200] The following are examples of data that can be extracted from processing cycles:

1. The Services can be provided statistics on flow of logistic traffic.

2. Source of supply conflict data for item managers.

3. Data on frequency of requisitioning activity for inactive items.[201]

4. Data on activity and frequency of items having most demands by Service, DSA, and GSA. As an example, the Army in July 1968 requested demand data for DSA and GSA supplied items. This management report was approved by Hq. DSA, Memorandum DSAD(SS), 23 April 1969.[202]

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[199] DOD, Implementation and Service Test Plan for DAAS Mail System, April 1969.

[200] DOD, Memorandum, to Director, Defense Supply Agency, subject: Defense Automatic Addressing, 23 October 1967, p. 3.

[201] DOD Instruction 4140.32M, chapter 7.

[202] Hq., DSA, Letter, subject: Justification for Sole Source Acquisition of ADPE for Augmentation of the Defense Automatic Addressing System (DAAS), file DSAH-LST, 1 December 1969.

13. APPLICATION OF THIRD GENERATION ADPE TO DAAS[203]

a. The current DAAS performance is limited by the output line capacity of second generation computer equipment (RCA 301). However, third generation equipment provides more output lines which increase performance and capacity for handling additional volume of transactions.

b. Application of third generation Automatic Data Processing Equipment (ADPE) would result in capability to expand in two areas. One area is the range of documents that could be considered for processing by DAAS. This would include MILSCAP, MILSTAMP, part number requisitions, and cataloging. Another area deals with the additional functions that could be expanded and, thus, become more responsive. Records and processes could be added to accomplish the routing, conversion, and cross referencing of part number and NATO stock number documents. Additional records and processes could be added to be used as a basis for diverting logistics documents to sources applicable to the redistribution of assets.

c. Third generation ADPE would be expected to replace existing equipment on other than a one-for-one basis. It appears feasible to replace all of DAAS computers with a smaller number of computers. This should reduce operator requirements, and equally important, provide for core memory of the magnitude desired to simplify problems now associated with cutting and fitting machine instructions into limited memory allocations.

14. SUMMARY

a. During the Vietnam era the Defense Automatic Addressing System was developed, successfully tested and approved for expansion in a three-phase program.[204] It receives, processes, and transmits logistic information through the Automatic Digital Network. The system contains rules and records for processing and determining the appropriate supply destination and terminals servicing the supply addressees. The utilization of the DAAS is progressing at a steady pace. Approximately one-half million documents are currently being processed each day. During FY 69 many new activities were added as subscribers each month By the end of FY 70, it is expected that all logistic activities will be sending their supply documents through the Defense Automatic Addressing System, and the processing volume will approach a million documents per day. The system may be described as a real time, random access computer system with direct communication interface. It has the potential to expand and perform additional functions.

b. The first phase, test and feasibility, indicated DAAS had benefited the requisitioner and could accurately route requisitions to the supply source. The OSD directed continuation and expansion of system.

c. The DAAS during initial stages of operation experienced some evolution and growing problems, i.e., misrouting and backup capacity.

d. Currently, DAAS deals with stock-numbered requisitions, however, it has the potential to accept part-numbered requisitions.

e. The DAAS played a key role in Project Stop/See.

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[203] Memorandum for the Chairman, JLRB, subject: Joint Logistics Review Board Request for DAAS Information, 21 October 1969, Encl. #5.

[204] Assistant Secretary of Defense, Memorandum, to Assistant Secretary of Services and Director, DCA and Director, DSA, subject: Automatic Addressing System (ASS), 11 October 1968.

15. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) The performance of the Defense Automatic Addressing System during the Vietnam era was a major strength of the logistical system[205] (paragraphs 3c, 5, 11a, 11b, and 14).

(2) The Defense Automatic Addressing System performed a valuable service for participating activities by lessening the workload and improving the accuracy of transmission of customer requisitions. Further, it ensured a rapid transmission of requisitions to the correct source of supply (paragraphs 1a, 3b, 3c, 4a, 5, 6a, and 14).

(3) With additional automatic data processing equipment capacity, Military Standard Requisitioning and Issue Procedure formatted part-numbered requisitions could be routed by the Defense Automatic Addressing.[206] Handling of part-numbered requisitions would reduce the burden on the requisitioner, improve supply response and reduce the number of requisitions being mailed and electrically transmitted as narrative format messages[207] (paragraphs 12, 13, and 14d).

(4) The Defense Automatic Addressing System has the potential of developing much valuable management data as a by-product, i.e., data on duplication of requisitions, priorities, demand volume (paragraphs 11d, 11g, and 12f).

(5) It has demonstrated its ability to maintain its source data files despite the turbulence in cataloging and item migration that took place during this period (paragraphs 4g, 5, 6a, 11d, and 11f).

(6) It can simplify and facilitate direct requisitioning because it can route theater-of-operations requisitions to the correct source of supply without delay (paragraphs 12, 13, and 14).

(7) The volume of source-data changes poses no particular problem to the system.[208] Updating basic files can be accomplished expeditiously as required by the agencies and Services. The currency of the data, however, depends on Services' and agencies' responsiveness. (paragraphs 5, 6b, 6c, and 11d).

(8) Customer reaction is extremely favorable because of benefits derived. The Defense Automatic Addressing System reduces complexity, workload, message traffic, with no loss in transmission time or accuracy (paragraphs 3b, 3c, 5, 6a, 14e, and 12).

(9) With additional enhancement it can be improved to increase its capability to expedite the routing of additional mail and message traffic (paragraphs 3d, 12, 13, and 14).

b. Recommendation. The Board recommends that:

(SM-14) The Office of the Secretary of Defense take necessary action to enhance the capability of the Defense Automatic Addressing System to process and route electrically transmitted Military Standard Requisitioning and Issue Procedures part-numbered requisitions (conclusions (2), (3), (5), (6), and (9)).

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[205] Ibid.
[206] DSA, Letter, subject: Justification for Sole Source Acquisition of ADPE for Augmentation of the Defense Automatic Addressing System (DAAS), file DSAH-LST, 1 December 1964, p. 8, para. V.
[207] Ibid., p. 14.
[208] OASD (I&L) Evaluation Report, Automatic Addressing System, August 1965, p. 17.

CHAPTER IV
CONUS INVENTORY CONTROL POINTS

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1. INTRODUCTION

a. General. The Inventory Control Points (ICPs) of the Services are the principal organizational elements, at the operating level, having responsibility for ensuring that adequate service-managed material is available in the wholesale supply system to meet the requirements of the military forces. This responsibility encompasses computation of item requirements, procurement direction, cataloging direction, distribution management, overhaul and rebuild direction, disposal direction, and development of budget estimates in support of materiel requirements. During the Vietnam era, an imbalance in supply developed that resulted in the Services establishing special controls and systems to ensure that essential supplies were available for the forces in SE Asia. Imbalance in supply results in a decline in combat readiness and a waste of financial resources. The Joint Logistics Review Board has reviewed this important area of logistics and has provided recommendations for the improvement of supply support to the military forces.

b. Purpose. This chapter reviews the Services' supply policies and procedures employed in providing supply support, evaluates the effectiveness of this support by the ICPs, determines its strengths and weaknesses, develops conclusions, and makes recommendations for improving supply responsiveness.

c. Areas of Investigation. This chapter is confined to secondary items and encompasses an analysis of continental United States (CONUS) ICP supply support during the Vietnam era. Specifically addressed are the effectiveness of supply support during both the initial and replenishment phases, special systems and controls instituted to ensure that supplies were adequate to meet the needs of the combat forces in SE Asia, and CONUS ICP stock levels. Defense Supply Agency (DSA) and General Services Administration (GSA) CONUS ICP supply support are addressed in a separate monograph.

d. Background Relating to Area Investigated

(1) Supply support can be measured in terms of effectiveness, efficiency, and economy. Supply effectiveness is measured by the ability to satisfy a customer's demand for a specific quantity at a required time and place. The effectiveness of this support is evaluated in subsequent paragraphs of this chapter.

(2) The Army has seven inventory control points, each responsible for providing wholesale supply support for a specific commodity. The Navy has three inventory control points, each responsible for managing a segment of the Navy's wholesale inventory. The Marine Corps has one inventory control point that manages all secondary items except for aviation material, which is managed by the Navy ICP. The Air Force has five inventory control points, each responsible for providing wholesale supply support for designated items. In addition to Service ICPs, the Services obtain supplies from DSA, GSA, and by local procurement.

2. INITIAL SUPPLY SUPPORT. Provisioning in support of new equipments and the use of push packages as a means of providing automatic supply are two important actions that affected supply support during the early stages of the military action in Vietnam. The ICPs were responsible for developing provisioning requirements and computing the range and depth of items included in the push packages.

a. Provisioning

(1) General

(a) Due to the procurement lead time involved in obtaining complex components and repair parts, the decisions made at the time of provisioning are among the most important logistic functions of the inventory control points—supply effectiveness is influenced by these decisions over a period of years. Provisioning is the process of determining the range and quantity of items required to support and maintain an end item of materiel for an initial period of service. Provisioning includes the identification of items of supply, the establishment of data for catalog, technical manual, allowance list preparation, and the preparation of instructions to ensure delivery of necessary support items with related end items.[1]

(b) Department of Defense (DOD) Instruction 3232.4, Policy and Principles Governing Provisioning of End Items, 2 April 1956, established specific provisioning policies and objectives intended to improve provisioning throughout DOD. Also, DOD Instruction 4151.7 Uniform Technical Documentation For Use in Provisioning of End Items of Materiel, January 1961, established uniform DOD provisioning technical documentation requirements for use in provisioning of equipment; most recently, military specifications MIL-P 84000 and 84000A provide procedures, terms, and conditions for screening manufacturers' part numbers and Federal Stock Numbers (FSNs) against the Defense Logistics Service Center (DLSC) central catalog files for the purpose of revealing and validating FSNs.

(c) The first and fundamental technical consideration involved in provisionin is the establishment of maintenance concepts.[2] Maintenance concepts influence further technica decisions in the provisioning process and may ultimately affect the availability of parts at any given point in the supply system. The impact of Service provisioning policy and procedures on supply support, the changes made to these policies and procedures during the Vietnam era, and the supply problems incurred are addressed by Service in the subsequent paragraphs.

(2) Army

(a) The Army's policies and procedures for provisioning, encompassing the selection and refinement f repair parts and allowance documents and the preparation and distribution of the support list, are contained in: AR 700-18, Parts Selection; AR 700-19, Parts Provisioning; AR 700-70, Support Lists; AR 735-35, Supply Procedures; AR 750-1, Maintenance Concept; AR 750-6, Maintenance Support Planning; TM 38-715, Provisioning Procedures and Documentation; TM 38-715-1, Provisioning Techniques; and Department of the Army, Letter, AGAM-P(M), 3 January 1966, subject: Procedures for Expediting Non-Standard Urgent Requirements for Equipment (ENSURE). This letter prescribed the accelerated procedures to be used for the development, acquisition, and deployment of nonstandard equipment to meet an urgent requirement. The procedure was initiated in 1966, revised in 1967, and incorporated as Change 1 to AR 71-1, Army Combat Development, in June 1969.

(b) The Army's principal provisioning objective did not change during the Vietnam era. This objective is to ensure that items required to support and maintain end items of materiel being introduced into service are available in the appropriate quantities at the proper supply and maintenance levels, when needed.[3] Techniques in provisioning were changed considerably during this period both as an evolutionary process and as a result of procedural changes. These changes can best be indicated by a comparison of past and present procedures.

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[1] Department of Defense Instruction 5000.8, Glossary of Terms use in the Areas of Financial, Supply, and Installation Management, 15 June 1961.

[2] Draft of Department of Defense Reference Book, Supply Management, May 1969.

[3] Office of the Deputy Chief of Staff for Logistics, Memorandum, Department of the Army, Service Headquarters Briefings, reques for, 23 October 1969.

Prior System - 1965	Present System - 1969
Allowance quantities based on maintenance engineer judgment.	Mathematical formula uses all prime data elements.
The initial support period was fixed.	The initial support period is variable.
Order and shipping time, or pipeline not computed.	Order and shipping time is computed.

(c) Under the prior system, allowance quantities were the result of engineering estimates whereas under the present system allowance quantities are determined by a mathematical formula that uses the failure rate or maintenance factor as the prime data element. The initial period of support under the prior system was a fixed period of time, such as 1 year. Under the present system, the initial support period becomes a limited variable that is keyed to the review cycle time contained in the requirements objective period. Under the prior system, quantities were not computed and procured for the order and shipping time or pipeline quantity. These quantities are considered under the present system. Benefits realized under the present system include: (1) the allowance for each stockage point is computed mathematically using prime data elements, rather than being based on engineer judgment; (2) the order and ship times are taken into consideration in arriving at the net buy; (3) separate treatment is afforded repairables, which allows for the consideration of the repair and return of unserviceables during the provisioning phase; (4) the initial support period is variable depending on the dollar value of expected yearly sales; (5) the differences between CONUS and overseas pipelines, stockage points, and stockage objectives are recognized; and (6) statistical safety factors are applied to allowances at organization, direct support, and general support units depending on the predetermined level of protection required.

(d) Application of the present method in establishing provisioning requirements can best be indicated by a specific example. The wheeled tractor was previously supported by 684 stock-type parts. In October 1969 the tractor was supported with 1088 stocked items. The need for a greater range of stocked items was highlighted by a study of parts requirements in Vietnam, where it was found that 61 percent of the parts required, representing 40 percent of the requisitions, were for manufacturers' part-numbered items not initially provisioned. Similar experience existed with the tracked tractor, where 28 percent of the parts and 41 percent of the requisitions required the use of manufacturers' part numbers to maintain the equipment.[4]

(e) Types of problems encountered in provisioning that impacted on supply effectiveness include:

1. Unique Items. These are items that are not similar to any item in either the military supply system or industry. An example of this type was in the family of concealed personnel detectors. A number of developmental prototypes were sent to Vietnam for evaluation. Because of the uncertainty of support requirements, a year's quantity of parts was provided with the equipment, and the manufacturer provided personnel to support them in-country. The initial application, wherein the equipment was to be back packed and operated by one man, was not successful. Subsequent experiments indicated that this equipment was more effective when adapted for use on helicopters. However, the equipment was not designed to meet the vibration requirements; thus, the parts failure rate surged upward.

2. Insufficient Test Data. The lack of test data on items undergoing modification also presented problems. For example, the LDS 456-1 multi-fuel engine was being used in the 2 1/2-ton truck. No parts support problems had been experienced with this

[4]Office of the Deputy Chief of Staff for Logistics, Memorandum, Department of the Army, subject: Service Headquarters Briefings; request for, 23 October 1969.

engine. The LDS 456-1 was modified for use in the 5-ton truck by adding a turbo-charger for more power. Because of its satisfactory performance on the 2 1/2-ton truck and the urgent need for the equipment, extensive testing was not performed. Thus, the modified version was produced, and a concentration of the items was deployed. Accordingly, very few test data were available to predict failure trends or to confirm the reliability of the modified design. Within the first year, the accumulation of reported failures reached 693. This was an unusually high failure rate, and because support lists were based on experience with the original engine configuration, there were insufficient parts on hand or planned for to support the new version.[5]

3. Proprietary and Performance Type Items. Another problem concerned the types of equipment procured and the parts variations in subsequent procurements. Items procured under performance-type specifications are usually commercial type items, modified to meet Army requirements. The variation in new procurement actions and the need for parts to support materiel still in the system increase the line items and create additional burdens in developing and maintaining support lists and publications. Because these are essentially commercial-type items, some of the parts are proprietary to the contractor. In the case of such items, difficulty in obtaining technical data from the manufacturer was experienced.

4. Limitation in Maintenance Evaluation. Difficulties in the evaluation of the hardware and in the validation of these data were also experienced. The problem concerned the availability of the model and the allocation of time to conduct a thorough evaluation. In some cases prototypes were withheld or used for other purposes, due to compressed schedules or lack of resources.[6]

5. Feedback Evaluations. Another area that seriously affects the parts selection and refinement process is the inability to evaluate data such as test data, manufacturers' recommendations, projected usage estimates, and engineering predictions against experience data previously generated on similar equipment. There has been no standard program or capability for the collection and manipulation of these data. The Army recognized this need and initiated action to provide this capability under the Maintenance Engineering Analysis Data (MEAD) program.

6. Frequency of Engineering Change Orders. The frequency and volume of engineering change orders (ECO) also impacts on support lists profile. Each ECO must be reviewed to determine what parts, if any, are affected. Any parts changes initiate a chain reaction, affecting such things as repair part allowance lists, cataloging, and publications maintenance procedures. A study by the Army Materiel Command (AMC) is being made in this area with a view toward ensuring that in the future the release of ECOs will be limited to only those considered essential.

7. Delays in Coordination and Communication. Some of the Army activities engaged in parts support are geographically separated. This causes delays that affect the support actions to be taken by these activities.

(f) The Army has established an improvement program designed to resolve many of the problems previously discussed. This program consists of:

1. An Integrated Logistic Support Program (ILS) that includes new managerial and planning techniques necessary to ensure the effective and economical support of equipment at all levels of maintenance for its programmed life cycle.

[5] Ibid.
[6] Ibid.

2. The Automated Logistics Program Hardcore Agency (ALPHA) that will establish a standard automatic data processing system for data collection, storage and retrieval, using a common data base.

3. The Consolidated Army Master Item Application File (CAMIAF) that will effect the consolidation of urgently needed item application. When operational, this file will provide a central repository for all Army item application data, and will permit the distribution of current allowance data for repair parts and their end-item application to the field on a timely basis.

4. The Maintenance Support Positive (MSP) program that is designed to bridge the widening gap between hardware complexity and available skills.

5. The MEAD program that is designed to provide for a disciplined maintenance engineering analysis process, including requirements analysis, function analysis, replacement unit analysis, and life-cycle cost analysis.

(3) Navy

(a) The Navy's principal objective in provisioning is to ensure that initial supporting items required to support and maintain end items being introduced will be available in the appropriate supply system and maintenance echelons, when needed.[7]

(b) The Navy's policy, practices, and procedures for provisioning are set forth in: NAVSO P-1500, Navy Policy and Standards for Supply Management; OPNAV INST. 4441.12, Supply Support of the Operating Forces; NAVSUP Instruction 4423.14, Uniform Source, Maintenance, and Recoverability Codes; and NAVSUP Instruction 4423.15, Provisioning, Initial Support General Requirements for.

(c) The provisioning process in the Navy is a cooperative effort of the appropriate systems command or project manager, and the Naval Supply Systems Command as represented by the appropriate inventory control point. The process is initiated by the Chief of Naval Operations, who provides the basic logistic guidance that is converted into a detailed operational support plan including such information as vessel-allowance policies, supply system responsiveness, and ship and aircraft prime mission definition. The system command then provides three basic types of input data: (1) the end item technical guidance including the system command's overall maintenance philosophy for the equipment, the initial support plan, and the support and provisioning specification to be used; (2) the technical and maintenance decisions for all components and parts in the systems such as source, maintenance, and essentiality coding, and maintenance and overhaul replacement rates; and (3) planning and programming data indicating end-item population, installation and deployment data, and procurement and production data.

(d) The ICP, under the guidance of the Naval Supply Systems Command, acts as the catalyst in provisioning, using automated systems, requirements decision rules, and other business and supply techniques that bring together the inputs previously mentioned, and prepares the required outputs which are: (1) the Record of Maintenance, which reflects the maintenance plan by tasks, frequency of the task, and the echelon to perform the task; and (2) the statement of requirements, which includes the Allowance Parts List (APL), the Initial Outfitting List (IOL), the Coordinated Shipboard Allowance List (COSAL), and the Aviation Consolidated Allowance List (AVCAL), a determination of the material requirements of Mobile Logistic Support Forces (MLSF), and a determination of the repair parts as supply system back-up to be positioned at the various Navy stock points.

[7] Office of the Chief of Naval Operations, Memorandum, subject: Service Headquarters Briefings, 15 October 1969.

(e) There were some support problems with complex and sophisticated systems encountered in Vietnam; however, most of the problems involved less sophisticated equipments such as automotive, construction, materials handling equipment (MHE), small boats, and generators. The main common characteristic of these equipments is that generally they are commerical and off-the-shelf items with relatively short procurement lead times. The basic supply problem had its origin in a lack of clearly defined support policy for automotive, construction, and MHE. In 1956, the Navy adopted a policy that these types of equipments would not be provisioned and supported in the supply system but would be supported from commercial sources, as required.[8] The rationale for this decision was that these equipments were commercial off-the-shelf items and that Navy use represented only a very small percentage of the total requirements; therefore, adequate and economic support could be provided by the commercial suppliers.

(f) A second supply problem involved equipment designed as Pre-positioned War Reserve Stock (PWRS), which was issued without support for peculiar parts. PWRS equipment is procured by the system commands, and supporting repair parts are funded through the Naval stock fund. Because the provisioning was not accomplished and peculiar parts were not identified, some items vital to the maintenance of the equipment were not available when PWRS equipment was issued. Because the Navy did not identify and stock number these items, most requirements for parts resulted in part-number requisitions. Such requisitions require exception processing that increases the issue processing time. Another undesirable aspect of part-number processing is the inability to cross reference to other items that might satisfy the requirement. Because the Navy had not systematically identified these items and provided cross-reference data, it was difficult for the operational organization to recognize that another part locally available might have satisfied the requirement. As a result, when these equipments were used, most failures resulted in a high rate of equipment out of commission for parts. These equipments remained out of commission for a very long period of time.

(g) The Navy Support Activity, Da Nang, had over 50 percent of their MHE deadlined at one time.[9] Because of the support policy of reliance on commercial sources, the Navy had not established procedures for this type of material. As a result of complaints from activities in Europe as well as from SE Asia, the Navy Inspector General initiated a study that resulted in a recommendation that these equipments be provisioned and that outfitting parts be provided when the equipment was sent overseas. The Navy initiated remedial action, including the establishment of a policy to provision and provide initial support for materials handling equipment and the development of lead allowance parts lists for automotive, construction, and MHE equipment.

(h) The problems encountered in support of small boats were generally the same as for other equipment previously noted. The Navy's remedial actions included procuring an interim support package that accompanied the boat, processing the preparation of the provisioning and allowance documentation by the ICPs on an expedited and short-cut basis, and preparing a new type of allowance list. The coordinated shipboard allowance list included both an organizational and intermediate maintenance capability and was tailored to the type and number of small boats that are the responsibility of a particular support ship or base.

(i) As a result of the supply support experience in SE Asia, the Navy revised its policy to provision for some commercial type equipments, to provide support to equipments deployed overseas, and to continue to refine the process by which support is provided to small boats. Also, additional emphasis is being placed on the development and implementation of an automated system that will integrate the provisioning process with the allowance preparation process, and, as appropriate, other parts for the Uniform Automated Data Processing System (UADPS) for the ICPs.

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[8] Ibid.

[9] Ibid.

(4) Marine Corps

(a) The Marine Corps provisioning policy objective is that 100 percent of the range and quantity of initial support items be positioned in the appropriate segments of the supply system and maintenance echelons before new equipments are placed in service. Policies and procedures for provisioning in the Marine Corps are set forth in Marine Corps Manual P4400.79, Provisioning Manual, 3 February 1967.

(b) When supportability tests conducted by the ICP indicate that 100 percent of the initial support material is available, the initial issue is made to Marine Corps tactical organizations. The ICP monitors receipt of the initial issue by using and supporting organizations, and advises the Quartermaster General when the initial issue has been received and completed. Headquarters, Marine Corps, then releases the Advanced Logistics Data Letter that establishes dates for using and supporting organizations to place the end item in service. Placing an end item in service completes the provisioning cycle and is the beginning of the usage data development period of the operational phase. The actual provisioning starts with contract award or preproduction model approval and continues through the provisioning technical documentation submission, provisioning conference, repair parts ordering, and delivery of repair parts ordered to the Marine Corps. The provisioning cycle and end item production phase are conducted concurrently and normally require 18-24 months of the total time required to introduce a new end item.

(c) The Vietnam buildup and the increased, urgent operational requirements had a significant impact on provisioning in the Marine Corps. An increase in active provisioning projects was caused by increased procurements and a cumulative buildup caused by high priority requisitions from tactical units in Vietnam. When replenishment assets were not available, replenishment issues to meet these priority requirements were made from provisioning assets. This prevented attainment of 100 percent of initial support requirements. The borrowing of provisioning assets was compounded when shortages of replenishment stock fund dollars existed and existing due-in assets were not sufficient to cover the quantity of provisioning assets borrowed. Also, urgent high-priority operational requirements increased 9 times from FY 66 to FY 68 and have remained near that level. As urgent operational requirements increased, changes to existing provisioning policy and procedures were necessary.

(d) The Marine Corps made changes in provisioning policy and procedures to satisfy operational requirements. These changes included expedited provisioning, overpack kits, and issues with less than full initial allowances (short initial issue). Also, expedited provisioning specifications were developed to reduce the provisioning cycle and to provide initial support directly to using and supporting units for high-priority end item procurements. The advantages of these changes were reducing the provisioning cycle and providing initial support by required date to meet operational needs. The disadvantages of the changes were that procurement of initial support requirements directly from the prime contractor may have resulted in not using assets in long supply, an increase in the number of FSNs, insufficient time for a detailed repair part range and quantity determination, and direct shipments to using and supporting organizations that became lost.

(e) In instances where expedited initial support could not be provided by the required delivery date, repair parts overpack kits were provided to using and supporting organizations or with each end item and were backed up with complete follow-up in provisioning. The main advantage of this change in procedures was that support was provided on or near the operational need date. Disadvantages of the overpack were that many repair parts were not identified by FSN, the higher cost of initial support, and the loss of overpack in shipments.

(f) Normal provisioning projects were analyzed on a case-by-case basis, and initial issues were made with less than 100 percent of the total items requiring initial support. However, 100 percent of the peculiar repair parts required for support was available. The advantages of this change were that provisioning projects could be released and new equipment was placed in service. The disadvantages were the unknown impact of common item usage on the supply system for new equipment densities and the unknown capability of the using unit to provide common item support for the new equipment.

(g) Operational experience during the Vietnam conflict has demonstrated that current provisioning and support policies do not afford the desired degree of support for low-density end items. The problem is in the unreliable, recurring demand and its application as a criterion for stockage of items in support of low equipment densities. Policies and procedures were changed to provide for supply support of critical low-density end items by the publication of a Marine Corps Order for supply support of critical low-density end items in the Marine Air Wing and in the Fleet Marine Force ground units.

(h) Future changes to be made as a result of experience gained during the Vietnam era are that initial issues will be made to fleet stock accounts, which will distribute the initial allowances of support materiel within their respective commands, increase the usage data development period from the present 1 year to 3 years in order that a more reliable item movement and recurring demand can be established, and establish a minimum stockage list that includes mandatory levels of repair parts for support of low-density combat essential equipment that must be maintained in a high degree of operational readiness.[10]

(5) Air Force

(a) At the time of Air Force initial participation in SE Asia, the contractual provisioning documents and related data items being used for initial support were quite adequate. The procedures were established in such a fashion as to make maximum use of the contractor's skills, utilize Air Force talents and facilities, accomplish the provisioning task progressively, and provide timely initial support using minimum documentation and data. As the Air Force involvement in SE Asia increased, the Air Force Logistics Command (AFLC) responsibilities to provide initial support for new systems and end items were tested under conditions of short time frames and wartime-dictated priorities.

(b) Because the entire provisioning process is an Air Force-contractor endeavor, the contractor is provided, with the contract award, policy guidance and certain information relative to the program. The statement of provisioning policy provides information to the contractor as to the organization within an Air Materiel Area (AMA), which is responsible for the provisioning of the end item on contract. The policy statement further highlights requirements of the provisioning document and provides a means for the AMA to exercise options on a specific basis. The programmed check list, which outlines the expected program of the end item in its operational environment, is also provided; that is, information on such elements as flying hours, operating months, number of overhauls, deployment, and Air Training Command (ATC) requirements are included on the programming list. The contractor utilizes this information to develop his projected quantitative recommendations of Air Force requirements.

(c) The Air Force was using five different provisioning documents in 1965. These were replaced by seven documents in 1966-67 and then revised and consolidated into two documents in 1968-69. Documents in use in 1965 were: V-1-40.0, Spare Parts Provisioning Data Short Form, August 1964; V-2-40.0, Spare Parts Provisioning Data Initial, August 1964; V-3-40.0, Spare Parts Provision Data Follow-on, August 1964; V-4-40.0, Aerospace Ground Equipment (AGE) Acquisition/Provisional Data, August 1964; and V-0-40.0. Resident Provisioning Team, August 1964.

(d) In 1966 and 1967, the "V" documents were revised, and with the exception of V-109 RPT (Resident Provisioning Team), these documents were replaced by Air

[10]Headquarters, United States Marine Corps, Memorandum, subject: Service Supply Management, 10 October 1969.

Force Procurement Instructions (AFPIs). These rewrites incorporated adjustments to basic Air Force concepts, such as: Some instructions on the types of items that could be interim released were deleted; the guidance meeting was made mandatory; and phase provisioning, a technique which permits a more realistic requirements determination, was added to the documents which are applied to contracts for complex items and RPTs. Early in 1967, further efforts to compensate for short-fuse contracts resulted in a new document, AFPI 71-681, Short Cut Provisioning. An accelerated provisioning concept (APC) was introduced very early in 1969. APC is a technique to provide for the accomplishment of critical portions of the provisioning process at the contractor's plant, on an accelerated basis.

(e) The current method of provisioning employed by the Air Force is set forth in AFPI 71-682 (November 1968) and AFPI 71-688 (June 1969). Late in 1968, the "V" document for use with RPT was rewritten to further streamline the provisioning process. The new document is identified as AFPI 71-682 and is applied only on contracts for major systems. Several improvements are incorporated in the new AFPI. The document contains a provisioning planning chart which, along with the AFPI, and related data requirements, is included in the Request for Proposal (RFP). The provisioning plan describes and plots by time frames significant actions and events that must be accomplished by both the Government and contractor to provide timely and adequate support. The plan requires that various competing contractors respond with specific proposals to facilitate evaluation during the source-selection process. The agreed-upon provisioning plan is then incorporated in the contract.

(f) AFPI 71-688 combines the features of several different AFPIs that preceded it and requires that a provisioning plan be incorporated in requests for bids and proposals. The bid evaluator takes into consideration the contractor's response to providing initial support by the required date. The plan is then incorporated in the production contract.

(g) As a part of the introduction of a new item into the system, an initial spares support list (ISSL) is developed by the prime depot, using data developed by a coordinated effort among the contractor, system manager, item manager, and the using command that is to receive the aircraft or end article. The Air Force Base(s) supply that will be supporting the item receives the ISSL from the prime depot to determine the initial base level lay-in. ISSLs contain both an initial range and depth of items to support a particular end article. The range of items is based on contractor's recommendations and Air Force negotiation with the contractor. The depth or quantity of each item is based on the maintenance replacement factor provided by the contractor or on past experience with similar items. Where air bases have dedicated supply computer capability, requisitions are created automatically on line and transceived to the source of supply. Application of the standard ISSL process during the SE Asia buildup was not possible because the total support for the end item was not available at a particular point in time. Also, the air bases in SE Asia did not have the capability to process an ISSL and prepare manually requisitions to the various sources of supply. To solve this problem the Air Force modified the ISSL concept by requiring that a selected AMA requisition the various items from the respective sources of supply and assemble and ship a complete aircraft ISSL to the appropriate base(s). To accommodate the complete package concept for a weapon system, the Air Force also developed a "pre-binned" concept. This concept provided the customer with a small warehouse of items that was air transportable and ready for use immediately upon receipt. The package concept for ISSLs is still in use for complete weapons systems and will be continued in the future.[11]

(h) The war in SE Asia created many problems and challenges to provisioning. SE Asia operational requirements (SEAORs) caused short-fuse contracts that could not be adapted to existing provisioning contractual documents. The SEAOR contracts required the delivery of end items in extremely short time spans--much less than the minimum time required to accomplish all provisioning actions. Because of the necessity to satisfy quickly

[11] Headquarters, United States Air Force, Letter, subject: Service Headquarters Briefings, 20 October 1969.

SE Asia requirements, contracts were occasionally awarded with contract lines for spare parts. Many of the short-fuse contracts were related to communication-electronics-meteorological (C-E-M) equipments that were modified versions of common commercial equipment.

(i) A specific problem in provisioning and supporting ground generators developed in 1965 when there were 1100 units consisting of over 79 different makes and models in SE Asia. Due to lack of standardization, considerable problems were experienced supporting these units. In addition, technical data were generally either inadequate or missing, therefore complicating the requisitioning of spare parts. AFLC took action to supply SE Asia with a new series of generators that were high-speed and light-duty, but unable to withstand continuous 24-hour operation. An AFLC team then conducted a survey of generator requirements in SE Asia. The team recommended acquisition of heavy-duty continuous type generators This recommendation resulted in procurement of 447 Electric Mobile Units (EMU), Models 15, 16, 17, and 18 (30-150kw). In accordance with provisions of the contract, the first units were delivered to SE Asia within 30 to 90 days (May, June, and July 1969). There was not sufficient lead time to accomplish normal provisioning; therefore, a support package consisting of common and standard, as well as peculiar parts, was delivered with each generator. Provisioning of repair parts for this initial quantity of generators was delayed approximately 6 months due to lack of technical data. The next action taken by AFLC was to procure 30 additional EMU 15s; however, these were of commercial design and contained nonstandard parts. These units, with support packages, were delivered to SE Asia in approximately 30 days after contract award. Ground generators are primarily assembled from parts acquired from vendors, as opposed to being totally manufactured by the prime contractor. Small businesses engaged in assembling generators are not normally able to provide the Air Force with required provisioning documents, drawings, and other technical data. Inability to obtain vendor data is one of the primary problems, because drawings frequently do not exist for components of the generator sets. In order to ensure some degree of supportability, it was necessary to utilize the parts package concept. This resulted in procurement of items normally not procured through the provisioning process. Because of the short lead time for availability of these kits in the field, there was not enough time for the normal cataloging of the components of these packages.[12]

(6) Summary

(a) The Army's principal objective of provisioning did not change during the Vietnam era; however, techniques in provisioning changed considerably both as an evolutionary process and as a result of procedural changes. Benefits were realized under the revised techniques that provided for a greater range of stocked items and improved supply effectiveness. In 1965 provisioning procedures were not adequate to meet emergency requirements for nonstandard items; therefore, the ENSURE procedure was established. Numerous supply support problems resulting from inadequate provisioning were encountered and adversely affected supply effectiveness. These problems related to: (1) insufficient range and quantities of repair parts for standard items; (2) provisioning in support of items peculiar to the military; (3) insufficient or lack of test data on items undergoing modification; (4) lack of technical data from the manufacturer for commercial type items; (5) limitation of time and availability of prototypes to conduct a maintenance evalutation; (6) lack of a standard program and capability for the collection and evaluation of test data, manufacturer's recommendations, and projected usage estimates and engineering prediction against experience data previously generated on similar equipment; and (7) the frequency of engineering change orders. The Army has established a program to improve further provisioning procedures and techniques. This improvement program includes: (1) An Integrated Logistics Support Program; (2) The Automated Logistics Program Hardware Agency; (3) The Consolidated Army Master Item Application File; (4) The Maintenance Support Positive Program; and (5) The Maintenance Engineering Analysis Data Program.

[12]Sacramento Air Materiel Area, Briefing to JLRB, subject: Provisioning, 6 October 1969.

(b) The Navy revised its provisioning policy from not provisioning for commercial-type equipments (such as automotive, construction, materials handling equipment, small boats, and generators) to provisioning and providing initial support of materials handling equipment and development of lead allowance parts lists for automotive, construction, and MHE equipment. The support problems stemmed from not provisioning for commercial type equipments and other equipment designated as Pre-positioned War Reserve Stock (PWRS). These PWRS equipments had not been provisioned and were issued without support for peculiar parts. As a result, when these equipments were used, a high rate of equipment was out of commission for a very long period of time due to lack of parts. Also, delayed receipt of documentation from contractors and lack of an automated system that would provide more rapid preparation of essential documentation affected supply response. The Navy plans further improvement in provisioning by developing and implementing an automated system that will integrate the provisioning process with the allowance preparation process, and, as appropriate, other parts of the UADPS for the ICPs.

(c) The Marine Corps provisioning policy and procedures were changed to provide for expedited provisioning, use of overpack kits, and issue with less than full allowances. Problems encountered related to unreliable, recurring demand and its application as a criterion for stockage of items in support of low equipment densities, and lack of sufficient range and quantity of parts that resulted in a 9-fold increase in urgent high-priority operational requirements from FY 66 to FY 68. Future changes in the provisioning process are that initial issues will be made to fleet stock accounts for further distribution within their respective commands; an increase of the usage data development period from the present 1 year to 3 years; the establishment of a minimum stockage list that will include mandatory levels of repair parts for support of low-density combat essential equipment; and the incorporation of necessary changes in existing provisioning procedures.

(d) The Air Force found that during the initial stage of the Vietnam era the provisioning procedures in use were adequate; however, as new end items were introduced these procedures required revision. Basic provisioning concepts did not change but were modernized to cope with current conditions. The Air Force revised its provisioning procedures on two separate occasion during the Vietnam era, established additional short-cut procedures, and encountered supply problems attributed to inadequate provisioning. The problems pertained to the necessity of delivering end items in extremely short time spans, much less than the minimum time required to accomplish provisioning actions, and lack of technical data for commercial-type items. The provisioning system employed in 1965, although generally sound, lacked the flexibility and the responsiveness necessary to ensure timely, adequate, and economical initial support. Centralized ISSL management was established at the AMAs to support the Air Force bases in Vietnam because these bases did not have the capability to perform the normal provisioning actions. This centralized concept helped to expedite the flow of materiel from the system manager and to ensure more responsive support.

b. Push Packages

(1) General. The term push packages applies to packages of material developed, assembled, and shipped by CONUS supply activities to SE Asia as a means of providing automatic supply to the deployed forces. Automatic supply is defined as "A system by which certain supply requirements are automatically shipped or issued for a predetermined period of time without requisition by the using unit. It is based upon estimated or experience usage factors."[13] The concept of automatic supply is not new. This method of supply is normally employed until the receiving forces are able to determine supply requirements and submit requisitions for required items. Push packages were developed by all Services; however, the term is used primarily by the Army. The Navy and Marine Corps employed a modified version in that requirements were developed by forces in the Pacific area rather than the ICPs, and the Air Force established project Bitterwine.

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[13] Joint Chiefs of Staff Publication 1, Dictionary of United States Military Terms for Joint Usage, 1 August 1968.

(2) Army

(a) The Army provided automatic supply to support the deployment of forces during the buildup in SE Asia through the Army Materiel Command's operations plan SEA. Because of the unique nature of this instruction, it is necessary to examine the normal manner in which contingency planning is accomplished and then compare this with what actually occurred.

(b) Ordinarily an operations plan originates with a theater commander who prepares the plan and submits it to the Joint Chiefs of Staff for their recommendation and approval. The Joint Chiefs of Staff gives the Service and Strike Command an opportunity to offer comments and then returns the plan to the originating command. At that time the Service component commanders of the theater prepare their implementing plans. It is at this point that AMC enters the planning cycle. Using the employment and deployment plans, AMC prepares a support plan. AMC gets its license for contingency planning from the Army Strategic Capabilities Plan (ASCP), which tasks AMC with preparing a logistics plan in support of the deployment of CONUS-based augmentation forces and with supporting theater-based forces as directed.

(c) Using the supported commanders plans as basic guidance, AMC determines the essential elements of information needed to provide automatic supply. These elements include the units to be supported, the desired period of automatic supply, the buildup of supply levels, and the concept of support in the objective area. Contingency plans had been developed but did not provide the above information required by AMC to develop properly automatic supply requirements.

(d) Operations plan SEA was not really an operations plan, per se. It was more in the nature of an operations order, because it supported an actual operation, and was published on 21 May 1965. For example, the decision to deploy the First Cavalry Division was not announced until 28 July 1965. Fortunately the "plan" had been amended on 28 June 1965 to provide for this Division's requirements, and AMC was able to meet an in-country date of 1 September 1965 for the first increment of automatic supply. The plan was therefore designed to meet the need at the time and as an open end instrument to which troop lists and supply schedules could be appended as required. There was a total of 22 force packages developed, and supply schedules were made up for 18 of these packages. These troop lists were another deviation from normal procedures. Ordinarily the deployment plan includes a list of units to be supported, but in this case there was no support plan. Consequently, AMC planners made up groupings of deploying units from various warning, alert, and deployment orders, and the Continental Army Command (CONARC) troop list of nominated units. Ultimately, AMC used the Deputy Chief of Staff for Operations (DCSOPS) weekly publication, Deployment Status of Army Units (DEPSTAR), to obtain information concerning deploying units. Identity of units was vital, as the unit equipment status reports were used by AMC to identify makes and models of equipment in the hands of troops to be supported.

(e) The automatic supply provided under operations plan SEA was intended solely for the purpose of increasing theater stockage to enable the theater to respond to deploying units' requisitions and was used from 11 July 1965 to 15 November 1966. The amount of materiel shipped under this plan is given in Table 13.

(f) In addition to the packages shipped under operations plan SEA, other support packages referred to as semiautomatic shipments were provided in response to requirements stated by the theater. Based on direction from Headquarters, Department of the Army, AMC created push packages to support a certain type equipment for a specific number of days. Upon receipt of this instruction, AMC designated an inventory control point to monitor the assembly. In addition, a depot was designed as the assembly depot where the packages were consolidated before shipment was made. The monitoring ICP, after determining the requirements and configuration of the shipment, initiated action to release those supplies within their responsibility and would pass, as appropriate, to the other ICPs, DSA, or GSA supply activities. The assembly depots released the shipments to the overseas terminal for shipment to Vietnam. When the program was first started materiel that could not be supplied within the specified time continued to flow to the assembly depot for shipment. At a later time, to eliminate double handling, late shipments were made from the depot having availability. With utilization of the Logistics Control Office Pacific (LCO-P) capabilities, it was possible to determine rapidly the status of the assembly.

TABLE 13

AMC OPERATIONS PLAN SEA MATERIEL

Line Items			1,225,253
Weight			298,823 S/T
Cube			15,245,242 C/F
Costs			
PEMA Major		$293,677,823	
PEMA Secondary		7,917,181	
Stock Fund		81,111,133	
	Total	$382,706,133	

Source: Headquarters, Department of the Army, Office of the Deputy Chief of Staff Logistics, Memorandum, subject: Service Headquarters Briefings; request for, 23 October 1969.

(g) To assist the theater in converting from a push to a pull supply system, AMC computed a 60-day stockage level of repair parts for all units supported out of the Cam Ranh Bay depot complex.[14] A team was assembled to install this package as an actual depot operation, and the entire package was binned in 70 vans and 437 CONEX transporters. A library of manuals, stock records, locator cards, and other documentation was assembled. The team then accompanied the package to Vietnam where on-the-job training was conducted for personnel to continue the operation. The success of this operation is verified by the record of only 26 warehouse denials out of a total of 13,538 material release orders initially processed.[15]

(h) The amount of supply provided by both automatic and semiautomatic means (Push Packages) is given in Table 14.

(i) The dollar value of shipments made by both automatic and semi-automatic shipments is not available. Only the dollar value of push packages provided automatically under operations plan SEA and the total secondary items sales and issues to Vietnam are available. For comparison purposes the value of all secondary items provided by operations plan SEA was $89,028,314 and the total value including operations plan SEA, semiautomatic shipments and in response to requisitions is given in Table 15.

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[14]Headquarters, United States Army Materiel Command, Letter, subject: Automatic Supply Support for Southeast Asia, 23 September 1968.
[15]Ibid.

TABLE 14

SCOPE OF PUSH PACKAGES

Projects	No. Pkgs	Total Lines	Avg. No. Lines Per Pkg
Operations Plan SEA	163	1,225,253	7,517
60-Day S/L, CRB	*	53,000	-
Aircraft	230	227,588	990
MCA-Construction	123	15.744	128
Engineer	84	109,431	1,308
Generators	59	33,000	557
Missile Weapons	22	83,402	3,791
Miscellaneous**	50	76,600	1,532
Total	731	1,824,018	2,495

*Supplies were shipped in 70 vans, 437 CONEX containers, and 356 packages.
**Miscellaneous supply packages include harbor craft, ordnance, and medical and electronics equipment.

Source: Headquarters, Department of the Army, Office of the Deputy Chief of Staff for Logistics, Memorandum, subject: Service Headquarters Briefings; request for, 23 October 1969.

TABLE 15

TOTAL ANNUAL SECONDARY ITEMS SALES AND ISSUES TO VIETNAM
(FY 66 through FY 69 ($ - Millions))

Command	FY 66	FY 67	FY 68	FY 69	Total
AVSCOM	$197.5	$314.6	$598.4	$938.8	$2,094.3
ECOM	47.0	95.8	78.5	93.8	315.1
MECOM	24.7	77.2	59.7	52.4	214.0
MICOM	8.5	7.6	7.2	2.0	25.3
MUCOM	1.5	2.3	1.8	1.1	6.7
TACOM	145.2	227.1	246.1	260.0	878.4
WECOM	37.6	79.9	128.1	147.3	392.9
Total	$462.0	$804.5	$1,119.8	$1,540.4	$2,926.7
Increase Over					
FY 66	-	+74%	+142%	+223%	

Note: Includes FWF other than ARVN.

(j) It is significant to note that the value of secondary items supplied as push packages under operations plan SEA, including both DSA and AMC managed items, represents approximately 3 percent of the total Army managed supplies provided by the Army to Vietnam. Because some part of the supplies pushed were used, it is reasonable to conclude that push packages provided automatically did not contribute significantly to excesses generated by Vietnam. There is little doubt, however, that some items were shipped in push packages that did become excess, and, in other instances, quantities of individual items may not have been adequate. The real problem encountered by the ICPs was the lack of specific information, as previously noted, on which to base valid requirements computations. This stemmed from a lack of firm plans and programs, at the highest levels, concerning deployment of forces both as to composition and timing. Because an adequate in-country logistical base capable of performing supply management did not exist, push packages, as a technique of supply, were necessary for providing essential supplies to the Army forces in Vietnam during 1965-66.

(3) Navy

(a) The Navy did not employ the push package concept of supply as did the Army and Air Force. The Navy's concept of materiel support utilizing the "push" system is not based on force levels. The areas in which materials were pushed by the Navy was in the initial support of newly introduced weapon systems, the providing of advance base functional components, and the support of the Military Construction Program.

(b) Items that were pushed to support newly introduced aircraft and small boats provided an estimated 90-days usage of repair parts based on the operational requirements and the designated levels of maintenance support required. Subsequent replenishment stocks were requisitioned (pulled) based on actual usage. This method was used in the support of the CH-46 and CH-53 helicopters, the A-6 aircraft, Fast Patrol Craft, River Patrol Boats, Minesweepers, and modified landing craft. The method of providing initial supply support for new systems is a part of the normal provisioning process similar to that employed by the other Services rather than the push package method. The total monetary value of these automatic shipments from September 1966 to November 1967 was $4.3 million.[16]

(c) The materiel that comprises an advanced base functional component package is assembled in CONUS to satisfy a specific mission stated by a fleet or force commander. The commander specifies component requirements, location, and delivery dates and relies on CONUS activities to provide the total requisite package. Follow-on support is requisitioned by the unit.

(d) The Navy's military construction program in Vietnam also utilized a modified push method of supply. Initial positioning of this material was based on anticipated construction requirements; however, subsequent replenishment was based on approved construction programs. From these approved programs the gross material requirements were determined and then reduced by contractor and Government material already available in-country. The net requirements listing developed in-country was subsequently returned to CONUS for procurement action.

(4) Marine Corps

(a) The Marine Corps used a modified version of the push package concept as a means of supply from 1965 through 1968. This system was used in the provisioning in support of newly introduced weapons systems and as an exception management procedure called Critical Items Package (CRITIPAK) to expedite the movement of certain categories of materiel to combat units.

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[16] Commander, Naval Supply Systems Command, Memorandum, subject: Impact of Navy "Push" Materiel Upon Excess Stocks Within Vietnam, 24 November 1967.

(b) Upon deployment of the original Marine units to Vietnam, approximately 210 days of supply support for one division and one wing was either on hand or on order in the Western Pacific (WESTPAC). This included 30-days operating stocks for all units and an additional 30 days of mount-out stocks. In addition, there was a 150-day requisitioning objective at the 3d Force Service Regiment. This level of assets on hand and on order was not adequate to support the deployed units in combat operations until additional materiel could be requisitioned, because stock levels and usage data being used were based on peacetime replacement factors on Okinawa. In the case of "mount-out blocks" the quantities were based on peacetime usage factors, technicians' estimates of anticipated failure of repair parts under combat conditions, and the recommended quantities contained in technical manuals and stocks lists. Further, support units were fragmented in support of infantry battalions beyond the scope or duration envisioned. This resulted in compounding requirements for specific items.

(c) To meet the increased and abnormal demands, the Marine Corps instituted an exception management procedure called CRITIPAK. Based on requirements made known by in-country units, the Fleet Marine Force, Pacific, prepared a CRITIPAK listing for each type unit (infantry battalion, artillery battalion, regimental H&S Co., Marine air group) containing high usage and problem type items. Each CRITIPAK was intended to provide the individual unit with a containerized direct shipment, of small cube and weight, of urgently required items not immediately available from WESTPAC assets. The Marine Corps Supply Center at Barstow assembled and shipped these packages directly to the unit in Vietnam. This management technique did assist in reducing temporary supply support problems, but the amount of supplies shipped by this method was negligible when compared to total volume of supplies to Vietnam.[17]

(5) Air Force

(a) The Air Force faced many problems similar to those encountered by all of the Services. These included a rapidly expanding conflict without adequate logistical facilities in the Republic of Vietnam and changes in programs and plans as the war progressed. This challenge was met by establishing project Bitterwine. The concept of this project was to: arrive at standard packages of equipment or supplies for a desired capability; determine the number of these packages required; assemble the packages within the AFLC complex, and move them to the forward locations when needed. The main problems faced by the Air Force were the great volume of the materiel involved; the lack of an adequate or, in some instances, any capability of the forward locations; and the continual changing of the operational program.

(b) At the Worldwide Air Force Commanders' Conference held in Hawaii in July 1965, plans were made to upgrade 13 in-being SE Asia air bases and to build six more. Actual base building is SE Asia had to be accomplished in stages. Initially, Harvest Eagle (Tent City) camps were planned to be built and the aluminum runways and parking areas constructed. Next, temporary buildings, such as prefabs, inflatable shelters, and Butler buildings, were to be erected to house the field maintenance shops and support activities. At the same time, contractors were to construct concrete runways, buildings, and support systems for more permanent use. These total actions were scheduled to take from 2 to 3 years to accomplish.

(c) The existing logistic system was designed along the air division concept that called for a deploying Tactical Air Command unit to take its aircraft and about one-fourth of the local Air Force maintenance personnel and equipment, and a 30-day level of spare parts. All other support was to come from the overseas receiving air base. This included all base administrative and housekeeping items, personnel support supplies and equipment, civil engineering shops, and other capabilities such as supply and transportation. The receiving air base obtained needed items of supply from the appropriate supply source.

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[17] Headquarters, United States Marine Corps, Memorandum, subject: Service Supply Management, 10 October 1969.

(d) In SE Asia, the receiving air base had little if any capability.[18] In reviewing logistics needs of the buildup, the Air Force determined there were three primary ways of obtaining materiel. These were: (1) for the deploying unit to take the aircraft and direct support equipment and spares; (2) for Pacific Air Force (PACAF) Headquarters or airbases involved to utilize project Move Along to relocate or requisition items such as consumables, petroleum, oil, lubricants (POL), rations, and local purchase items; and (3) for AFLC to provide the balance through such projects as Bitterwine.

(e) Deploying Air Force units took certain items with them, however, this did not provide a total capability. For example, in the maintenance area, the F-4C unit deployed with only those items that would be needed to change aircraft tires at an established base but did not take the common items required for repair. Thus, the F-4C and D did not have a tire buildup capability when it arrived in SE Asia. The Air Force reviewed and included these type packages for each functional area in project Bitterwine. Also included were total packages for such functions as the machine-welding, paint, and other common shops. To augment the Harvest Eagle Base Support Packages, the Air Force assembled and supplied functional packages of civil engineer shops and administrative and housekeeping supplies and equipment.

(f) The capability did not exist at the SE Asia bases to requisition items as they were required or, in many instances, to receive the materiel as it became available.[19] To compensate for this lack of capability, Bitterwine and related projects provided a system to assemble this material by functional package and then ship any or all of the base required packages as the base was able to receive them. In the assembling process, identifying document and item numbers were assigned to individual line items in the packages. Stock record cards and master listings of these items were prepared and forwarded to the receiving base, which upon receipt utilized them to create base stock records and provide material due-in information. At the same time, materiel was being segregated by function and base and packed for long-term outside storage. The packed materiel was then held in the AFLC system pending a forward-movement call from Hq., PACAF.

(g) Initially, Bitterwine materiel flowed on an individual shipment basis to Oakland, California, and was then loaded with other Air Force or other Service material on the next ship going to that base or country. In practice, much of this materiel was lost or misdirected. AFLC then developed the concept of Air Force Bitterwine unit moves. The Army was using this system when they moved a unit, and the Air Force had used it for the first two Red Horse Heavy Construction squadrons. In working with Army representatives at Oakland, arrangements were made for the "one ship" unit move of 4 million pounds of Bitterwine materiel to Tuy Hoa, Vietnam. It was shipped from the Sacramento Water Port in September of 1966 and arrived overseas in October 1966. This system was then used to support subsequent Air Force movements.

(h) From November 1965 through early 1967, the Air Force assembled and shipped against project Bitterwine, over 1500 functional packages involving more than 346,000 line items of supplies with over 29 million pounds or 77,500 short tons of materiel. These totals do not include supplies and equipment that the units took with them, ammunition, POL, rations, or vehicles, which were obtained from other sources.[20]

(i) Data comparable to that shown for Bitterwine are not available for other shipments; however, based on data reflected below, by comparing tonnage one must conclude that materiel provided by the push package concept did not contribute significantly to Air Force excesses generated in Vietnam. Total tonnage shipped by surface and air to Vietnam is shown in Table 16.

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[18] Headquarters, United States Air Force, Letter, subject: Service Headquarters Briefings, 20 October 1969.

[19] Ibid.

[20] Ibid.

TABLE 16

TONNAGE SHIPPED TO VIETNAM

Year	Air S/Tons	Surface *M/Tons
1 Jan - 30 Jun 65	5,929	56,735
FY 66	24,661	592,554
FY 67	47,010	1,155,719
FY 68	48,258	1,697,315
FY 69	44,928	1,783,081
Totals	170,786	5,285,404

*These tons include air munitions that represent a large part of the total.

Source: Headquarters, United States Air Force, Letter, subject: Service Headquarters Briefings, 20 October 1969.

(j) The major problem encountered from a logistic standpoint was the continual changing of the operational program. Even though the capability existed to change the destination of any or all of a base package as long as it was in the AFLC system, when the package started to move it went to the indicated destination. In some instances destination of the fighter wings was changed during this time, which often resulted in materiel being received at a base where it was no longer required.

(k) A second major problem was accountable record generation and maintenance at the forward location. Permanent Air Force bases are highly mechanized; ADPE computers do most of the recordkeeping. As computers were not available initially in SE Asia, it was necessary to start with a manual system, converting later to the computer. Future planning is for the deploying wing to have access to a mobile computer, with programs and records preloaded. The computer will be as deployable as the fighter squadron.

(6) Summary

(a) The term push packages applies to packages of materiel developed, assembled, and shipped by CONUS supply activities to SE Asia as a means of providing automatic supply to deployed forces. Push packages were provided by all Services; however, the Navy and Marine Corps employed a modified version in that requirements were determined by organization and units in the field rather than by CONUS activities.

(b) The Army developed operations plan SEA for use as a means of developing materiel requirements provided by the push method. This plan was used, as existing contingency plans did not provide the essential force structure information required by the ICPs for computing materiel requirements. Automatic supply provided under operations plan SEA was intended solely for the purpose of increasing theater stockage and not for unit stockage. In addition to the packages shipped under operations plan SEA, other support packages were provided in response to requirements (not requisitions) placed by theater. The major problems encountered by the Army were obtaining force structure information, controlling supplies in-country, and computing requirements for the large range of items on the basis of 15-day increments. In the final analysis, the value of secondary items supplied as push packages by the Army under operations plan SEA represented only 2.3 percent of the total supplies provided to SE Asia from FY 66 through FY 69 and could have contributed only slightly to the excesses generated in Vietnam.

(c) The Navy did not employ the push package concept of supply, as did the Army and Air Force, but used a modified version in that requirements were developed by offshore units and organizations, and assembled and shipped by CONUS activities. The exception to this procedure was for parts to support newly introduced aircraft and small boats. An estimated 90-days usage of repair parts was pushed, based on the operational requirements and the designated levels of maintenance support required. The total monetary value of these shipments from September 1966 to November 1967 was only $4.3 million and had no impact on excess stocks within Vietnam.

(d) The Marine Corps did not employ the push package technique as a means of providing supply support except in a modified version. To meet the increased and abnormal demands, the Marine Corps instituted an exception management procedure called CRITIPAK. Based on requirements made known by in-country units, the Fleet Marine Force, Pacific, prepared a CRITIPAK listing for each type unit containing high usage and problem type items. Each CRITIPAK was intended to provide the individual unit with a containerized direct shipment, of small cube and weight, of urgently required items not immediately available from WESTPAC assets. The amount of supplies shipped by this method was negligible when compared to the total volume of supplies sent to Vietnam.

(e) The Air Force employed the push package concept as a means of providing materiel to the forces deployed to SE Asia during the buildup period. The principal project was Bitterwine. The concept of this project was to arrive at standard packages of equipment or supplies for a desired capability and to move them to forward locations, when required. AFLC developed the concept of project Bitterwine to provide logistical support normally provided by an existing air base in an overseas area. The project was necessary because adequate logistical bases did not exist in the battle area. Initially, Bitterwine materiel flowed on an individual shipment basis but was changed to a unit move concept similar to the system employed by the Army. Future planning envisions deploying an air wing having access to a mobile computer with programs and records pre-loaded.

3. REPLENISHMENT SUPPLY SUPPORT

a. General

(1) This type of support is provided in response to customer demands placed on a system and depends on the ability of an inventory control point to forecast accurately future demands, to perform all assigned supply functions on a timely basis within resources available including automatic resupply, as requested, and to meet special program requirements as they develop.

(2) To accomplish this support, each of the Services had varied concepts under which replenishment supply was carried out. As the war progressed, technology, equipment, and facilities improved and the commitment of forces changed. As a result, the original concepts were altered to correct deficiencies and improve supply support.

(3) Supply effectiveness is gauged by the ability to satisfy customer demands in terms of quantity of material desired, meeting a scheduled date, and delivery to the required place. Each time a customer's demand is satisfied within the prescribed time frames, the inventory control point has made an effective response. In addition to reporting effectiveness based on a total fill within Uniform Materiel Movement and Issue Priority System (UMMIPS) time frames, supply effectiveness is measured by analyzing the availability of supplies in terms of percentages of requests filled either at the first stock point at which a requirement is introduced or from the total supply system asset.

(4) Supply availability of 100 percent is not a practical goal because this would entail maintenance of uneconomical levels of inventories. The ideal standard is below 100 percent, and the exact percentage depends on such factors as the mission supported, the location of supply, the nature of the item, and the ability of the supply system to respond to

erratic as well as recurring demands.[21] Standards are established by each Service based on factors peculiar to them; therefore, overall supply system availability as measured at the inventory control points is addressed in this monograph.

(5) Replenishment supply support has been determined to have been effective by all Services. This is attested to by reports such as General Westmoreland's, which stated that not once have the fighting troops been restricted in their operations against the enemy for want of essential supplies. The performance of the CONUS ICPs in providing this support was reviewed from statistics provided by each Service in briefings or responses to inquiries. Specifically, the factors that contributed the most towards making determinations of performance were: supply availability rates, back order trends, and Service comments regarding supply support deficiencies during the period under review.

(6) It was true that in each of the Services, upon commitment of forces to Vietnam, demands for materiel assets increased. As the demands increased supply availability decreased, which resulted in an increase in outstanding back orders. As demand stabilized and as procurement actions were able to cause pipe lines to be filled and shelves to be stocked, supply availability increased and back orders decreased.

(7) The slowness in accomplishing good supply availability was reported by the Services as due to: the lack of adequate logistics bases and facilities in Vietnam to receive and distribute materiel; the lack of means for rapidly predicting and changing the demand base from a peacetime to wartime requirement, and the reluctance of industry to respond to procurement requests for military requirements rather than their civilian-oriented manufacturing.

(8) In order to have a meaningful analysis it was necessary that a similar base and method of compiling and reporting statistics be sought and utilized. It was determined that the measurement of "supply availability" was the means that would most fairly and with near comparability present each Service's effectiveness. Supply availability is defined as a measure of the availability of materiel within a supply system to satisfy a customer's requisition, when it is first received by the ICP. The materiel being measured are secondary items, both stock and appropriation funded.

(9) Because of the differences in supply systems, in general, and statistics, in particular, a comparison of the Services supply systems was not attempted. Instead, each Service was studied separately and its effectiveness evaluated as pertains to response to its customers demands.

b. Army

(1) In general, the supply support provided by the Army CONUS ICPs declined statistically after the U. S. combat commitment to South Vietnam in 1965. The increased demands for the support of forces in Vietnam was the primary cause for this decline. Subsequent paragraphs will discuss other causes.

(2) The following charts (Figure 5 through 11) depict supply availability at each of the Army national inventory control points (NICPs) and for the overall Army supply system. The definition of supply availability as shown in these charts must be changed. Instead of recording a demand as nonavailable or available when it was first received by an ICP, a due-for-shipment date was established. If shipment of materiel was accomplished prior to this date, the demand was considered satisfied for availability reporting. If shipment was not made by this date, the demand was then recorded as nonavailable for availability reporting purposes.

(3) Figure 5 depicts four distinct areas in which a downward trend occurred.

(a) The Army Supply and Maintenance System (TASAMS) became effective on 1 February 1965. This entailed many changes in command and operation and disrupted

[21] DS Pamphlet No. 700-1 Part Two, Area IX. A.

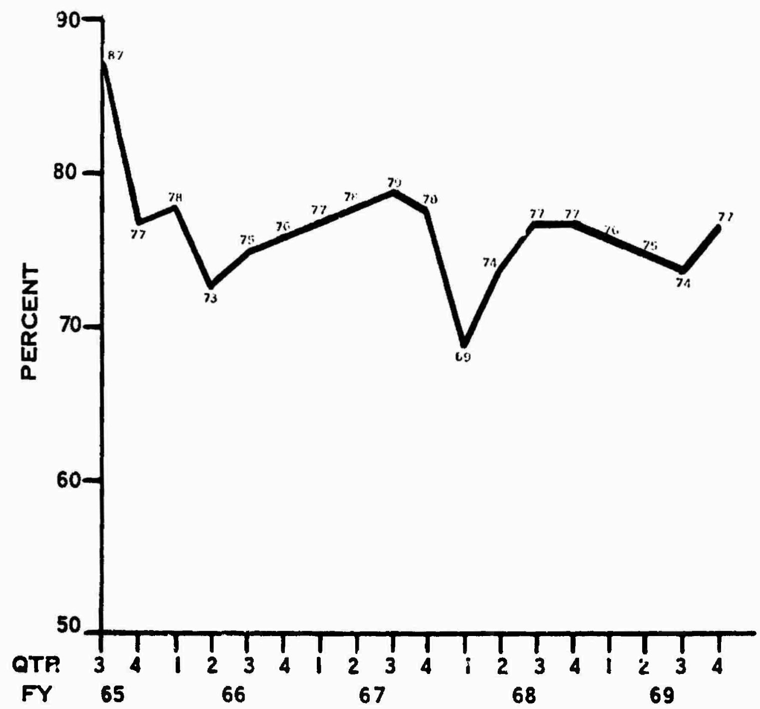

FIGURE 5. OVERALL CONUS ICP SYSTEM SUPPLY AVAILABILITY (ARMY)

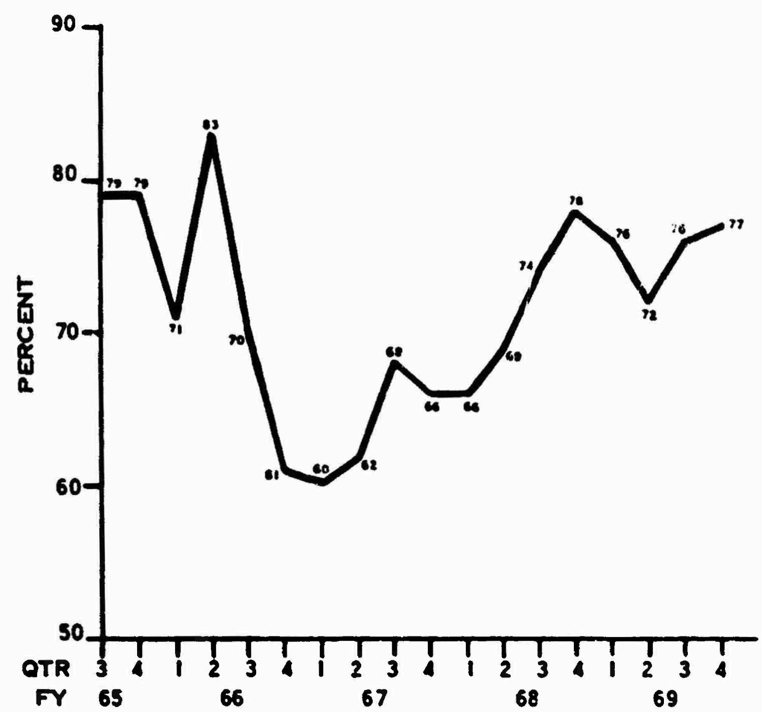

FIGURE 6. ARMY CONUS ICP SYSTEM SUPPLY AVAILABILITY (ELECTRONICS COMMAND)

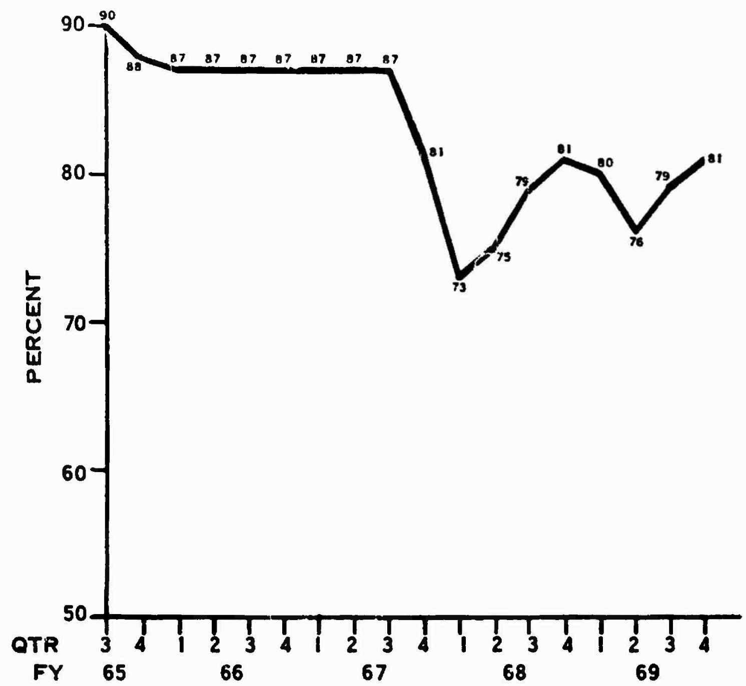

FIGURE 7. ARMY CONUS ICP SYSTEM SUPPLY AVAILABILITY (WEAPONS COMMAND)

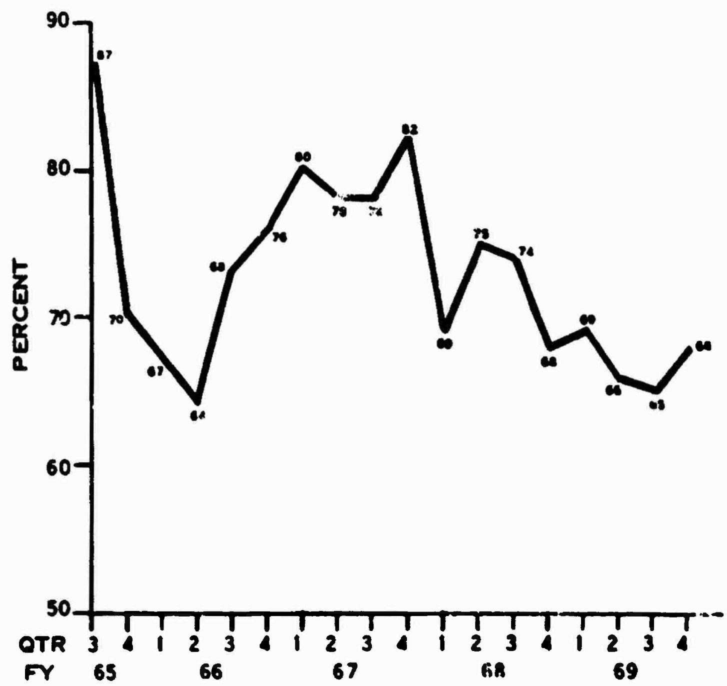

FIGURE 8. ARMY CONUS ICP SYSTEM SUPPLY AVAILABILITY (TANK AND AUTOMOTIVE COMMAND)

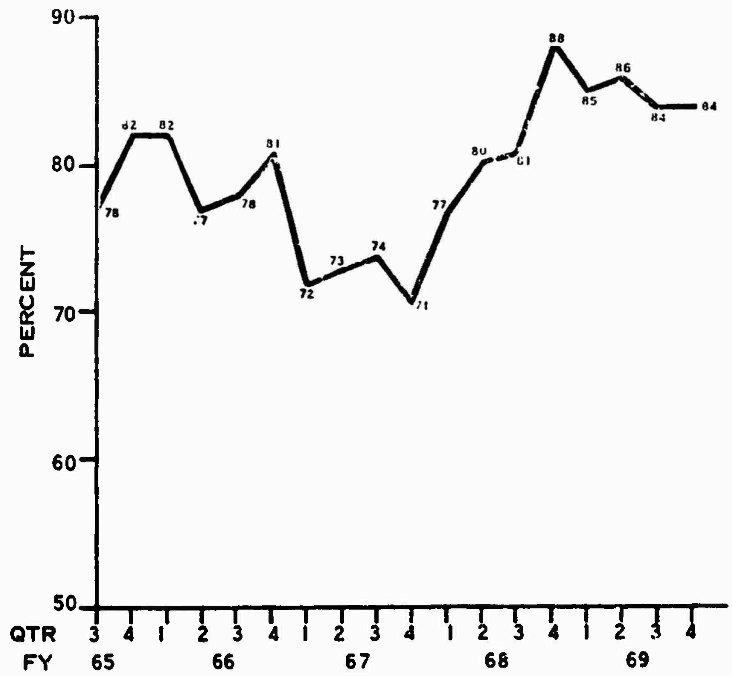

FIGURE 9. ARMY CONUS ICP SYSTEM SUPPLY AVAILABILITY (AVIATION SYSTEMS COMMAND)

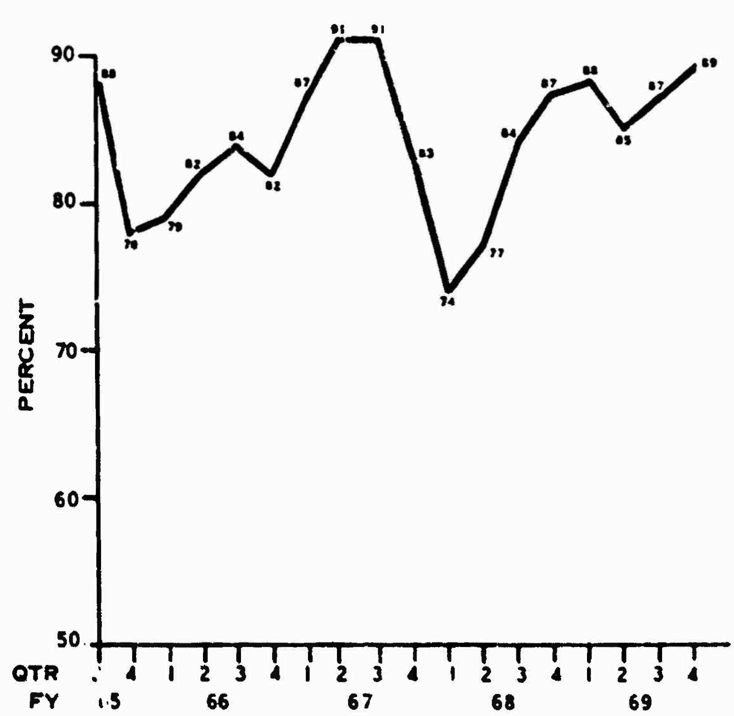

FIGURE 10. ARMY CONUS ICP SYSTEM SUPPLY AVAILABILITY (MISSILE COMMAND)

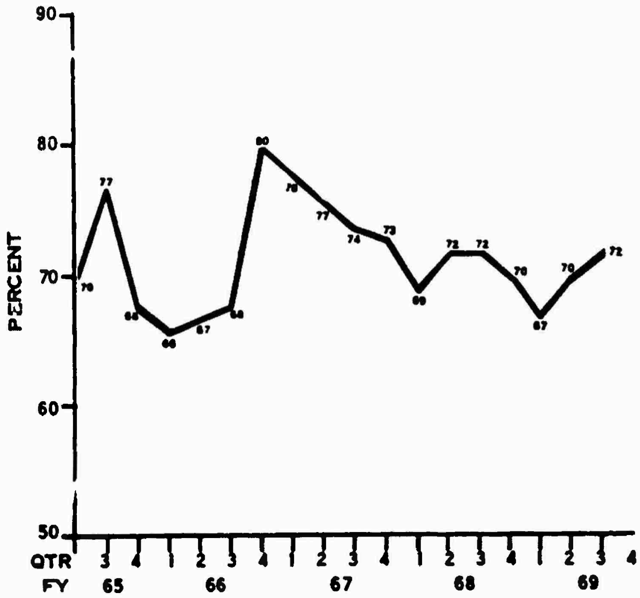

FIGURE 11. ARMY CONUS ICP SYSTEM SUPPLY AVAILABILITY (MOBILITY EQUIPMENT COMMAND)

Source: Department of Army, Memorandum, for Senior Army Member, Joint Logistics Review Board, subject: Service Headquarters Briefings; request for, file LOG-SP-PPB 19078, 23 October 1969.

normal supply operations. Consequently, the data shown for the 3d Quarter FY 65 are for the month of January 1965 only. Valid data were not recorded for the months of February and March 1965. It had been anticipated, when TASAMS was being implemented, that increased demand for like assets due to the Vietnam involvement would decrease availability.

(b) During the 1st Quarter FY 66, push packages were first assembled and shipped to SE Asia. These packages continued at a high rate through the 2d Quarter FY 66, which, along with the normal demand, seriously depleted stocks. An upward trend then prevailed until the end of FY 67.

(c) During the 1st Quarter FY 68, availability was again disrupted at the Tank Automotive Command (TACOM), which affects AMC more so than other NICPs because TACOM had a large share of the USAMC workload, approximately 33 percent. This disruption was brought about by the modernization of Standard WECOM, ATAC (TACOM), MECOM System, called SWAMS. This was the conversion of current automatic data processing equipment and programs to the RCA 3301 computers. Although this was originally planned for WECOM and MECOM, it was implemented only at TACOM.

(d) During the 4th Quarter FY 68, procurement of low-dollar items was suspended at TACOM due to the necessity for realignment of the Army stock fund program to ensure maximum procurement coverage for high-dollar item demands. This suspension was lifted at the outset of FY 69 with the release of approximately 7,000 procurement requests.

(4) Figure 12 shows the gross outstanding back orders as of the end of each quarter for the Army CONUS ICP supply system.

(5) Back orders first peaked in early FY 66 in line with increased demands. Back orders against Vietnam demands fluctuated between a low of 35,000 and a high of 44,000 during FY 66. Although not presented in a chart, it is interesting to note that 20 percent of the total demands on USAMC were for Vietnam during FY 66 and early FY 67, while only 10 percent of the total back orders were for Vietnam.

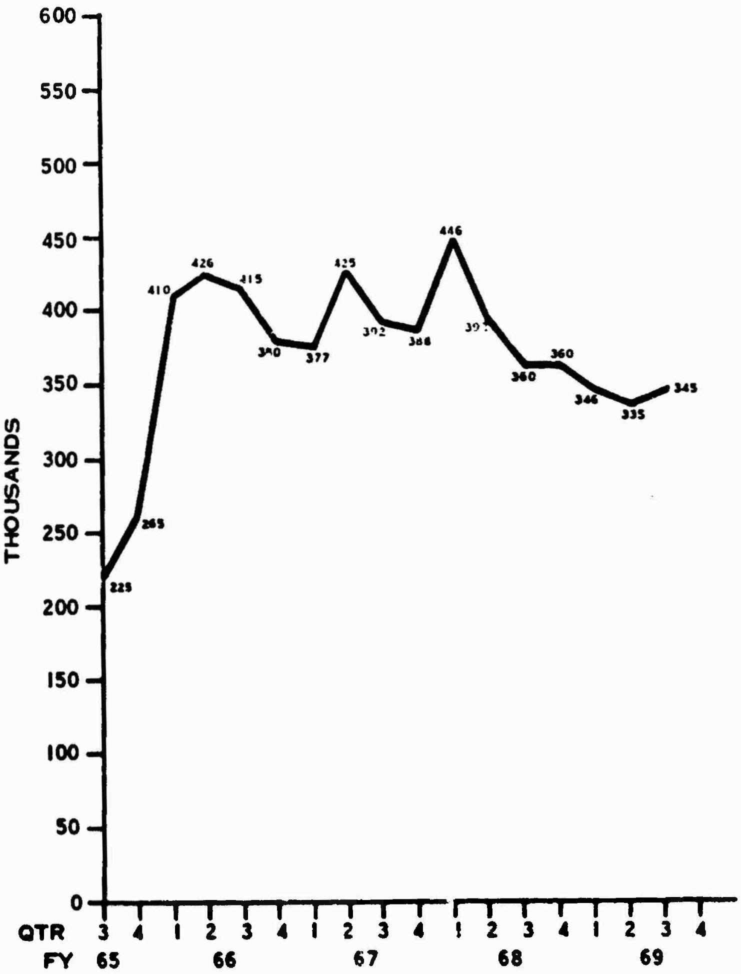

FIGURE 12. ARMY BACK ORDERS (THOUSANDS)

(a) During FY 66, about one-half of the total back orders were for items managed by TACOM. During this period a great portion of the problem was attributed to the drawdown of stocks in support of SE Asia. A serious problem existed involving the ADPE capability to process requisitions on a timely basis. Thirty percent of the requisitions were being rejected by the computer and required manual review. This manual review was delayed an average of 5 days for mechanical printout. The logic of the computer program was found to contain overcontrols.

(b) The increase in the 2d Quarter FY 67 was also attributable to TACOM. During this period TACOM had an influx of demands for nonstocked items. A considerable problem existed at that time to get the receipt document from the procurement activity and then effect a match with the open requisition file. Consequently, many nonstocked demands remained open for several months after delivery of the items to the customer.

(c) During the 1st Quarter FY 68, the number of back orders was 446,000 —the highest point during the 4 1/2-year period under review. This increase was due primarily to low availability of TACOM items and to the inadquate ADPE capability. In early FY 68, TACOM converted their current ADPE and machine programs to RCA 3301 computers. This conversion lasted several weeks during which all issue priority group (IPG) 3 and 4 requisitions were stacked awaiting completion of the conversion. Although IPG 1 and 2 requisitions were processed, the computer kickouts were not researched. Only one edit cycle was accomplished in September 1967. These factors created a backlog of supply actions that had to be processed before current requisitions could be processed on a reasonably timely basis. During the 3d Quarter FY 68, TACOM was able to complete 10 edit cycles in February and 16 in March. During the 4th Quarter FY 69, TACOM attained the USAMC objective of two edit cycles per day. In addition, Missile Command (MICOM) had several thousand requisitions for Hercules Mandatory Stockage List items that were all placed on back order for control purposes and managerial review. The requisitions were gradually released starting in September 1967.

(d) As of the end of FY 69, Vietnam back orders were at 33,000, which is still approximately 10 percent of the total back orders.

c. Navy

(1) As was the case with the Army, the supply support provided by the Navy CONUS ICPs declined statistically after the U. S. combat commitment to South Vietnam in 1965. This decline varied with each ICP as to time frame and rate of decline. Events in South Vietnam resulted in sharply increased sales that drained high demand assets from supply bins faster than procurement action could be taken to replace stock. Also, the operational necessity for quick positioning of new equipment in combat did not allow for the proper execution of provisioning procedures, thereby creating demand for items that had not been placed in the supply system in the quantities required. Actions to increase materiel availability through acquisition of additional stock had been largely counter-balanced by increasing demands. Additional obstacles in supply availability were caused by delayed funding, with resultant loss of procurement lead time, and lengthening lead time in numerous commodity areas as a result of overloaded commercial production facilities. Continued high demand for items no longer in stock then caused increases to back orders and decreases to supply availability.

(2) Figures 13 through 18 depict supply availability at each of the Navy ICPs and for the overall Navy supply system and outstanding back orders covering the period of review.

(3) Although total dollar value of inventory remained fairly constant from December 1964 to December 1966, the total sales increased approximately 34 percent during this period. This increased sales level was the primary cause for the downward trend in availability and a rise in number of back orders; however, the exact amount of this increase in back orders is unknown as statistics are not available. It was not until FY 67 that back orders were centralized at the ICPs. Prior to this time back orders were held by the individual stock points. The initial increase in the number of outstanding back orders is attributed to the implementation of the centralized back-order concept. The significant drop evidenced for the 3d Quarter FY 68 was the result of:

(a) A continuing reduction in Electronics Supply Office (ESO) back orders (46 percent of end FY 67 level) based on improved system stock availability.

(b) An aggressive spot buy program at Ships Parts Control Center (SPCC) that reduced back orders by 15 percent during the 3d Quarter FY 68.

(4) As can be readily seen, Ships Parts Control Center has been consistently below the other ICPs in supply availability. This was because of the large universe of items for which SPCC had supply support responsibility. The multiplicity of ships that have only one application for an item makes it economically unsound to stock the item. Notwithstanding, there was stockage of such items, but additionally there were many demands for items that had to be supplied by an individual buy for direct delivery. For example, of the 193,000 shipboard equipment and components that were managed by SPCC, 46 percent of them have four or less applications.[22, 23]

[22] Office of the Chief of Naval Operations, Memorandum, subject: Service Headquarters Briefings, 15 October 1969.

[23] Office of the Chief of Naval Operations, Memorandum for The Secretary of the Navy, subject: Annual Report of the Secretary of the Navy, FY 1967.

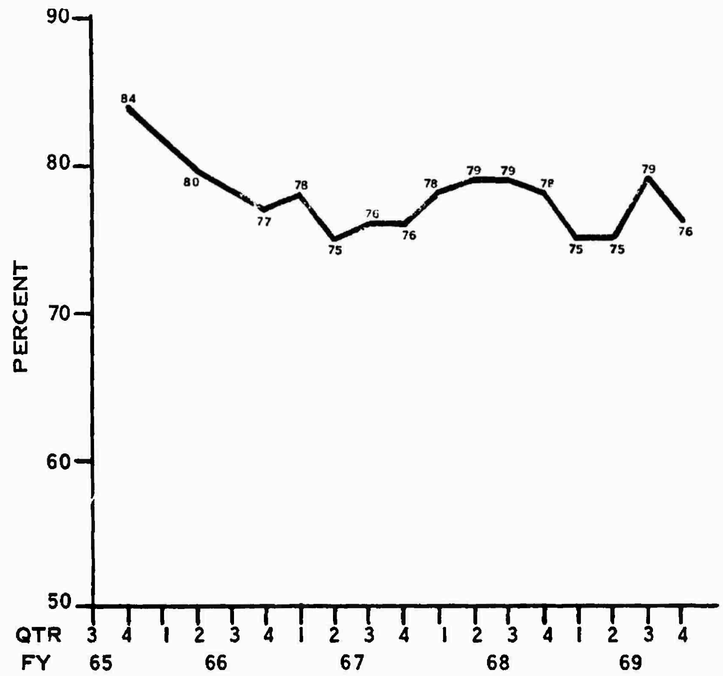

FIGURE 13. OVERALL CONUS ICP SYSTEM SUPPLY AVAILABILITY (NAVY)

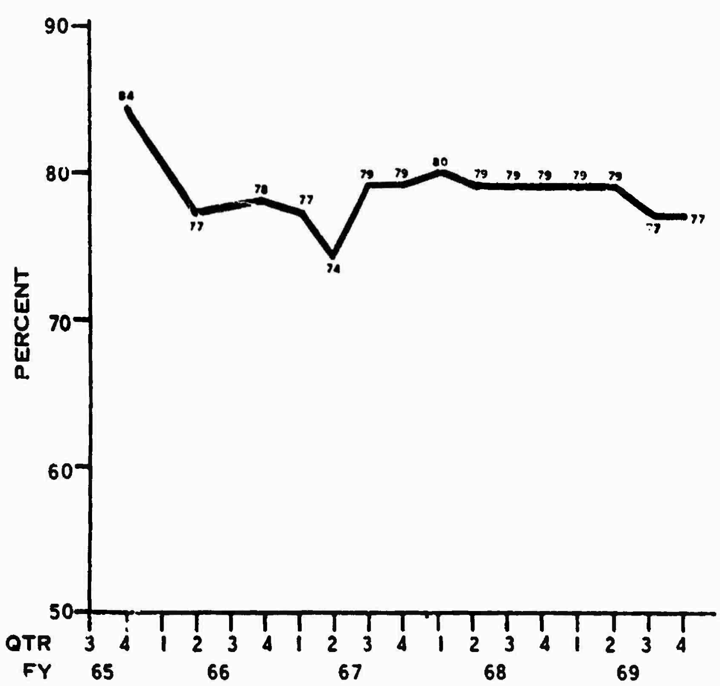

FIGURE 14. NAVY CONUS ICP SYSTEM SUPPLY AVAILABILITY
(AVIATION SUPPLY OFFICE)

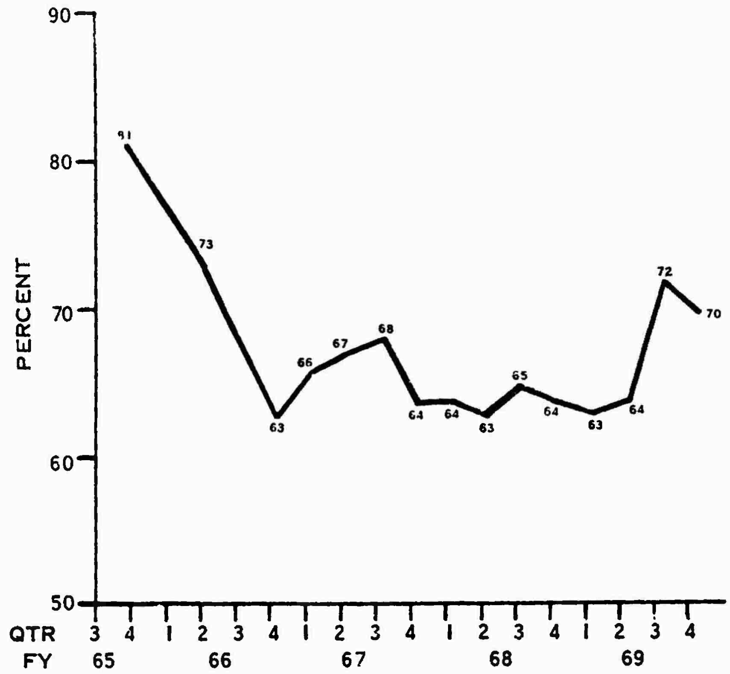

FIGURE 15. NAVY CONUS ICP SYSTEM SUPPLY AVAILABILITY (SHIPS PARTS CONTROL CENTER—SHIPS PARTS)

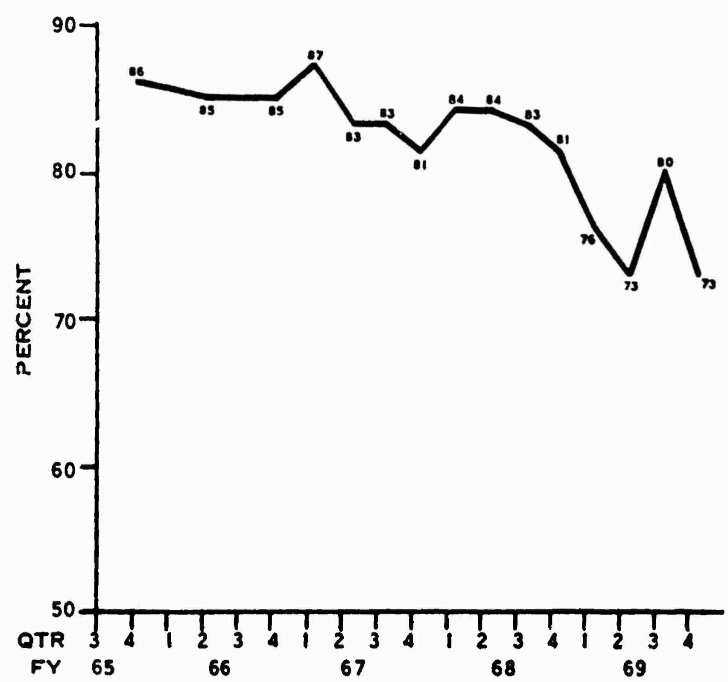

FIGURE 16. NAVY CONUS ICP SYSTEM SUPPLY AVAILABILITY (SHIPS PARTS CONTROL CENTER—ORDNANCE)

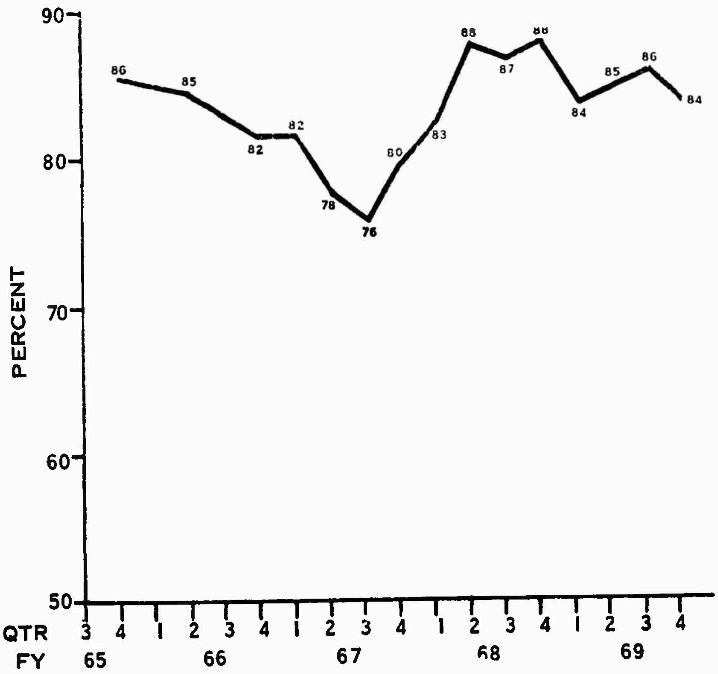

FIGURE 17. NAVY CONUS ICP SYSTEM SUPPLY AVAILABILITY (ELECTRONIC SUPPLY OFFICE)

d. Marine Corps

(1) Supply availability during the period from the commitment of forces to South Vietnam through FY 69 has been declining. As with the other Services, stockage objectives were based on peacetime demands and even though there was not a shortage of funds at the outset, it was difficult to project what the increased demands would be and to effect procurement of materiel in the short time frames necessary to have materiel available to satisfy these accelerated customer demands.

(2) Figure 19 depicts supply availability and was computed in two ways. For the period January 1965 through April 1967, an average availability of the eight CONUS stock accounts comprising the Marine Corps bicoastal complex system, which prevailed prior to the implementation of Marine Corps Uniform Materiel Management System (MUMMS) in May 1967, was computed as the sum of total demands divided into the sum of total obligations established and the result substracted from 100 percent to arrive at each monthly availability percentage. Commencing May 1967, the Marine Corps initiated, in conjunction with the implementation of MUMMS, the use of a single ICP. Consistent with this change, supply availability rates were computed on all demands (for stocked and nonstocked items) submitted to the ICP using the procedures as stated above.

(3) The initial decline in supply availability can be attributed to the accelerated demands as explained in paragraph d(1). Commencing with FY 67, supply availability improved as procurement actions, based on the accelerated demands, caused supplies again to be placed on the shelf.

(4) During the 3d Quarter FY 67, Marine Corps customers were instructed to submit requisitions for materiel that would carry them over a 60-day period, while the Marine Corps Uniform Materiel Management System was being implemented. This resulted in a more drastic drawdown of materiel. During the 60-day moratorium period, only certain types of

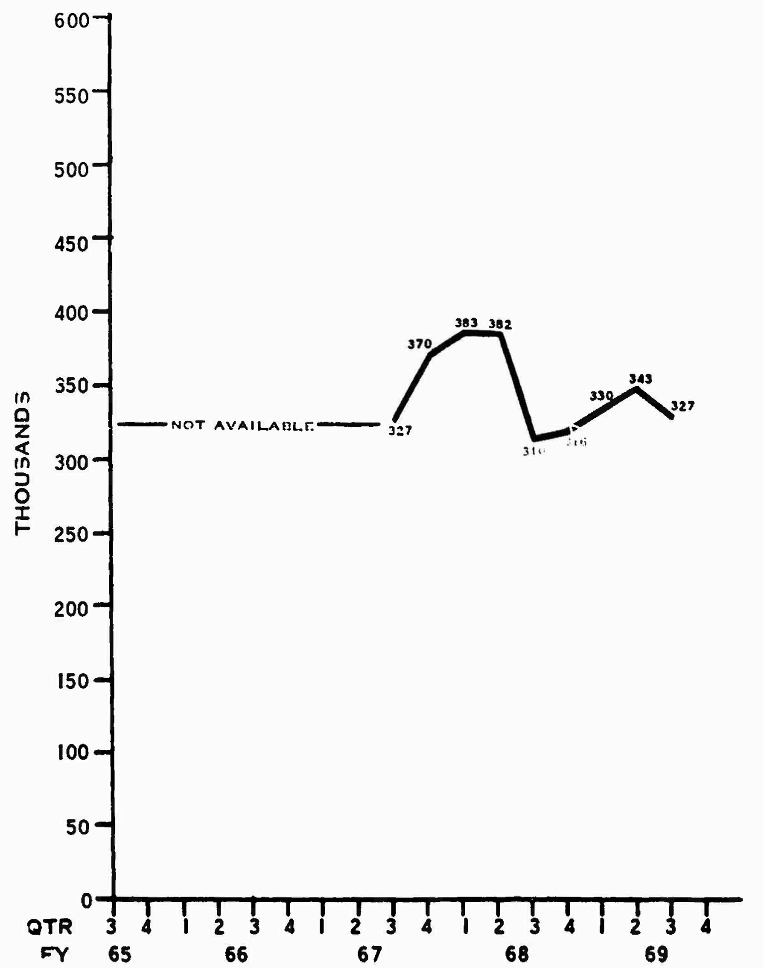

FIGURE 18. NAVY BACK ORDERS (THOUSANDS)

requisitions (high-priority and approved exception type) were accepted and processed for issue. This decreased demand, coupled with the receipt of materiel from procurement that was not being drawn down immediately, caused the much higher percentage of effectiveness for the 4th Quarter FY 67 and 1st Quarter FY 68.

(5) Beginning with the 2d Quarter FY 68, a downward trend again developed. This would appear unsatisfactory; however, there were a number of major factors contributing to this trend which are discussed below, that put these availability statistics in proper perspective.

(a) MUMMS was approved for phased implementation over an extended period of time, with attainment of full system design potential not expected until October 1971. Consequently, initial implementation included only essential inventory control and stores accounting processes, with gradual incorporation of the full range of inventory control and related processes and subsystems.

(b) MUMMS was not just a simple conversion of one system to another, with an upgrading of hardware with similar processes. It was the establishment of a totally new supply-support concept, incorporating standard language and formats relatively new to the Marine Corps, with integration and centralization of all inventory and related processes at

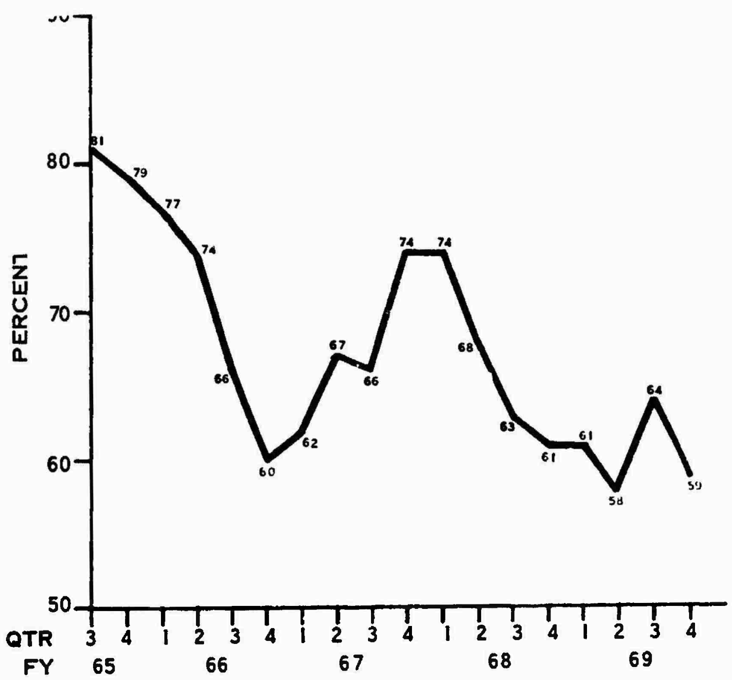

FIGURE 19. OVERALL CONUS ICP SYSTEM SUPPLY AVAILABILITY (MARINE CORPS)

a single ICP, utilizing hardware and software of unproven capabilities. The design and programming of MUMMS was accomplished by personnel concurrently engaged in supporting major Marine forces in a combat theater, and implementation was accomplished without benefit of a parallel system. Additionally, it required concurrent adaptation to Military Standard Requisitioning and Issue Procedures (MILSTRIP), Military Standard Reporting and Accounting Procedures (MILSTRAP), Military Standard Transportation and Movement Procedures (MILSTAMP), and Military Supply and Transportation Evaluation Procedures (MILSTEP). Although these MIL programs had been in use elsewhere within DOD for approximately 5 years, the Marine Corps had been granted permission by the Secretary of Defense to schedule their implementation to coincide with the implementation of MUMMS. This facet of implementation required conversion of all system back orders to new formats without loss of document number control by either the system or the customer. This document conversion, coupled with data loss incident to data cell problems of the new system, ultimately required an extensive file reconcilliation that contributed in large measure to the present volume of overaged outstanding back orders.

(c) The major cause of the downward trend of supply availability has been the inadequate funding for the MUMMS system in the stock fund area since implementation. Program budget decisions on FY 68 and FY 69 stock fund obligation requirements severely curtailed operations, and the resultant inability to invest adequately in stock replenishment has had a continuing adverse impact on supply availability and the number of back orders outstanding. (See Figure 20.) Fund limitations have had a significant and adverse impact on key performance areas that would have been difficult at best, under a new system, with adequate funding. Additionally, the Office of the Assistant Secretary of Defense (OASD) has withheld obligational authority, on the basis of past sales, while the Marine Corps has stipulated that substantial sales potential was available in materiel obligations outstanding.[24, 25]

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[24] Headquarters, U. S. Marine Corps, Memorandum, for the Coordinator, Task Force A, JLRB, subject: Service Supply Support Provided by CONUS ICPs, 12 August 1969.

[25] Ibid.

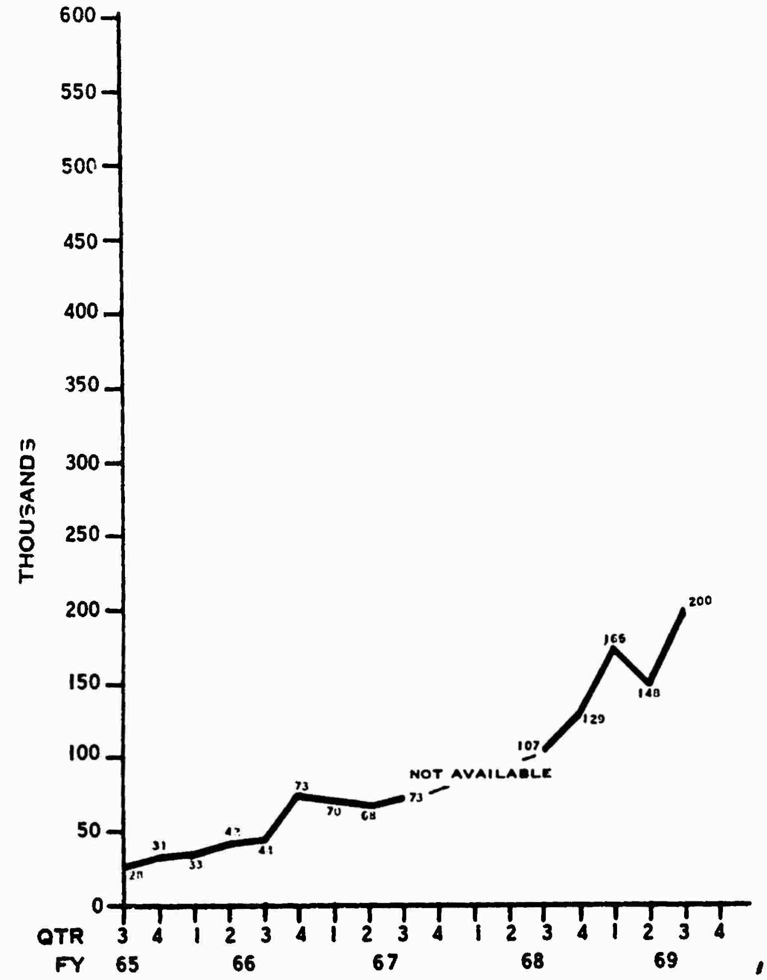

FIGURE 20. MARINE CORPS BACK ORDERS (THOUSANDS)

e. Air Force

(1) The downward trend of supply availability, commencing FY 66, was the result of a tremendous increase in customer demands because of the commitment of forces to South Vietnam. Regardless of this decline, the "Operational Ready" rate never dropped below the DOD goal. Because procured and stocked materiel was obtained, based on previous lower demand figures, there was an inability to support the increased demand until the Air Force could catch up through new procurement and repair.

(2) Figures 21 through 27 depict supply availability at each of the CONUS ICPs (AMAs) and for the overall Air Force supply system and outstanding back orders covering the period of review.

(3) Statistical information relative to supply availability at each of the AMAs for the 3d Quarter FY 65 through the 2d Quarter FY 67 was not available, nor was it available for the overall Air Force for the 3d Quarter FY 65 through the 1st Quarter FY 66. This information has been deleted from files through the normal retirement and disposal of records procedures of the Air Force.

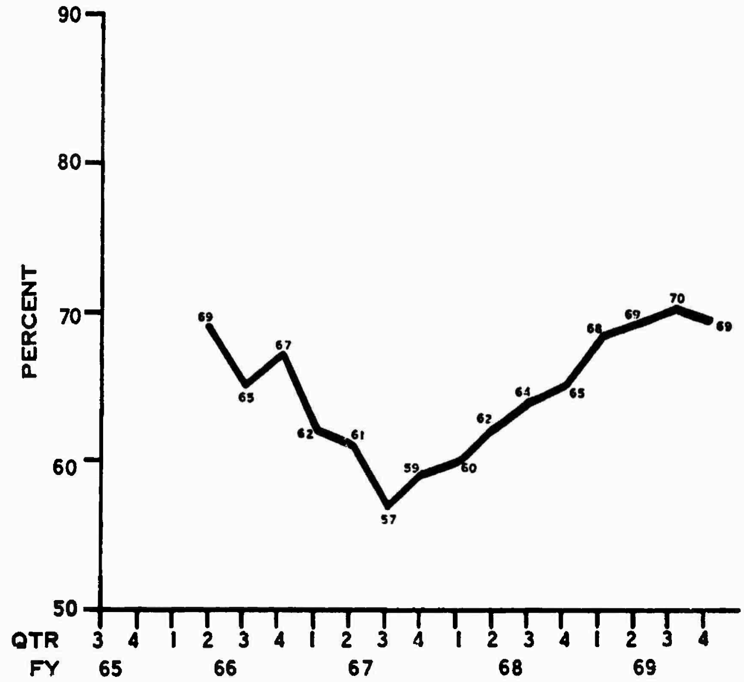

FIGURE 21. OVERALL CONUS ICP SYSTEM SUPPLY AVAILABILITY (AIR FORCE)

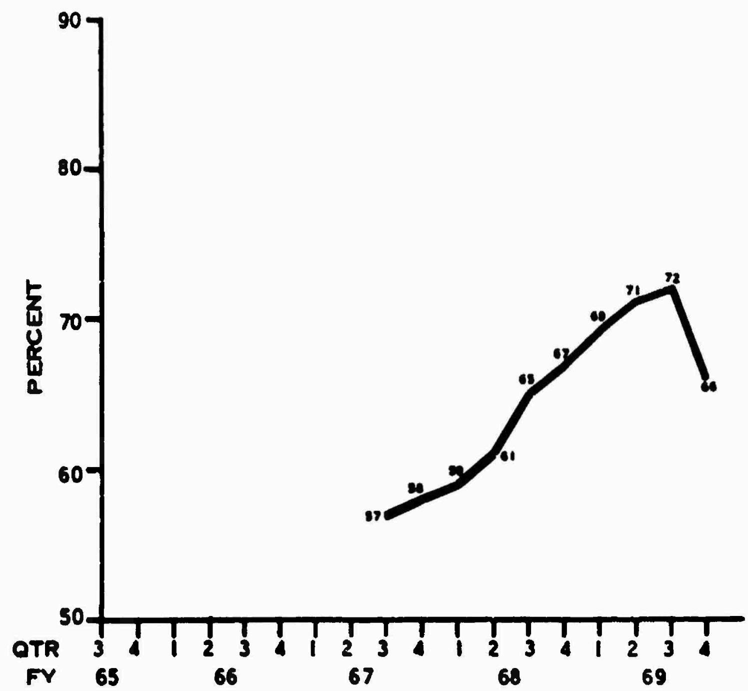

FIGURE 22. AIR FORCE CONUS ICP SYSTEM SUPPLY AVAILABILITY (OKLAHOMA CITY AIR MATERIEL AREA)

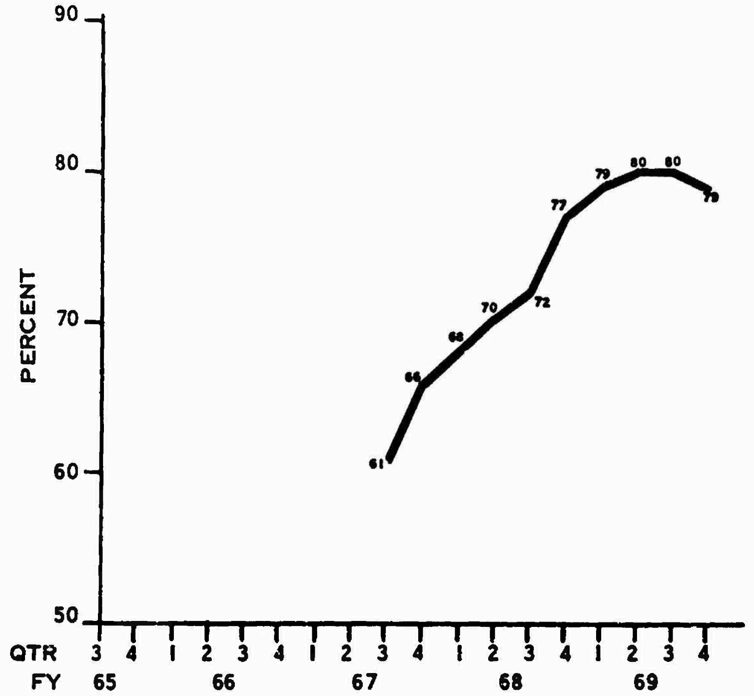

FIGURE 23. AIR FORCE CONUS ICP SYSTEM SUPPLY AVAILABILITY (SACRAMENTO AIR MATERIEL AREA)

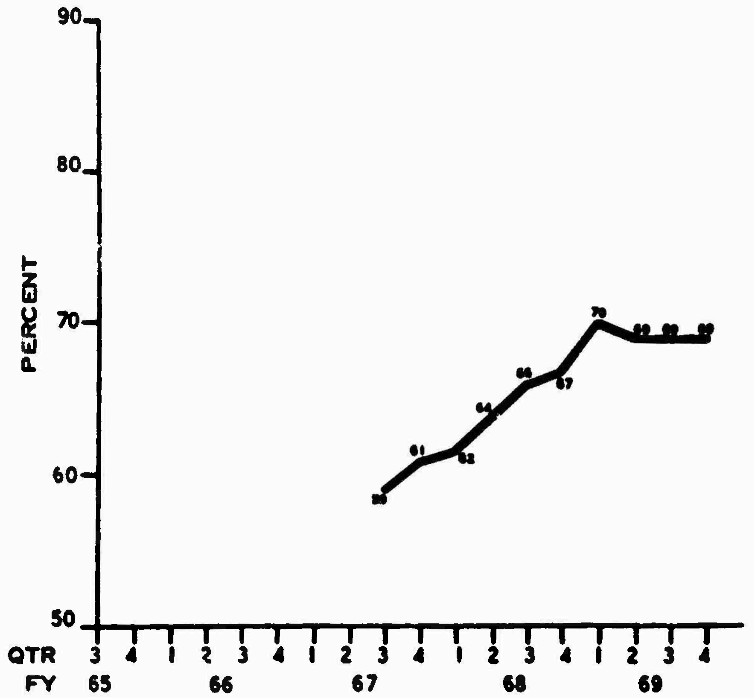

FIGURE 24. AIR FORCE CONUS ICP SYSTEM SUPPLY AVAILABILITY (SAN ANTONIO AIR MATERIEL AREA)

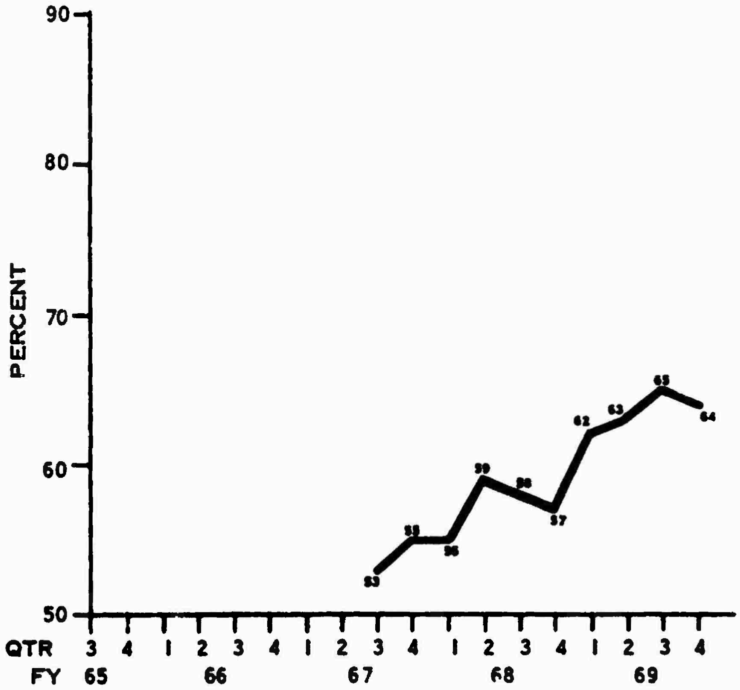

FIGURE 25. AIR FORCE CONUS ICP SYSTEM SUPPLY AVAILABILITY (WARNER ROBINS AIR MATERIEL AREA)

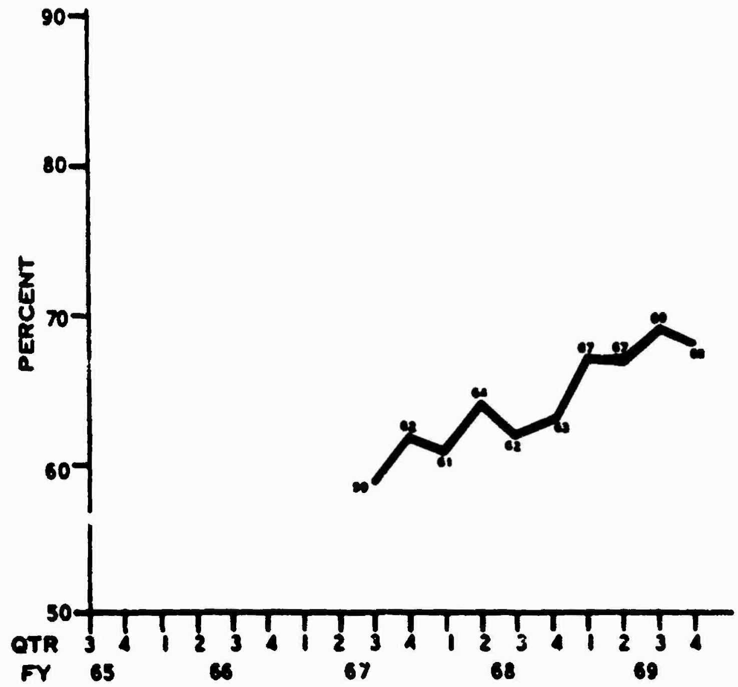

FIGURE 26. AIR FORCE CONUS ICP SYSTEM SUPPLY AVAILABILITY (OGDEN AIR MATERIEL AREA)

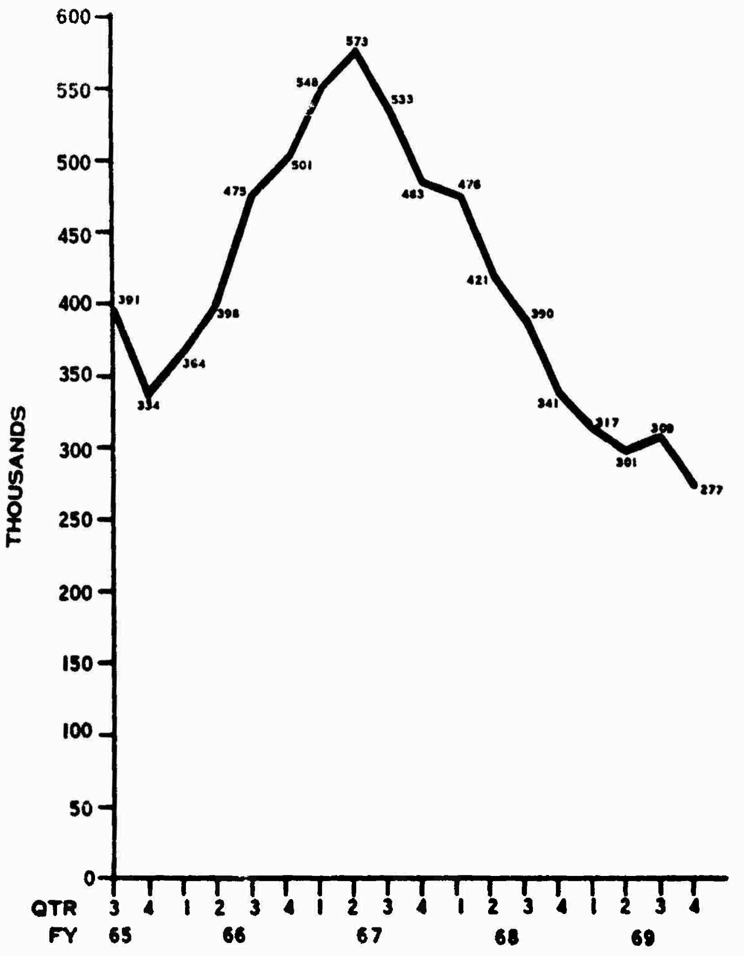

FIGURE 27. AIR FORCE BACK ORDERS (THOUSANDS)

(4) Each AMA utilizes standard AFLC requirements and distribution systems. The differences between the supply availability rates of each AMA can be attributed to the nature and quantity of items managed.

(5) Between the 2d Quarter FY 66 and the 1st Quarter FY 67, customer demands increased 61 percent. As demands slackened and materiel was received from procurement and repair, supply availability began a steady increase until it reached its present level.

(6) The overall supply availability "low point" classically correlates with the outstanding back order "high point" and as availability increases, back orders decline—an indication that a system is reacting properly to demands.

(7) The decrease in supply availability during the 4th Quarter FY 69 is primarily due to project Pacer Lagoon (the transfer of management responsibility for selected engine items between Oklahoma City and San Antonio). During this transfer the asset balances and interchangeability-substitution data were not properly transferred to the receiving AMA; therefore, when requisitions were received for these items, they were automatically put on back-order status and statistically recorded as a zero fill until the effected data could be corrected and shipment made to the customer.

f. Summary. Replenishment supply support has been determined to have been effective for all Services. Notwithstanding, Service standards during the Vietnam era were not always adequate because of the abnormal demand placed on all supply systems. The supply systems were funded and stocked based on a peacetime demand but were supporting a combat commitment.

(1) The Army replenishment supply support declined statistically after the U. S. commitment to South Vietnam in 1965. The increased demands for the support of forces in Vietnam was the primary cause for the decline. Each NICP contributed to the decline, but it was attributable in a large part to TACOMs decline. The problems, primarily in ADPE, have been corrected and TACOM how appears to be coming up on the support curve.

(2) The Navy replenishment supply support, like the Army, declined statistically after the U. S. commitment to South Vietnam in 1965. The decline varied with each ICP but was based on increased sales of high-demand assets that negated procurement actions to replace stock. The demand peaked at different times at each ICP with SPCC (Ordnance) being the ICP that was the last to be affected by the increased demand.

(3) The Marine Corps replenishment supply support declined statistically after the increased U.S. commitment to South Vietnam in 1965 because of the increased demand for items stocked based on a projected lesser peacetime demand. Procurement actions had replaced stocks to support increased demand by the end of FY 67. At this time the Marine Corps converted to an entirely new supply support concept that caused a decline in support. This decline should have been corrected after a reasonable time; however, the withholding of funding in the stock fund area by OASD, based upon past sales, has contributed to a continual decline.

(4) The Air Force replenishment supply support, as with the other Services, declined statistically after the increased U.S. commitment to South Vietnam in 1965. The decline was caused primarily by a 61 percent increase in demands, between the 2d Quarter FY 66 and the 1st Quarter FY 67, on assets that were procured and stocked based on previous, lower demand figures.

4. SPECIAL SYSTEMS AND CONTROLS. The Services instituted special systems and controls to ensure that essential supply requirements of the deployed forces in Vietnam were met. Such controls and systems were necessitated by weaknesses in administering the logistics system. The weakness may have been the result of inadequacies in such areas as war reserves, stockage policies, authorized peacetime levels, transportation capability, communications, logistical base, financial resources, supply discipline, and Service policy and procedures. An examination of some of the controls and systems instituted by each Service and the benefits derived therefrom are addressed in subsequent paragraphs.

a. Army

(1) The Army established several special systems and controls during the Vietnam era to improve supply response. These included the Red Ball Express, the Stovepipe Supply System, Closed Loop Support, Project Managers, and numerous other special actions designed to control and ensure that essential combat requirements would be met.

(2) The Red Ball Express System was initiated on 5 December 1965 at the direction of the Secretary of Defense. The system was specifically designed to improve the materiel readiness posture of the Army forces in Vietnam by providing expedited supply support for items required to remove equipment from a deadline condition. The Red Ball expanded system established in January 1967, as an adjunct to Red Ball Express System, was designed to permit support units to order repair parts in anticipation of equipment being deadlined. This system provided a positive control of requisitions from inception at Direct Support Units in Vietnam until the materiel was delivered in country. At each level, specific individuals were designated to monitor the processing of Red Ball requisitions. At the Logistics Control Office-Pacific a complete record was maintained of all actions on each requisition including those that occurred in the transportation segment of the cycle. The Red Ball system, as measured

by improved operational readiness, has proven to be highly effective for support of Army forces in Vietnam. This improvement can be attributed to the special and intensive management of the system, which included dedicated airlift.

(3) The U.S. Army Aviation Systems Command (AVSCOM) conducted a comparison of processing time for Red Ball requisitions vs. MILSTRIP priority 02 requisitions received from Vietnam during the period April to June 1969. Results indicated that 46.2 percent of Red Ball requisitions were shipped from the supply source within 15 days of the date requisitioned, whereas only 9.8 percent of priority 02 requisitions were shipped within 15 days. A total of 80,658 MILSTRIP 02 requisitions and 22,471 Red Ball requisitions were analyzed for the same period of time to determine the percentage lifted from CONUS by time frame. In the case of Red Ball, 47.8 percent of the items shipped were lifted from CONUS within 15 days, whereas only 9.9 percent of the priority 02 were lifted within the same time frame. The time frame in both instances was based on the date in the customers' requisitions.[26]

(4) The Army also established the Stovepipe Supply System. This system permits the requisitioner to send all his requistions for material required in the support of a designated piece of equipment to a focal point such as the end-item manager. The first of the pure Stovepipe Supply Systems was designed and established for the HAWK missile support in Vietnam. This item was selected because there was only one Army HAWK Missile Unit in Vietnam and only one facility capable of providing maintenance support for the HAWK. Requisitions were sent directly to the end-item manager, MICOM, who followed through until the supplies were flown back to the U. S. Army, Vietnam (USARV).

(5) Following the successful implementation of the HAWK Missile Stovepipe Supply System, the decision was made to implement a similar system for other sophisticated end items of equipment. Based on the increase in aviation equipment in Vietnam from 600 Army aircraft in July 1965 to 2,000 Army aircraft in July 1966, and because Army aircraft support was being managed separately through an organization known as the Aviation Supply Point, Vietnam, it was determined that aircraft supply support should be provided by a Stovepipe System. AMC established the second Stovepipe Supply System initially for the support of the Chinook Aircraft in July 1966, but later expanded it to include all aircraft in Vietnam. Requisitions for all aviation equipment were sent from the Aviation Materiel Management Center (formerly called the Aviation Supply Point, Vietnam) to the end item manager at AVSCOM. The requisitioned did not determine the supply source - his needs for the aircraft, whether they were avionics, weapons, or common items, went to the focal point, AVSCOM. At AVSCOM the end item manager determined the CONUS supply source, forwarded the requirement to the source, and monitored the requisition until the supplies were shipped to Vietnam.

(6) There have been some recent changes in that all aircraft parts requisitioner from Vietnam are under a single project code "OFP." Requisitions now flow through the Defense Automatic Addressing System (DAAS) with the end item manager getting only those for which he has supply responsibility. He receives only an image copy of all others. As in the past, however, these requisitions are coded so that the end item manager still receives all advice and is responsible for providing supply status, shipment status, receipt, and lift information.

(7) The results obtained by the Stovepipe System indicate that the Aircraft Stovepipe System in Vietnam did provide better service; there were increases in aircraft readiness and in overall economy of supply. Specifically: the NORS rate was reduced on the CH-47 from 27 percent to 9 percent and on the UH-1 from 16 percent to 6 percent. Corresponding reductions also occurred in other aircraft. Further, the requisitioning objective in Vietnam for aircraft and avionic items was reduced from 150 to 120 days. The USARV estimated a pipeline savings of $23.6 million.[27]

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[26] U. S. Army Aviation Systems Command, Briefing, to JLRB, subject: Red Ball System, 25 September 1969

[27] Department of the Army, Office of the Deputy Chief of Staff for Logistics, Memorandum, subject: Service Headquarters Briefing; request for, 23 October 1969.

(8) The Army Materiel Command also established project management offices with a designated project manager to manage intensively a major weapons system. On 1 August 1962, when AMC was formed, thirty projects were selected for project management. In addition to those that were organized for new development programs, the Commanding General (CG), AMC, at a later date, directed establishment of 14 project management offices for the specific purpose of controlling the engineering, production, and supply support of materiel for SE Asia. The methods used by each project was different, but each had the following in common; they were visible at the point of central management authority. Under project management one individual was identified with a discrete set of responsibilities for a major weapons system. He was provided with the time, authority, and resources necessary to carry out these responsibilities for a major weapon system. A most important aspect of this intensive form of management was that the project manager was able to give his undivided attention to the specific responsibilities with which he was charged. This overall visibility cannot normally be achieved within other forms of commodity or functional management. Under functional and commodity management, various facets of a project are managed by different people, who may or may not be in close communication; therefore, the interrelated impacts of problems arising in one area may not be recognized.

(9) There is no practical way to measure the support to SE Asia by project management against what might have occurred under another form of management, although experience indicates that the support was completely responsive. The early correction of engineering errors, the avoidance of inventory accumulations, and the reductions in lead and equipment down-time attest to the effectiveness of project management.

(10) Project management, in support of SE Asia, proved to be an outstanding technique of ensuring high-order resources for selected major weapons systems. A specific example is the T53/55 turbine engine. Beginning with 1967, the year the T53/55 turbine engines became project managed, there was significant improvement in supply posture. Even with an increase of aircraft from 3,432 to 5,120 (September 1969) and a total flying-hour increase from over 1.5 million hours to 3.25 million hours, support has improved. Red Ball requisitions resulting from an aircraft deadlined in Vietnam for lack of an engine declined from 945 in 1967 to 677 in 1968 and no aircraft have been deadlined in Vietnam for lack of a T53/55 engine since May 1968.[28]

(11) The Army established the Closed Loop Support Program in 1967. It was a special management procedure wherein command and support elements were employed in a closely controlled network. Logistical functions, such as supply, retrograde, overhaul, and return to Army supply channels were arrayed in detailed schedule. This provided the means for ensuring that critical major items and major assemblies were expedited through the logistics system to overhaul facilities and returned to the command. The Loop began with the using units and was completed if repairs were within direct support unit (DSU) and general support unit (GSU) capability. Rebuild beyond this capability was accomplished at theater level or evacuated to CONUS. The concept of the operation was a "push-pull" system, ie., pushing predetermined quantities of serviceables into a command pulling out the unserviceables for overhaul. The Closed Loop procedure provided for a control of assets, tended to enforce supply discipline, and shortened the supply pipeline.

(12) Numerous other controls and systems were established by the Army. Some of these will be mentioned only briefly to indicate the techniques being employed in efforts to improve supply responsiveness to the Army Forces. Push packages, as previously mentioned, were provided the combat forces in Vietnam. Color markings and symbols were used on overseas shipments to identify Service responsibility for materiel. The Logistics Control Office at San Francisco was expanded from its primary mission (monitoring contingency plans and to receive, maintain, and coordinate data pertaining to AMC's responsibility for supply, maintenance, and transportation of Army sponsored materiel and cargo) to serve as a focal point for the overseas commander to obtain information on materiel in the transportation stream and assist

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[28]Ibid.

in the control of the Red Ball requisitions and movement of materiel. The ENSURE program, previously mentioned in connection with provisioning, was designed to provide required items on an expedited basis. Project FILL and Commanders Critical Items Lists (CCIL) were established at the request of the 1st Logistical Command, Vietnam, as a means of obtaining intensive management and controlled status for specific critical items identified by direct support units. Each ICP established special programs and control to include maximum release quantity and other techniques for assuring that assets would be available to meet the most critical demands. Project 999 was established in May 1966 by OASD (I&L) as a permanent system to provide all Services with a uniform system to expedite the handling of repair parts, when these items were causing not operationally ready, supply (NORS) conditions or when a NORS condition was anticipated within 15 days in Vietnam or 5 days elsewhere.

b. Navy

(1) The Navy did not institute any special supply systems or controls specifically related to support of Naval forces in Vietnam. Special programs to ensure or improve supply support to the fleet and Navy shore establishments worldwide were established. Changes were made to established programs, and the use of the project manager technique increased sharply. Programs peculiar to the Navy are addressed in subsequent paragraphs.

(2) Tiger Tom and Bobcat were special expediting programs established during the period under review for the processing of issue priority group I requisitions and shipments of material required to satisfy the requirements of Seventh Fleet, Sixth Fleet, and Fleet Marine Air Wing Aircraft NORS and NFE (not fully equipped) conditions. Tiger Tom, utilizing project codes 706 for NORS and 707 for NFE requirements, was applicable to Seventh Fleet and Pacific Aviation Units. Bobcat, utilizing project codes 756 for NORS and 757 for NFE requirements, was applicable to Sixth Fleet and Eastern Atlantic Aviation Units. Status of outstanding Tiger Tom and Bobcat requisitions was provided to the Fleet and Type Commanders weekly. These programs are recognized and afforded priority attention by all Navy and DSA supply and transportation activities.

(3) The 711 program provides for rapid processing and continual monitoring of requisitions for Seventh Fleet casualty reporting (CASREPT) materiel. The project code 711 is assigned by the requisitioning activity to all requisitions required to correct Seventh Fleet Aircraft Carrier CASREPTS and all readiness condition C3 and C4 CASREPTS for all other Seventh Fleet ships. The 711 project code was recognized by all Navy and DSA supply activities for priority processing and shipping. Weekly status reports of outstanding 711 requisitions are provided the Pacific Fleet and Type Commanders.

(4) A trend toward decentralization with emphasis on project management has continued over the past five years. The Navy intends to place even greater reliance on this technique in the future. The number of formal project manager offices has roughly tripled in the past three years, from approximately 20 to more than 60, some of which report directly to the Chief of Naval Material, and the others to systems' commanders. The project management organization will continue to be utilized in applying the systems approach to weapon acquisition because project management lends itself completely to the goals of the systems approach in weapon acquisition. This consists of improved management and control mechanisms such as concept formulation, contract definition, and project master planning; and stronger functional techniques and organizations, especially in logistics support areas.[29]

(5) The Ships Capability Impaired for Lack of Parts (SCIP) program is a reporting program to identify and report deficiencies in support of special weapon systems and equipments. SCIP is designed to provide current, cumulative intelligence to management activities for review, analysis, and the initiation of corrective action, and to facilitate the expeditious processing of ships requisitions for materiel to support approved special weapon systems and equipments. SCIP is a closed-loop requisition monitoring program that has a rather narrow

[29]Office of the Chief of Naval Operations, Memorandum, subject: Service Headquarters Briefing, 15 October 1969.

equipment application. The equipments included in the program are predominantly surface missile systems.

(6) The Ships Essential Equipment Requisition Expediting Program (SEEREP) has been developed as a replacement program for SCIP. The SEEREP is currently under review for final approval by the Chief of Naval Material (CNM) and the Chief of Naval Operations (CNO). SEEREP will utilize many of the SCIP concepts, will be compatible with UMMIPS and MILSTRIP programs, and will provide the ICP with the capability to recognize high-priority requisitions for CNO approved essential equipments. The SEEREP program is not designed to collect historical data but will act as a requisition expediting program.

c. Marine Corps

(1) The Marine Corps participated in DOD-sponsored programs such as the Red Ball system and project 999. The Marine Corps Red Ball system was initiated in September 1965 to provide the unit commander with a means of advising the ICP of the most critical materiel shortages affecting his combat readiness. This was an internal system of expedited movement and exception management throughout the Marine Corps, but was not recognized DOD-wide and did not receive preferential handling in external supply and shipping channels.

(2) The Marine Corps also assigned specific project codes to identify requirements for exception management such as 899 for HAWK and 892 for SE Asia and established the Special Commander's Assistance Request (SCAR) procedures that provided information as to the responsiveness of the supply system items designated critical.

(3) The Marine Automated Readiness Evaluation System (MARES) highlights problem items causing intense supply management action at the ICP. This system is compatible and interfaces with Marine Corps Uniform Materiel Management System. It replaces the Marine Corps Red Ball and SCAR procedures that aborted regular supply procedures, and resulted in some duplicated shipments for the same documents because of time lags in the reporting requirements.

(4) The Marine Corps ICP also instituted internal controls and programs, as did the ICPs of all Services, to provide intensive management to problems associated with SE Asia critical materiel requirements. These actions included the establishment of a special projects office, quantity edit of requisitions, maximum release quantities, priority release of back orders for SE Asia requisitions, and selective procurement within resources available to meet the most urgent requirements. Also, special management reports were established, such as, the Monthly Recapitulation of top 50 problem items at the Force Logistic Command, the Force Logistic Command's Hot Items Status Report, the Force Logistic Command's Logistics Summary Report, and the daily naval message traffic from the Force Logistic Command indicating critical items.

d. Air Force

(1) The Air Force accorded SE Asia requirements preferential treatment; however, actions were generally taken through management decisions made within standard issue priority and AMA stock control systems. Numerous special projects program manager assignments and revisions in provisioning policies, as previously discussed, were employed to ensure adequate supply support. The use of project and program managers were of three general categories. First, was the use of special, numbered or "nickname" projects. These were assigned a 3-digit identification number that could be entered in MILSTRIP documentation for ready identification. Each project was monitored by an individual in AFLC Headquarters and in each of the AMAs that was involved. Frequently, these were identified under a project code word or nickname and encompassed a series of interrelated specific numbered projects. The monitor served as a single point of contact and controlled all actions relating to his project(s). These numbered projects are generally considered in three broad groups. First, were initial supply support packages such as Bitterwine, which was discussed earlier under push packages. Other examples of initial support with special application to SE Asia were "Red Horse," which

provided initial support of the civil engineer effort at the bases, and "More Pix," which provided initial installation of equipment for greater photographic documentation. A second category was the continuing, special classified projects directed by the Joint Chiefs of Staff. Each of these had their own purpose and requirements. The third group was special and included one-time supply actions such as Project 177, "Pacer Oar," which is discussed below.

(2) Project 177, generally grouped under the title "Pacer Oar," was established to replace approximately 10,000 line items of critical communications and electronic (C&E) equipment lost when enemy action destroyed a warehouse at Da Nang. The air base supply computer prepared requisitions identified by the project number for each item lost in the warehouse for submission to the appropriate source of supply. Monitors in each point gave advance notice to the AMAs that the requests would be received and the purpose and justification for that volume of priority requests. Knowledge of the requirement prevented challenges or delays and permitted more effective planning of transportation and shipment consolidation than could normally be given priority requirements. The net result of the project was the initiation of some form of resupply action within 36 hours and close monitoring of the requirement until normal stocks were restored at the base.

(3) There were no special procedures devised or employed relative to reservation of secondary items for the resupply of SE Asia. The actions taken by the Air Force with regard to rationing, allocation, or reservation of materiel were restricted to management judgments exercised through manual intervention in the distribution process. The item or systems managers were alerted to the need for such intervention by the reaction of the automated systems, based on exception codes loaded for individual items, the stock position of the AMA, and the priority of the requirement.

(4) The Air Force supply procedures provide for minimum reserve and support levels. These levels signify the point in item management where materiel managers will process specific priority demands. The item or systems manager has a series of optional exception codes that can be loaded for an individual item and will result in management review of any issue or requirement for that individually selected item. These minimum levels are computed for each and every item under his control. When depot stocks have been depleted to this point, routing requirements are back ordered, and the manager is alerted that his stock position has become critical, The manager then has several options open to him, such as redistribution of assets from air bases, shipments from contractors, expedited repair, or initiation of new procurement. High-priority requirements were honored by the automated systems even while these actions were in progress.

(5) Materiel was released to SE Asia requirements based on the priority of the requisition. Activities in SE Asia and units deployed to SE Asia were normally assigned a precedence rating in the 1 through 8 category. This accorded the units a force activity designator II, the HIGHEST THAT CAN BE CARRIED DURING PEACETIME. The units and bases in SE Asia carried a precedence high enough to meet or compete satisfactorily with the materiel requirements of any other Air Force activity.

(6) During the massive buildup in 1965-1966, there were extreme difficulties in receiving materiel through the limited aerial and water ports in the SE Asia area. Materiel was backlogged, and the Air Force competed with the priority requirements of other Services. PACAF documented delivery times of 120 to 145 days for routine replenishment and sought relief from AFLC and Hq, USAF. In October 1966 Headquarters, USAF, authorized high-priority stock replenishment requisitioning for direct and indirect support items and a 75-day or actual order and shipping time for base stock levels. Changes in order and shipping times used in the computation of base levels presented a special problem. Based on the average documentation supplied by PACAF, this factor was raised to 75 days for routine surface shipments to SE Asia. If actual data by source of supply were available at the base, that figure was authorized for use. These policies remain in effect essentially as outlined. The use of high priorities for stock replenishment has become unnecessary because of the policy to airlift all investment items in a buy or repair position, which adopted by the Air Force in July 1969. Subject to the 75-day limitation, the order and shipping time (OST) actually

used was left to PACAF discretion. It is not known exactly how long, if at all, this 75-day criterion was used. By 1968, a standard 60-day pipeline time was being used by PACAF. Air Force policy now requires the use of actual OST rather than fixed standards for use in computing levels.

(7) Application of the policy of normal stock distribution, based on the priority of demands, increased the amount of manual intervention in a basically automated process to support SE Asia requirements. Further, this procedure did not provide sufficient differentiation between various needs within the SE Asia area, particularly when competing for limited transportation and receiving facilities. The procedures did permit providing supply support through the direct use of a normal standard system that is universally recognized by all sources of supply and also preserved the Air Force's basic flexibility to react to other contingencies that may have occurred.

(8) The use of special project techniques, especially the assembly of initial support packages, made heavy demands on available personnel resources. All such projects involve varying degrees of manual intervention of standard automated depot procedures. The exception management accorded each project presented a constant temptation to assign projects as a sort of "super priority" for special support. The use of special projects was a method of getting a specific job accomplished and did provide a degree of flexibility that is not otherwise possible in automated systems.

e. Summary

(1) The Army established numerous special systems and controls during the Vietnam era to improve supply response. These included Red Ball, Stovepipe, Closed Loop, Project Managers, expansion of the Logistics Control Office-Pacific, Push Packages, Color Markings and Symbols, the ENSURE Program, Project FILL, and many others established by individual ICPs. There is sufficient evidence that each special action resulted in improved supply as measured by data pertaining to the specific action. What cannot be measured is the adverse effect that a concentration of personnel resources in specific areas, at the expense of the standard system, may have had on overall supply support.

(2) The Navy did not establish any special supply systems or controls directly related to supply support of the Republic of Vietnam. The Navy established new programs having area wide application, such as Tiger Tom for the Pacific and Bobcat for the Atlantic as well as project code 711 for Seventh Fleet support. Numerous improvements to existing programs were made and others, such as SEEREP, are planned.

(3) The Marine Corps established an internal Red Ball system in September 1965 and subsequently participated in the DOD-directed Red Ball system established in December 1965. They also used project 999, as did all the Services. Specific project codes were assigned to identify requirements for exception management, and special internal controls, such as quantity edit and maximum release quantities, were utilized. MARES was established to highlight problem items and replaced the Marine Corps Red Ball and SCARS Systems.

(4) The Air Force did not establish any special supply or controls during the Vietnam era applicable only to support of SE Asia. Existing systems were modified to provide for preferential treatment to SE Asia requirements, primarily through actions of the individual team and system managers. Flexibility was provided through the controlled use of special projects, primarily in the area of initial support packages and exceptional resupply actions. Some difficulty was experienced because of competing priorities within SE Asia, expecially for transportation and receiving facilities. The use of special project techniques and manual intervention of the automated process, based on the priority of demand, required additional personal attention but ensured supply support.

5. ICP STOCK LEVELS

a. General. The Office of the Secretary of Defense has prescribed various policies for guidance of the Services and the Defense Supply Agency in the computation of levels of supply.

(1) A DOD instruction prescribes DOD policies governing the requirement for determination, establishment, and management of the elements in the complete materiel pipeline of the military supply system.[29] This directive states that levels of supply are those stocks authorized to be on hand to support the distribution mission of the installation. The operating level of supply of each item or category for a distribution point will be equivalent to the average rate of replenishable issue demands of authorized supported elements multiplied by the normal interval between receipt of replenishment shipments. The frequency of replenishment shipments will be established at the optimum for each control point or distribution point, taking into consideration such factors as item characteristics, seasonal characteristics as to procurement, economy of procurement or delivery quantities, and storage and holding costs. The safety level of supply for each item or category of materiel for a distribution point will reflect consideration of factors such as the importance and essentiality of the item or category, the missions of supported units, the time necessary to order and receive resupply under emergency conditions, and the estimate of the extent of unpredictable demands.

(2) Another DOD instruction further definitized the policies concerning the computation of operating and safety levels of supply.[30] This instruction is applicable to consumable items stocked on the basis of repetitive demand, and enunciates the following policies:

(a) Operating Level of Supply. Operating levels and replenishment cycles will be adjusted to that point where the total variable costs of operation are minimized by application of the economic order principle, which attempts to equate the cost to order to the cost to hold. A formula and cost elements are suggested.

(b) Safety Level of Supply. Safety levels will not be established for all items for a fixed time period but will be maintained at the minimum level determined to be necessary by a military department for a particular item or category of items, under specified circumstances. The safety level calculation will consider the frequency of demands, sizes of demands, reliability of resupply, mission of supported units, and military essentiality and criticality of the item.

(3) DOD Instruction 4140.24 dated 10 September 1969, subject: Requirements Priority and Asset Application for Secondary Items, prescribes a uniform system for stratification of supply system assets and for generating and portraying secondary item funding requirements. A primary objective of this instruction is to bring the stratification as nearly as possible into line with the basis on which procurement will be initiated. The stratification process becomes a simulation of the buy process used for budget preparation purposes. Because the budget process is prescribed by the Office of the Secretary of Defense (OSD) as a uniform system for all Services, the levels and procurement computations become nearly uniform throughout the Services. Techniques and constraints may vary, but the same basic requirements elements are used by all Services and DSA.[31] These elements are:

(a) Protectable war reserve

(b) Stock due-out

(c) Safety Level

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[29] DOD Instruction 4140.4, Management of the Materiel Pipeline, Including Levels of Supply, 3 September 1954.

[30] DOD Instruction 4140.11, Peacetime Operating and Safety Levels of Supply, 24 June 1958.

[31] DOD Instruction 4140.24, Requirements Priority and Asset Application for Secondary Items, 10 September 1969.

(d) Numerical stockage objective

(e) Repair Cycle

(f) Administrative lead time

(g) Production lead time

(h) Procurement cycle-operating level

(4) The OSD guidance concerning stock levels also is promulgated by means other than formal instructions. Program budget decisions frequently place constraints on elements of the levels computation. Directives from ASD (I&L) have prescribed reductions to demand forecasts, reduction of safety levels for certain categories of items, and limited procurement cycle quantities.[32]

b. Army. The basic guidance promulgated by the Army concerning requirements computations for wholesale stock levels by inventory control points is contained in AR 710-45, Policies and Procedures for Secondary Items.

(1) The following policies and rules are contained in that publication:

(a) Review Cycle. A review cycle will be established for each item. The interval will be determined as follows:

1. Low-dollar value items (annual demand $5000 or less) will be reviewed at least annually.

2. Medium-dollar value items (annual demand $5000 to $50,000) will be reviewed at least semiannually.

3. High-dollar value items (annual demand $50,000 to $500,000) will be reviewed at least quarterly.

4. Very high-dollar value items (annual demand over $500,000) will be reviewed at least quarterly.

Procurement cycles and operating levels will not necessarily be synonymous with review cycle frequency but will be based on economic order quantity principles, considering the cost to order vs. the cost to hold.

(b) Variable Safety Level. The Army objective is to establish a variable safety level for all peacetime operating stocks, which will be based on a probability principle formula that will include:

1. Frequency of demands

2. Reorder frequency

3. Average order size

4. Length of lead time

5. Cost to hold average safety stocks.

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[32] Deputy Assistant Secretary of Defense, Memorandum, subject: Interim Requirements/Procurement Guidance to Secondary Item Inventory Managers, 12 December 1969.

(c) Administrative Lead Time. Actual administrative lead time within acceptable standards of performance will be used in requirements determinations. The entire time period, from the date of the initiation of the procurement action to the letting of contract or order, will be considered.

(d) Production Lead Time. The production lead time will be based on the time interval between the date of award of an order or contract and the date of posting of a confirmed receipt to the accountable on-hand inventory records of a quanity sufficient to fill issue requirements until the next delivery.

(e) Repair Cycle. This cycle consists of the time interval between the posting of a receipt of an item in unserviceable condition to the on-hand inventory records and the reclassification of that item to ready-for-issue condition. It consists of the accumulation time, administrative lead time, repair lead time, and delivery lead time.

(f) Numerical Stockage Objective. This consists of a fixed quantity of materiel not computed on a recurring demand basis. Such an item may be required only occasionally or intermittently and is stocked as an insurance item because of the essentiality or long procurement lead time. Quantity will not exceed an amount equal to 5 percent of total of in-use items.

(g) Protectable Mobilization Reserve Materiel Objective. This requirement is the lesser of: first, the quantity required to support the approved force mobilization acquisition objective; or, second, the quantity stratified as protectable war reserve in the preceding stratification, as increased or decreased in the interim as a result of assets stratified from balance war reserve objective to protectable; procurement of the item from funds made available specifically for war reserve augmentation; balancing actions, which arise when an item with a protectable war reserve asset reaches a buy position and a decision is made to buy less of that item and use the funds to procure war reserves of other items.

(h) Stock Due-Out (Back Orders). This is the quantity of an item requisitioned by ordering activities that is not immediately available for issue but which is recorded as a commitment for issue.[33]

(2) Although the Army policy for determination of wholesale stock levels is as described above, these policies are modified occasionally by OSD directive or internal Army decisions. For example, the DOD guidance of 9 May 1967, commonly referred to as the "Vance Memo," provided definitive guidelines concerning Army stock fund operations. Excerpts from the "Vance Memo" are noted: "For other than mobilization reserve stocks, production schedules and deliveries from procurement will be established to insure that the on hand stocks for the composite of the individual line items safety level and individual line items operating level do not exceed the dollar weighted average for each as included in the latest approved operating program for any materiel category. On any individual high dollar value item the maximum operating level will not exceed three months, and for medium dollar value items, the maximum operating level will not exceed six months." Note: For the purpose of this memorandum, high-dollar value items are those with annual demand of over $25,000 and medium dollar value items are those with annual demand between $5,000 and $25,000.

(a) ". . . The safety level on an individual line item will not exceed three months of projected recurring demand. . ."

(b) ". . . For high dollar value items procurement should be planned on a cycle basis of at least every six months. For medium dollar value items procurement should be planned on a cycle basis of at least every 12 months. . ."

[33]AR 710-45, Policies and Procedures for Secondary Items, 2 April 1969.

(c) ". . . Production lead time for individual items will be based upon the most current representative experience. In no event will production lead time used for an item exceed the actual production lead time currently being experienced for that item. . ."

(d) ". . . Administrative lead time used in supply control studies will not exceed three months."[34]

(3) The Army has perpetuated this guidance by means of including it in the Army Stock Fund Operating Program, which is promulgated to the Army Materiel Command and other major commands holding divisions of the Army stock fund. This serves to place constraints on economic order quantities and variable safety levels, some of which would exceed the monthly limitations.[35]

(4) In implementing the Deputy Assistant Secretary of Defense Memorandum of 12 December 1969, the Office of the Assistant Secretary of the Army promulgated specific negative demand factors that were to be used for certain categories of material that exceeded the "ten to twenty percent reduction" in demand forecasts prescribed by the ASD memorandum. Also, whereas the Assistant Secretary of Defense had recommended a 50-percent reduction in safety levels for high and very high dollar demand items, the Assistant Secretary of the Army suggested that these items be carefully analyzed to determine the need for safety levels.[36]

(5) Other than enumerated above, constraints and guidance are generally in the form of financial targets or limitations without specific guidance to ICPs as to how the targets will be reached. Financial constraints may be in the form of negative net expenditure goals for the stock fund. The operating program promulgated by the Army reflects the OSD-BOB Mark-up of the budget or apportionment requests and leaves the decision to the Commander of the ICP as to exactly how he will manage his programs within the overall funding envelope.

(6) Table 17 summarizes Army policy and constraints regarding wholesale level computation.

c. Navy. The basic Navy policy for management of wholesale inventory levels is contained in SECNAV publication NAVSO-P 1500, subject: Navy Policy and Standards for Supply Management. The Chief of Naval Operations determines and issues statements of requirements of the operating forces, including related planning assumptions, to the appropriate inventory manager. The Commander, Naval Supply Systems Command, is responsible for developing and providing to all Navy inventory managers the latest evaluated mathematical techniques and decision rules for all phases of requirements determination and replenishment calculations. For secondary items managed by the ICPs, these policies are described in detail in the form of Supply System Design Specifications for the Uniform Inventory Control Program.

(1) Following is a summary of the policies outlined in the System Design Specifications and NAVSO-P 1500:

(a) Review Cycle. Specific review cycles are not prescribed but are left to the discretion of ICP Commanders. Normally, an item is reviewed at least quarterly. The operating level is based on economic order quantity principles, considering the cost to order vs. the cost to hold. The basic formula constrains the lower limit at 1 month or manufacturer's unit pack and the upper limit by the item's shelf and/or technical life. The ICP may, at its discretion, place arbitrary limits on the computation based on workload and financial constraints.

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[34] Deputy Secretary of Defense, Memorandum, for Secretary of the Army, subject: Army Stock Fund Operations, 9 May 1967.

[35] Department of the Army, Letter AGAM-P (m) (11 July 1969) LOG-OR-SSID, subject: Army Stock Fund Operating Program for Fiscal Year 1970, (RCS CSGLD '111(R2)) 17 July 1969.

[36] Office of the Assistant Secretary of the Army, Memorandum, for the Deputy Chief of Staff for Logistics, subject: Interim Requirements/Procurement Guidance to Secondary Item Inventory Managers, 22 December 1969

TABLE 17

ARMY WHOLESALE STOCK LEVELS

Policy	Constraints
Procurement Cycle and Operating Level	
Review cycle - LDV annually MDV semiannually HDV quarterly VHDV quarterly	HDV maximum operating level 3 months per individual item. 6 months procurement cycle.
Operating level - EOQ principle	MDV maximum operating level 6 months per individual item. 12 months procurement cycle. *
Safety Level	
Variable based on demand and reorder frequency, lead time, average order size and cost to hold.	No individual item safety level will exceed maximum of 3 months of projected recurring demand. *
Administrative Lead Time	
Actual within acceptable standards of performance	Maximum of 3 months. *
Production Lead Time	
Actual, date of award to date of receipt of quantity sufficient to fill issue requirements until next delivery.	Actual, based on most current representative experience. *
Repair Cycle	
Interval from receipt of unserviceable on inventory records until made ready for issue.	None.
Numerical Stockage Objective	
Fixed quantity of materiel stocked for insurance purposes, not to exceed an amount equal to 5% of total in-use items.	None.
Protectable Mobilization Reserve Materiel Objective	
Lesser of quantity required to support approved force mobilization acquisition objective, or quantity stratified as protectable in preceding stratification, as increased or decreased in interim.	No general constraints, financial constraints.
Back Orders	
As validated.	As validated.

* OSD, Memorandum, for the Secretary of the Army, subject: Army Stock Fund Operations, 9 May 1967.

(b) Variable Safety Level. The Navy's policy is that the safety level for an item will be maintained at the minimum level determined to be necessary for a particular item or category of items under specific circumstances. The quantity will be based on the frequency and sizes of the demands, the reliability of resupply, the mission of supported units, and the military essentiality of the item. The basic formula is not constrained; however, risk and essentiality, which are elements of the formula, may be adjusted by the ICP. For some items, the safety level may be a negative value.

(c) Administrative Lead Time. This is the time interval between the initiation of procurement action and the letting of a contract or placing of an order.

(d) Production Lead Time. This is the time interval between the placement of a contract and the receipt into the supply system of the materiel purchased.

Note: In the Uniform Inventory Control Program, procurement lead time is used in computing the reorder point. This is defined as the date of the supply/demand review by the computer (resulting in a "buy" notice) to the date that an activity reports the receipt of the first shipment of materiel, including both administrative and production lead time.

(e) Repair Cycle. This includes the time interval required to generate, through unserviceable returns, sufficient stocks of an item to warrant an economical repair work order (accumulation time) and the time interval between approval of a work order for repair until the item is reclassified as serviceable. In practice, an economic batch quantity may be set at one. This time has been constrained for various categories of materiel. As a result of OSD-BOB-Navy agreements, for aeronautical materiel the repair cycle is limited to 90 days from date of failure to date of reclassifying as ready for issue. For other categories of materiel, Navy Program Managers have set limits on the repair cycle, usually 90 days.

(f) Insurance Requirements (Numerical Stockage Objective). Insurance items are those items that experience intermittent demands not sufficiently repetitive to warrant classification as regular stock items, normally less than four units demanded a year. A nominal quantity will be stocked at one activity on each coast due to the essentiality and procurement lead time. Project managers will recommend stockage quantities for insurance items. Repair cycle and safety level elements are not applicable to these items.

(g) War Reserve Requirements. The war reserve requirement is to ensure the equipping, supporting, and sustaining of forces through the period prescribed for mobilization planning purposes. The requirement will sustain the engaged forces from "D-Day" (when fighting starts) through "P-Day" (when production matches combat consumption).

(h) Back Orders. This is a quantity of materiel requisitioned by ordering activities that is not immediately available for issue. These are considered by ICPs on a selective basis in requirements computations.[37, 38, 39]

(2) The Navy implemented the Deputy Assistant Secretary of Defense Memorandum of 12 December 1969 by forwarding it to the inventory control points for their guidance. In actuality, the ICPs generally had previously taken action to reduce wholesale levels as the result of financial constraints. The Naval Supply Systems Command normally does not prescribe specific actions to be taken by ICPs to operate within their financial program. SECDEF Logistics Guidance, with some interpretation, is furnished the ICPs; and the commanders, after consulting with program managers and systems commands, use discretion in determining how financial constraints will be met.[40]

(3) As an example of how levels computations have been changed to meet financial constraints, the following actions taken at the Aviation Supply Office are of interest. For FY 69, the Procurement of Aircraft and Missiles, Navy (PAMN) appropriation replenishment requirement was computed at $123.9 million. Of this, $49.9 million was funded. The decision

[37] NAVSO P-1500, Navy Policy and Standards for Supply Management, Office of the Secretary, 25 May 1968.

[38] Supply System Design Specifications for Uniform Inventory Control Program, Levels Computation for Repairables, Naval Supply Systems Command, 1 May 1964 with changes.

[39] Supply System Design Specifications, Title: Application D - Operation 5 (Levels Computation for Consumables) Naval Supply Systems Command, 29 April 1964 with changes.

[40] Maclin, J. F., NAVSUP 04AA, Interview held at Naval Supply Systems Command Headquarters, 6 January 1970.

initially was made to buy no safety level of depot level repairables. Later in FY 69, with CNO and Naval Air Systems Command concurrence, the decision was made to "eat-down" $10.9 million of pre-positioned war reserve requirements in repairable procurements. Due to stock fund shortages, initially the decision was made to constrain the operating level of economic order quantity (EOQ) to a maximum of 3 months demand and to constrain the safety level to 30 percent of the lead time requirement for requirements of under $10,000. Later on in FY 69 even more stringent reductions were made and procurement requests were prepared but could not be released due to lack of funds. For FY 1970, due to stock fund shortages, the Aviation Supply Office decided on the following constraints for consumables: (a) for items experiencing 5 or more requisitions per quarter - procure deficiency to lead time and maximum of 55 days safety level, no operating level or EOQ, review every 2 weeks. (b) for items experiencing 4 or less requisitions per quarter - procure three-fourths of lead time deficiency, no operating or safety level or EOQ.[41]

(4) Table 18 summarizes Navy policy and constraints regarding wholesale levels computations.

d. Marine Corps. The Marine Corps policies and procedures for management of wholesale inventory levels are contained in Marine Corps Orders beginning with P4400.70. The orders are the operating manuals for the Marine Corps Unified Materiel Management System. MUMMS is an integrated system of centralized supply management that is designed to satisfy all internal and external Marine Corps requirements by utilizing modern management and automatic data processing techniques at a single inventory control point and several remote storage activities. Wholesale stock level computation procedures are described in detail in the manuals covering the various subsystems of the MUMMS with supplementary guidance concerning secondary depot repairables being included in MCO 4442.3A of 1 September 1967, subject: Marine Corps Secondary Repairable Item Program.

(1) Following is a summary of the policies and procedures outlined in the above publications:

(a) Review Cycle and Operating Level. A variable review cycle is used depending on the frequency of demands experienced for items. The review cycles are as tabulated below:

Six or more demands in 6 months	Monthly
Three to five demands in 6 months	Quarterly
Two demands or less in 6 months	Semiannually
Depot repairables	Monthly

The operating level or procurement quantity is variable depending on the type of materiel. Each item is assigned a code to indicate the computation that is used. For Marine Corps managed and procured consumable items, the quantity is based on EOQ principles with a minimum of 3 months forecasted demand and a maximum of 12 months forecasted demand being procured. For depot repairables, the operating level is 2 months condemnations. For integrated manager items, operating level is 2 months forecasted demand.

(b) Safety Level. The MUMMS system provides for four types of safety level. The most widely used type is the variable safety level considering demand deviation, lead time, and size of procurement quantity. The repairable item safety level is also variable, considering repair cycle, requirements and lead time. A fixed-rate type allows managers to specify a quantitative rate for protection based on forecasted demand for a fixed time period. The fixed-quantity type allows the item manager to specify a fixed quantity.

(c) Procurement Lead Time. (Administrative and production lead time are combined to compute procurement lead time.) The procurement lead time quantity is the quantity that is necessary to fill demands of consumable or replace condemnations of repairables

[41] ASO, Briefing, to JLRB Team, Replenishment Procurement Decisions, 18 August 1969.

TABLE 18

NAVY WHOLESALE STOCK LEVELS

Policy	Constraints
Procurement Cycle and Operating Level	
Basic UICP formula minimum, 1 month, or unit pack, maximum shelf or technical life.	Procurement quantity
Operating level - EOQ principal	$25,000 or more annual demand, 3 months cycle $2,500-25,000 annual demand, 6 months cycle Less than $2,500 annual demand, 12 months cycle Reduce demand forecast 10 to 20 percent. *
Safety Level	
Variable based on frequency and size of demands, reliability of resupply, mission of supported units, and military essentiality.	For high and very high management intensity items reduced by 50%. For items with downward demand trend, eliminate. *
Administrative Lead Time	
Actual. ICP Commander may set limits.	None.
Production Lead Time	
Actual.	None.
Repair Cycle	
Time required to accumulate economic repair quantity and repair that quantity. Navy Program Managers have limited certain categories of materiel to maximum times.	OSD-BOB-Navy agreement has limited aeronautical components to 90 days from date of failure to reclassification as RFI.
Insurance Requirements	
Essential items with long lead-times and less than 4 demands per year. Fix quantities as recommended by Program Managers.	None.
War Reserve Requirements	
Quantity to sustain engaged forces from D-Day to P-Day.	No general constraints, financial constraints vary.
Back Orders	
Validated requirements considered by ICPs on a selected basis.	As validated.

* DASD, Memorandum, subject: Interim Requirements/Procurement Guidance to Secondary Item Inventory Managers, 12 December 1969.

during the total of the administrative and production lead time periods. For Marine Corps procured items, the actual time is measured. For integrated manager procured items, 1 month order and shipping time is used in all cases.

(d) Repair Cycle. The repair cycle quantity is the quantity that is required to be on hand to satisfy demands during repair, depot administrative, and transit time. This time is measured from date of issue of the replacement item until the failed item is classified ready for issue.

(e) Insurance Items. These are designated items for which no failure is predicted through usage, but should a failure be experienced or loss occur through accident, lack of a replacement item would seriously hamper the operational capability of equipment affected. These items are purchased on a limited quantity basis.

(f) War Reserve Requirements. The Marine Corps war reserve requirements are based on logistics guidance. Generally, it is the quantity to equip the approved forces and provide 6 months combat consumption plus training requirements for approved items. Budget decisions have deferred Marine Corps procurement of war reserve requirements of integrated manager items since FY 68.

(g) Back Orders. Validated back orders are considered as an additive in the requirements computation.[42, 43, 44, 45, 46]

(2) During the Vietnam era, the Marine Corps found it necessary to apply some constraints to the levels computed by the normal methods. Originally, the maximum EOQ was constrained by Marine Corps policy to 36 months forecasted demands; however, due to financial limitations, this was constrained to 12 months. In 1968, a committee composed of representatives of OSD, HQ USMC, and BOB reached agreement that the operating level of integrated manager items would be reduced from 3 months to 2 months, that procurement lead time, which had been 1 1/2 months for some integrated manager items, would be a maximum of 1 month, and that no safety level would be allowed for integrated manager items other than those managed by the U. S. Army Tank-Automotive Command.[47]

(3) The Commander of the Marine Corps' ICP is given discretion within Headquarters prescribed policies in the utilization of available funds. Generally, dialogue takes place between the ICP Commander and HQ USMC in regard to the means he proposes to use in making the maximum use of available funds.[48]

(4) Table 19 summarizes Marine Corps policy and constraints regarding wholesale levels computation.

e. Air Force. The Air Force policies and procedures for computing wholesale stock levels are included in Air Force Logistics Command Manuals, 57-3 for recoverable items and 57-6 for consumable or expense type items. These manuals specify uniform procedures for use by Air Force ICPs located at the Air Materiel Areas. Although the Air Force uses the same basic data elements as the other Services in levels computations, their computation for repairables considers factor determination in a more detailed manner than does the computation used by the Army and Navy. Rather than a straight demand base, the elements that make up demand are measured and considered.

(1) Following is a discussion of the policies and procedures outlined in the manuals mentioned above.

(a) Review Cycle. Review cycles are normally quarterly for repairables and as required for consumable items that have exceeded certain parameters, such as reorder level or termination level. Worldwide assets are considered for repairables, but only depot assets plus base excess assets are considered in the consumable computation. The operating stock level for repairables consists of base and AMA stocks, computed separately. The operating level computation considers a 3-to-12 month level, at attrition rates, depending on the

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[42] MCO P4400.70, MUMMS Introduction Manual, 28 June 1966.
[43] MCO P4400.72A, Inventory Control Manual, 24 January 1968.
[44] MCO P4400.71A, Data Control Manual, 17 April 1968.
[45] MCO 4442.3A, Marine Corps Secondary Repairable Item Program, 1 September 1967.
[46] Francoisc, W., interview held at Hq., USMC, 30 January 1970.
[47] Ibid.
[48] Ibid.

TABLE 19

MARINE CORPS WHOLESALE STOCK LEVELS

Policy	Constraints
<u>Review Cycle and Operating Level</u>	
Review Cycle - Variable depending on demand frequency Six or more demands/6 months - Monthly Three to five demands/6 months - Quarterly Two or less demands/6 months - Semiannually Depot repairables - Monthly	
Operating level and procurement quantity MC managed and procured consumables EOQ - minimum 3 months Maximum 36 months.	Maximum EOQ now constrained to 12 months due to financial limitations.
MC managed procured from Integrated Managers 3 months operating level Repairables - 2 months of condemnations plus garrison maintenance float quantity	OSD/MC committee agreed to 2 months level
<u>Safety Level</u>	
Variable safety level considering demand deviation, lead time and size of procurement quantity.	OSD/MC committee deleted safety level for Integrated Manager Items except TACOM managed
<u>Procurement Lead Time (Combines administrative and production Lead Time)</u>	
MC procured items - Actual Integrated Manager items - 1 1/2 months.	OSD/MC committee lowered PLT to 1 month for Integrated Manager Items.
<u>Repair Cycle Quantity</u>	
Actual. Starting with date of issue of replacement item. Includes intransit time, depot administrative time and time in repair.	
<u>Insurance Items</u>	
Limited quantity procured because of consequences of failure rather than probability of failure.	
<u>War Reserve Requirements</u>	
Quantity to equip approved forces and provide 6 months combat consumption. Training requirements for approved items. (Logistics guidance)	Since FY 68, OSD has deferred funding of war reserve stocks of integrated manager items.
<u>Back Orders</u>	
Considered as an additive in requirements computation.	

quarter of the review cycle, although a full 12-month level may not be procured. The operating level for consumable items is based on economic order quantity principles considering the cost to order vs. the cost to hold and, unless constrained, varies from 6 months to 5 years requirements.

(b) Variable Safety Level. The variable safety level concept is used for both repairables and consumables. For repairables, the average base operating level and the number of users (bases) is considered. For consumables, the procurement lead time and monthly demand rate are considered.

(c) Administrative Lead Time. This is the time interval between the commencement of procurement request preparation and the placing of an order or contract. A maximum of three months is authorized.

(d) Production Lead Time. This is the time interval between the letting of contract and the delivery of the first production item. Actual time by item with a maximum of 15 months is used.

(e) Repair Cycle. The depot repair cycle will include the actual time required for transportation and handling - up to a maximum of 15 days, plus the minimum shop flow time required to repair the item. If estimated shop flow time is being used, the total depot repair cycle will not exceed the following:

	Organic Repair	Contractor Repair
Hi-Valu	45 days	60 days
Non Hi-Valu	60 days	75 days

(f) War Readiness Materiel. This is an additive type requirement procured on the basis of selected deployable squadrons. It normally consists of a quantity to provide replacements for a 30-day period, although the period may vary by aircraft type.

(g) Insurance Items. The replacement of such items is required so infrequently that needs are satisfied from minimal stocks held at a central point or from contractor sources.

(h) Back Orders. Back orders are not considered as an additive to the recoverable requirements computation. "Due out to maintenance" quantities reported on the stock balance and consumption report are input into the computation. For consumables, one-half of the back orders for bases and all of the back orders for depot level maintenance requirements are considered.[49, 50]

(2) The Air Force Logistics Command uses a technique known as "Buy Guidelines" letters to promulgate revisions of requirements and procurement policies annually on a fiscal year basis. The purpose of the "Buy Guideline" is to provide a set of ground rules by which the Air Materiel Areas may effect a logical reduction in computed forecast requirements in accordance with funding constraints. Generally, these letters emphasize the necessity to apply good management practices, for example, validate programs, validate factors, ensure all sources of assets are exhausted, reduce procurement lead times, and repair cycle times. The guidelines also provide specific guidance in certain areas, for example, defer procurement of depot stock level requirement, defer procurement of overhaul and floating stock level requirements when repair activity is collocated with prime item manager depot, and defer procurement of war readiness materiel requirements for specific aircraft.[51]

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[49]Hq., AFLC, AFLC Manual 57-3, Recoverable Consumption Item Requirements System, 21 August 1968.

[50]Messers C. L. Bennett, P. S. SteMarie, J. W. Kaple, interviews held at AFLC, Hq. 22 January 1970.

[51]HQ, AFLC, Letter MCN, dated 22 December 1969 to AMAs, subject: FY 70 Requirements Computation and Procurement Guidelines for the Acquisition of Materiel and Maintenance Services.

(3) The Buy Guidelines letters are, as their name implies, guidance. In addition to specific reductions that may be indicated in the letters, it may also be necessary for AMA Commanders to take other action in order to operate within the constraints of their financial program.

(4) Tables 20 and 21 summarize Air Force policy and constraints regarding wholesale level computation.

f. Summary. All of the Services' policies and procedures for computation of wholesale stock levels provide for the use of modern inventory management techniques as prescribed by OSD, that is, variable operating levels based on economic order quantity principles and variable safety levels considering demand size and frequency, missions, reliability of resupply and military essentiality. The Services generally utilize the same elements in the requirements computation, however, due to variances in the level of asset visibility, minor differences are evident in the details of the computations. During the Vietnam era, it has been necessary to constrain these levels, either at the Service headquarters level or at the ICPs, in order to remain within the funding ceiling available. In some instances, the Office of the Secretary of Defense has prescribed specific constraints to be applied to various elements of requirements computations.

6. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) Both initial and replenishment supply support were responsive in meeting the essential needs of the deployed forces, however, problems were encountered that necessitated revision of existing procedures and the establishment of special systems, controls, and expediting procedures (paragraph 3a (5)).

(2) CONUS ICP stockage levels objectives are based on sound logistics policy; however, the asset position was low in 1965 due primarily to levels being based on past (peacetime) demands, funding constraints, and the inability of item managers to predict accurately future requirements (paragraph 3a (7)).

(3) The provisioning policies and procedures of the Services were not adequate in some instances to provide initial supply support to meet emergency requirements generated in SE Asia. This resulted in critical shortages of repair parts for both standard and newly introduced equipments and necessitated a change in policies and procedures to provide for provisioning within compressed time frames, provisioning for commercial items, and increasing the range and depth of parts for standard equipments. In some instances commercial items stocked in war reserves were not provisioned, and this resulted in a degradation of supply when these items were issued for use by the deployed forces (paragraph 2a. (6)).

(4) The Services recognized the deficiencies in provisioning practices, made numerous changes and are planning further improvements. (paragraph 2a (6)).

(5) Push packages, a term applied primarily to the Army to automatic supply, were used effectively as a means of providing initial supply to increase theater stockage. The dollar value of secondary items supplied as push packages by the Army under Operational Plan SE Asia represented about 3.0 percent of the total supplies provided to SE Asia by the Army from FY 66 through FY 69 and contributed a relatively small percentage to the overall materiel excesses generated in Vietnam. Push packages of supplies were provided to some extent by all Services to meet initial requirements; however, the Navy and Marine Corps employed a modified version in that requirements were determined by organizations or units in SE Asia rather than by CONUS activities. The major problems encountered by the Army were obtaining timely force structure information, control of supplies in-country, and computing requirements for the large range of items on the basis of 15-day increments (paragraph 2b (6)).

TABLE 20

AIR FORCE WHOLESALE STOCK LEVELS,

REPARABLES

Policy	Constraints
<u>Procurement Cycle and Operating level</u>	
Review Cycle - Quarterly	
Operating Level - Base Repair cycle quantity. Maximum 10 days. Order/ ship time quantity Actual, maximum 15 days. Safety level. Square root of average base level x 2.3 times number of bases. Additive negotiated level where required.	Order/ship time limited to maximum of 11 days CONUS and 16 days overseas. (AFSS letter, 14 May 1969) Safety level deferred for initial spares (FY 69 Buy Guidelines) Defer procurement of depot stock level. (FY 68 thru 70 Buy Guidelines) Defer procurement of overhaul and floating stock level when component overhaul activity collocated with prime depot. (FY 70 Buy Guidelines)
Operating Level - Depot 15 day Hi-Valu, 30 days non Hi-Valu to support demands from bases.	
Overhaul stock level	
For components concurrently overhauled - Quantity, to replace 30 days condemnations plus validated floating stock.	
For components not concurrently overhauled - Quantity, to support replacements for 30 days of programmed overhauls.	
<u>Safety Level</u>	
Included under Base Operating Level.	
<u>Administrative Lead Time</u>	
Actual time from commencement of PR preparation to awarding of contract. Maximum 3 months.	Defer procurement if in-being contract can be amended. (FY 70 Buy Guidelines)
<u>Production Lead Time</u>	
Actual time from contract award to delivery of first production item. Maximum 15 months.	
<u>Depot Repair Cycle</u>	
Actual shop flow time plus actual transportation and handling time not to exceed 15 days.	(Policy in Manual revised based on FY 68 Buy Guidelines)
<u>War Readiness Materiel</u>	
30 days replacement requirements for selected deployable squadrons.	Varied from complete deferement of procurement to procurement of reduced quantities, e.g., 16 days replacements for F-111 and C-5. (Buy Guidelines)
<u>Back Orders</u>	
Not considered as an additive to computation.	
<u>Insurance Items</u>	
Minimal stocks held at central location to support infrequent needs.	

TABLE 21

AIR FORCE WHOLESALE STOCK LEVELS,

CONSUMABLES

Policy	Constraints
Procurement Cycle and Operating Level	
Review cycle - as required when item has exceeded certain parameters such as reorder level or terminated level.	EOQ of greater than 1 year will be limited to amount needed through FY 70 and FY 71.
Operating level - EOQ considering holding costs, ordering cost, unit price and average annaul demand. Base demand rate uses historical demand. Depot demand rate based on depot program and maintenance replacement factor. EOQ ranges from 6 months to 5 years requirements.	Computed EOQ quantity for items with 6 months to 1 year will be adjusted to not exceed 50% (Buy Guideline ltr. for FY 70/71 dated 19 January 1970)
Safety Level	
Variable based on unit price, procurement lead time and monthly demand rate.	Limited to maximum of 25% of procurement lead time (FY 68 Buy Guidelines)
	Limited to maximum of 1 month. (FY 70/71 Buy Guidelines)
Administrative Lead Time	
Actual time from commencement of PR preparation to awarding of contract. Maximum 3 months.	Defer if in-being contract can be amended. (FY 70/71 Buy Guidelines)
Production Lead Time	
Actual time from contract award to delivery of first production item.	Experience on latest contract or contractual quote will be used. (FY 70/71 Guidelines)
War Readiness Materiel	
Thirty days replacement requirements for selected deployable squadrons.	Validated WRM requirements are authorized to be considered as a quantitative requirement. (FY 70/71 Guidelines)
Back Orders	
Consider one-half of back orders for bases and all of back orders for depot level maintenance.	Consider priority 1-8 requirements only.

(6) Replenishment supply support was adequate to meet the essential needs of the military forces in Vietnam but did not in all cases meet the supply effectiveness standards of the Services. (paragraph 3f).

(7) Due to deficiencies in the adequacy and timeliness of some of the supply support systems, the Services established special systems and controls or modified existing systems to ensure responsive supply support. Limited stocks and distribution problems precluded essential supplies from reaching the combat forces through the standard military system within the Uniform Materiel Movement and Issue Priority System time frames. This lack of supply resulted in using units increasing the priority of requisitions and a condition developing where it became mandatory to establish additional means such as Red Ball, Project 999, Tiger Tom, and project managers to ensure that the most critical needs were met. These additional systems and controls resulted in improved supply and may be use-

ful in peacetime; however, numerous other control and procedures developed at the ICP level may have served this purpose and should be reviewed with a view toward elimination or standardization as a part of Service policy and procedures (paragraph 4e).

(8) Combat replacement factors should be developed and automated for use in converting from peacetime demand to wartime requirements on "D" Day in order that new procurements may be readily initiated for materiel required on "P" Day. These factors should be developed to the extent practicable for use in various environments by geographical area and be limited to high-demand critical items for selected weapons systems (paragraph 3f).

b. Recommendations. The Board recommends that:

(SM-15) The Services revise provisioning policies and procedures, to include procedures for provisioning within compressed time frames (conclusion (3)).

(SM-16) Provisioning be accomplished by the Services for commercial items, including war reserves, which are to be issued for use in combat areas to include the identification of items of supply, the establishment of data for catalog, technical manuals, allowance list preparation and the preparation of instructions to assure delivery of necessary support items with related end items (including where appropriate, a "No-Buy" decision) (conclusion (3)).

(SM-17) The procedures and techniques developed by the Services for providing puch packages, or modified versions thereof, be made a part of established policies and procedures and provide that computation of requirements be equipment-oriented rather than force-oriented, the supplies be containerized and prebinned to the extent practicable, and the range be limited to high-demand items and essential items for selected critical systems (conclusion (5)).

CHAPTER V
ITEM VISIBILITY

CHAPTER V
ITEM VISIBILITY

1. INTRODUCTION

a. In the context of this chapter item visibility refers to the ability of inventory managers to acquire and utilize knowledge of the worldwide status of assets below the continental United States CONUS depot level. During the Vietnam era, this subject became one of increasing interest at the highest levels within the Office of the Secretary of Defense (OSD), the military departments, the Congress, and the General Accounting Office (GAO). Historically, the Services have had available some item visibility data and some degree of control over these assets, but usually for a relatively small number of items. In recent years, item visibility capability has improved in the Services due to the availability of additional communications and data processing capability. Advantages of increased item visibility that have been set forth are the ability of inventory managers to redistribute and adjust procurement and to prevent creation of excesses or shortages.

b. Although the Services have improved their ability to assimilate a degree of increased asset knowledge in recent years, increase in communications and data processing capability would be required in some Services to increase greatly their use of these data. The capability to provide these data from the storage level varies considerably, as does the ability to process the data at the inventory manager level.

c. Had worldwide asset data been available to inventory managers during the Vietnam era, the application of such data would have been tempered by: (1) the requirements of operational commanders for material assets the inventory manager desired to redistribute, (2) the accounting and financial constraints and requirements, particularly where transfers between different Services or integrated managers were involved, (3) unreliable and untimely data prevalent during this era, and (4) shipping difficulties involved when material is located at advanced bases.

d. Despite problems encountered in obtaining and utilizing item visibility data, there appears to be a sizeable potential for attaining the objective of more efficient management of inventories by increasing visibility. Equally as important as visibility of assets is the concurrent visibility of requirements, thereby improving requirements forecasts. Stock distribution patterns can be improved in that duplicative stock levels can be reduced, limited quantities of insurance-type items can be better positioned, and all users can be provided more equitable treatment. Operational commanders can be provided better information by inventory managers in regard to the capability of system stocks to support contemplated operations. Inventory managers can recognize excesses in the hands of operating commands and adjust procurements accordingly. All of the above tend to increase effectiveness and reduce costs in the management of inventories.

2. PURPOSES OF REVIEW. The purposes of this review were to examine the strengths and weaknesses of the various systems and the concepts of obtaining and utilizing item visibility data during the Vietnam era, to determine the optimum selectivity as to range and depth of item visibility necessary to improve the DOD or service-wide utilization of inventories, and to develop conclusions and recommendations concerning the application of item visibility concepts within the Department of Defense.

3. STATEMENT OF THE ISSUE. The objective is to develop criteria for determining the optimum extent desirable for the inventory control points of the Services and the Defense

Supply Agency (DSA) to extend centralized knowledge and control of assets which, under present criteria, are outside of central reporting systems. Because of current and predictable future limitations in manpower, communications, and data processing resources, it does not appear practical or economical to maintain worldwide asset visibility of every item in the various supply systems down to the consumer level. Therefore, the problem is that of determining the desirable range and depth of centralized asset reporting to the ICP in order to support optimum decisions at appropriate command levels in applying worldwide assets against worldwide requirements through appropriate supply action. Regardless of this, control of assets by inventory managers must be responsive to the needs of operational commanders. These commanders may hold assets that are not, for practical purposes, redistributable, because of their location or the overriding need for the assets in an area where they are located. The need for operational commanders to exercise control of selected assets in their forces, including the authority to redistribute within a force, must be recognized. The problem is limited in scope to secondary items. Subsistence is excluded due to its specialized nature. Ammunition and bulk petroleum are excluded because these commodities are being covered in depth in other monographs.

4. BACKGROUND RELATING TO THE PROBLEM

a. The only definitive DOD policy concerning the range and depth of asset visibility to be maintained by inventory managers for secondary items during the Vietnam era was enunciated in DOD Instruction 4140.30.[1] This instruction prescribes special intensive management techniques for secondary items having a unit price of $100 or more and an annual procurement requirement of $1,000,000 or more. It requires that supply control studies be maintained and updated monthly and that, in addition to requirements and asset data at the depot level, requirements and asset data below the depot level be considered. This instruction states that: "below-depot extends to the point of interface of the Military Service stock fund with corresponding Service consumer funds and to the comparable echelon for non-stock funded items."

b. A study by the Logistics Management Institute (LMI) addressed the subject and recommended methods of considering each item on its own merit and provided varying reporting intervals on different items reported by the same retail stock point.[2] The report recommended a lengthy test at one ICP in each Service. The recommended procedures for the test did not include a consideration of excesses in the reporting parameters, thus omitting an important facet of item visibility. This study also considered only a two echelon supply system (wholesale and retail). The Services, particularly the Army and Navy, have more complicated distribution patterns.

c. The Joint AMC/NMC/AFLC Task Group for Supply Management Review conducted two studies relating to this area. The first study, which resulted in the Report of a Study on the Categorization of Items for Supply Management, dated 23 June 1967, recommended that items be categorized into four levels of management intensity corresponding to four categories of value of annual demand or planned issues. The categorizations also considered whether or not the items were consumable or repairable and provided for a consideration of criticality and essentiality in the assignment of management categories. DOD Instruction 4140.33, dated 12 June 1968, promulgated these categories for use by the Services. The second study, Inventory Control Point Asset Knowledge and Control of Secondary Items, resulted in DOD Instruction 4140.37, 7 August 1969, subject: Asset Knowledge and Control of Secondary Items, which sets forth current OSD objectives, i.e., "ICPs will be in a better position to determine more exact materiel requirements; position assets; take redistribution actions; control excesses; improve the budgetary process; and provide maximum support with a minimum investment level." This instruction established the authority and responsibility of ICPs to extend asset knowledge and control over selected items to supply and operating echelons beyond their current

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[1] DOD Instruction 4140.30, Selective Inventory Management of Secondary Items, 18 May 1967.

[2] Logistics Management Institute, Task 67-8, The Optimum Extent of ICP Inventory Control, October 1967.

wholesale distribution systems. The reporting levels specified therein are indicated below:

Army - Posts, camps, and stations in CONUS and overseas theater depots.

Navy - Stock points overseas, Mobile Logistic Support Force Ships (stocks carried for issue), aircraft carriers (stocks listed on Aviation Consolidated Allowance List), and CONUS retail activities.

Marine Corps - Marine Corps depot and base assets are considered within the CONUS wholesale distribution system and reported to the ICP. However, when the Marine Corps establishes depot type operations overseas and outside of the wholesale reporting system (e.g., 3rd Force Service Regiment (FSR) in Okinawa), such assets that otherwise qualify for reporting under this instruction will also be reported to the ICP.

Air Force - Base supply both in CONUS (including Air Materiel Area (AMA) locations) and overseas.

DSA - The military departments will furnish required asset data on DSA-managed items to the DSA ICPs.

The minimum range and frequency of asset reporting from the above activities is as follows:

(1) Daily transaction reporting of material having an annual demand of over $50,000 and being afforded "very high" management intensity.

(2) Monthly cyclic reporting of material having an annual demand of over $50,000 and being afforded "high" management intensity. (DOD Instruction 4140.33 contains definitions of the above categories.) The instruction further states that: "In addition, other items in the medium and low dollar value groupings should be selected for this degree of reporting and control if, in the judgment of the item manager, the inventory monetary value, the criticality/essentiality of the item, or other item characteristics or management determinations require such control." The ICPs are given explicit authority to position, distribute, and redistribute assets with the provision that if a commander considers that ICP redistribution actions are not feasible, or may cause an unacceptable readiness posture, the ICP will be contacted and agreement sought. If agreement is not attained, the question will be referred to higher authority for resolution.

d. Booz, Allen & Hamilton, Inc., a management consultant firm, also considered the issue of item visibility in a study entitled Supply System Management in the Working Capital Fund Environment, dated 25 November 1966. (This study was performed under subcontract to Logistics Management Institute and is published as LMI Task 66-24.) This study was a review of several DOD stock-funded systems. It tried to establish the extent to which the systems were functioning so as to permit stock fund managers to compute requirements as needed, with knowledge of recent and planned changes in demand and usage rates, problems, specifications and other technical requirements, and the combined wholesale and retail asset position. The report contained the following observations concerning item visibility:

> ". . . For those commodities which DSA manages, the commodity managers at the supply centers have knowledge of wholesale inventories. Item identity is lost by the wholesaler when a sale is made because retail inventory levels are not reported to the DSA commodity managers. At best, the wholesale commodity manager can assume that the retail pipeline is full and use this assumption to estimate total system assets. It has been demonstrated, however, that this assumption frequently either overestimates or underestimates the quantity of on-hand assets. This happens primarily because the retail managers deplete inventories without reordering, particularly near the end of the Fiscal Year."

". . . The demand recorded by the wholesale manager results principally from the requisitions received from the retail locations. Sporadic replenishment and substitution of items are the major factors in demand distortion."

"Sporadic replenishment of retail inventories was mentioned earlier in this chapter with regard to depletion of the retail pipeline. When this occurs, the wholesaler receives a surge of orders which in reality are being placed to replenish retail inventories that have been drawn down over a period of time. Consequently, instead of observing a true consumption demand pattern at the user level, the wholesaler witnesses a series of peaks and valleys which he attempts to smooth accurately in order to develop a valid forecast of future requirements."

". . . However, because redistribution of supply items has the potential to impair military readiness, it is necessary that this aspect of improved supply effectiveness be weighed against other military objectives. Specifically, the authority of the commodity manager to redistribute inventories has to be restricted to those instances when it can be demonstrated (1) that "excess" inventories exist or (2) that there is conclusive evidence of "high priority or criticality" for the out-of-stock user. Consequently, the final authority for redistribution may have to be with the military operating commands and OSD. Regardless, this "decision-making process" can be more effective if the supply information systems provide required data to supply managers."[3]

e. In the past, the question of "ownership" of assets visible to Army inventory managers has been raised, particularly in connection with the Army's Project OASIS (AMC Ownership and Accountability of Super High Dollar Value Secondary Items in Oversea Theater Depots) (see para. 5.b.(4)). This concerns the question as to who is accountable for the assets, the custodian or the inventory manager. The "ownership" question was also raised in Hearings on Military Supply Systems conducted by the House Committee on Government Operations.[4] The Army position now as stated in a recent document describing the system by which they plan to implement DOD Instruction 4140.37, is: . . . "The general concept outline has been developed to conform to the current doctrine of 'theater and command accountability and control'. This requires cancellation of the OASIS concept of 'ownership'."[5] In view of the fact that the Navy and Air Force inventory managers do not have ownership of items over which they have visibility that are located outside the wholesale depot system and since the Army has decided, as a result of the OASIS test, that ownership at the inventory manager level is not essential to visibility and control, it is apparent that the question of ownership of assets visible to an inventory manager should be decided by the Service concerned.

5. ANALYSIS

a. Methodology. The approach taken in this study was as follows:

(1) Department of Defense instructions and Service instructions and regulations were collected and reviewed in order to provide a familiarization with the techniques and systems employed to obtain asset visibility data during the Vietnam era.

(2) The Services and the Defense Supply Agency provided statistical data showing the extent of item visibility available during the Vietnam era. If during that period increased visibility was obtained on certain categories of items, data were provided concerning successes achieved as a result of this increased visibility, such as procurement reductions, redistribution actions, back order reductions, and effectiveness increases.

[3] Booz, Allen & Hamilton, Supply System Management in the Working Capital Fund Environment, 1966, pp. 59-63.

[4] Hearings before a Subcommittee on Government Operations, U.S. Congress, House, Ninety-First Congress, November 20, 25, and December 8, 1969, subject: Military Supply Systems--1969.

[5] Assistant Secretary of the Army, Memorandum, Item Visibility, 17 February 1970.

(3) Previous studies of this subject area conducted by contractors or Service groups were reviewed, as were General Accounting Office reports.

(4) Field activities and Inventory Control Points were visited, briefings obtained, and interviews conducted to obtain additional, firsthand information on item visibility problems and successes.

(5) The data obtained through the above methods were reviewed, analyzed, and quantified, where appropriate, in order to arrive at conclusions and recommendations.

b. Army System—Strengths and Weaknesses. During the Vietnam era the Army used a number of systems to obtain visibility and control of assets below the CONUS depot level. Material in stock in the CONUS wholesale depots under the command of the Army Materiel Command is subject to the direct control of the designated inventory control point that is accountable for the assets. All requisitions from CONUS posts, camps, stations, overseas depots, and commands or inventory control centers for Army-managed items are forwarded to the appropriate depot. The asset records are preposted; therefore, the ICP has 100 percent visibility and control of all CONUS wholesale depot assets.

(1) The Army Equipment Status Reporting System (AR 711-5) is used to obtain worldwide equipment asset data from using units, post, camp, and station stock record accounts. Reports are obtained from approximately 1,000 stock record accounts on a monthly basis from CONUS activities and quarterly from overseas. This system is primarily major item oriented, although 1,500 selected secondary items are reported. The information obtained is used to determine and defend requirements.[6]

(2) The Army Supply Status Reporting System--Oversea Depot Stock Status Report (AR 711-80)--provides for the reporting of approximately 30,000 secondary items and repair parts in USAREUR and USARPAC depots (including Vietnam). Normal report frequency is quarterly but is monthly for selected high-procurement value items. This report contains the full range of supply management data. These data are used primarily to determine, justify, and defend requirements. They are also used to determine excess depot stock. Reports on these items are not forwarded directly to the ICP but rather are forwarded to the Major Item Data Agency (MIDA), the central collection point for Army logistics Data. This agency receives, edits, and forwards the data to the appropriate commodity command and to the Deputy Chief of Staff for Logistics (DCSLOG) Data Processing Center.[7] In this connection, the U.S. Army Mobility Equipment Command (MECOM) reported that: "The untimeliness of receipt renders the report unusable to the item manager for consideration in the supply control study. Examination of the reported demand data compared to recorded demands reflects inconsistencies too widely varied for application."[8]

(3) Supplementary to the above mentioned asset reporting system, the Army system for intensive management of secondary items (AR 710-50) provides for the application of intensive management principles and practices to critical secondary items and established the CONUS ICP as the central controlling authority for these items. This control includes the authority to redistribute materiel between commands in order to satisfy the requirements of DOD Instruction 4140.30, Selective Inventory Management of Secondary Items.[9]

(4) In 1968, the Army instituted a test for centralized worldwide visibility and control of high-value secondary items. The objective of the program, AMC Ownership and Accountability of Super High Dollar Value Secondary Items in Oversea Theater Depot,

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[6] Deputy Chief of Staff for Logistics, U.S. Army, Memorandum, subject: Item Visibility, 7 July 1969
[7] Ibid.
[8] MECOM, Briefing, to JLRB Team, subject: Asset Visibility, 26 September 1969
[9] U.S. Army Regulation 710-50, Intensive Management of Secondary Items, 13 March 1968

was to provide more economical and effective use of assets. The project OASIS test began on 1 May 1968 and was to run approximately 1 year. (The project is still continuing.) This test applies to six of the seven AMC commodity commands (excluded is the Munitions Command) and to U.S. Army, Europe (USAREUR) and U.S. Army, Pacific (USARPAC) (less Vietnam). Only the stocks in the overseas theater depots and CONUS depots are included in this project; it does not extend below depot level. A total of 1,034 prime items were selected for the test program. An additional 843 authorized substitute items were also included because they had to be considered in supply control study computations. The criteria for item selection were: high annual demand on a world-wide basis (generally over $100,000 annually), operational significance, high unit cost; and difficulty of procurement or otherwise a critical item. These items account for approximately 36 percent of the AMC annual secondary items procurement and budget. Tables 22 and 23 further identify these items:

TABLE 22

NUMBER OF ITEMS

Funding	Repairable	Nonrepairable	Total
PEMA	1061	7	1068
Stock Fund	594	215	809
Total	1655	222	1877

Funding	PRIME	Substitute	Total
PEMA	575	494	1069
Stock Fund	459	350	809
Total	1034	844	1877

TABLE 23

DOLLAR VALUES OF ASSETS IN TEST AREAS

(in millions)

(CONUS and theater depots of USAREUR and USARPAC, less Vietnam)

Date	PEMA	Stock Fund	Total
July 68	641	254	895
Sep. 68	651	218	869
Feb. 69	651	209	860
Apr. 69	639	210	849

(a) The procedures call for customer requisitions to be filled by the overseas command from available issuable stocks or passed to CONUS for direct shipment to the customer. Accountability is maintained in CONUS by means of daily transaction reporting by transceiver to the appropriate ICP. These ICPs compute the levels and ship material into the theater depots to ensure responsive supply support.

(b) In addition to establishing and maintaining a complete overview of OASIS assets in transit, the following benefits as of 30 April 1969, have been realized from this program:

1. $10 million of assets have been redistributed

2. $5 million of procurements have been reduced or cancelled

3. $54 million of back orders have been reduced

4. $103 million reduction in overseas commands requisitioning objectives

5. 57 percent decrease in zero balances

6. 33 percent reduction in OASIS dues-out

7. Theater reserve on hand assets have increased from $7.4 to $19.0 million

8. Improved maintenance planning production whereby 50 percent of the total OASIS dues-in are now being furnished from overhaul.[10]

(5) Although project OASIS is not applicable to depots in Vietnam, an alternate program, the Central Asset Visibility and Management Program, is similar to OASIS; however, ownership and accountability of items remains with the overseas command, and materiel is requisitioned in lieu of automatic replenishment. Monthly asset reporting is used rather than daily transaction reporting. This program is applicable to 2,132 items.

(6) In an effort to provide better support of selected, critical repairable items to Vietnam, the Army established the Closed Loop Support Program (CLS) in 1966. It provides the framework for control and scheduling of critical items throughout the entire cycle of retrograde, overhaul, and return to the supply system of critical repairables. Closed loop support provided the total visibility needed to intensively manage critical repairable items in the Army. AR 700-69, published in 1967, extended the program to all major commands. Fifty-three secondary items are covered.[11]

(7) The Army Mobility Equipment Command ICP discussed problems concerning the retrograde movement of unserviceable repairable items. It was considered that visibility of unserviceables would provide inventory managers with a tool for expediting the return of unserviceables. The command furtner recommended that reliable asset data be provided on all high-dollar value and repairable medium-dollar value items down to and including overseas depots. It was concluded that the data should be provided at least quarterly in order to apply assets and requirements to supply control studies.[12]

(8) In discussing plans for the future, the Army advised that their objectives included the following:

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[10] Deputy Chief of Staff for Logistics, U.S. Army, Memorandum, subject: Item Visibility, 7 July 1969.
[11] Ibid., 1 August 1969.
[12] MECOM, Briefing, to JLRB Team, subject: Asset Visibility, 26 September 1969.

"The intensity of recording and supplying asset visibility data will be varied according to the true Army management requirement. It is anticipated that an item management control code system will be applied to all items in the inventory. In so doing, only a relatively few, highly important items, will be intensively managed. The degree of asset knowledge will vary with the item's importance. Only a few items will qualify for total transaction reporting."

"Asset visibility will be extended on selected items to the direct support unit level supporting our combat forces."[13]

(9) The Army plans to implement DOD Instruction 4140.37 by a system to be called the Selected Item Management System (SIMS). The system will utilize transaction reports from theater Inventory Control Centers (ICCs) or depots and transaction data forwarded through MIDA from CONUS posts, camps, and stations. Included in the transaction data will be a total of those stocks in the Direct Support Units and General Support Units based on the reporting activity for logistic support. There will be 93 posts, camps, and stations reporting through MIDA. The ultimate volume of items to be included in the program is projected to include those high-dollar items representing 85 percent of the secondary item dollar. The initial implementation is scheduled for 30 June 1970, covering 3,500 repairable items. The SIMS concept will initially be implemented using mechanical and manual means as an interim measure until programming changes can be accomplished to incorporate SIMS within standard ICP automated programs now being developed, with a target date of 1 July 1971. It is expected that the list will ultimately contain approximately 10,000 items. An initial recapitulation of secondary items comprising approximately 80 percent of the annual dollar requirement of USAMC is as follows:[14]

Type Item	Line Items	Annual Requirements
Consumable	2870	$386,000,000
Repairable	3587	$1,598,200,000

c. Navy Systems--Strengths and Weaknesses. The Navy maintains visibility of materiel in stock in its combined wholesale and retail stock point system through means of daily MILSTRAP transaction item reporting. Using activities normally submit requisitions to the nearest reporting stock point. Ships in port submit requisitions to a stock point maintained to serve that port; however, deployed ships normally submit requisitions to either Naval Supply Center (NSC), Oakland, or NSC, Norfolk. If material is in stock, the issue is made and the transaction is reported to the ICP. If the material is not available, the requisition is forwarded to the ICP for action. Back orders are not held locally. The Aviation Supply Office (ASO) receives transaction reports from approximately 30 activities. The Ships Parts Control Center (SPCC) has approximately 43 reporting stock points and the Electronics Supply Office (ESO) receives transaction reports from approximately 30 activities. These stock points are located both in the CONUS and overseas. Some stock points report to more than one ICP. Through this system, the ICPs maintain 100 percent visibility of items in the reporting system, which accounts for approximately 92 percent of the value of materiel in stores accounts. This system covers approximately 700,000 line items of both consumable and repairable materiel and was in effect throughout the Vietnam era. Criteria considered for determining whether or not a stock point renders transaction reports includes the value of inventory carried and the importance of the type of items carried.

(1) The Navy's High-Value Item Management Program applies itensified management to a small percentage of items that represent a significant portion of annual procurement dollar expenditures. This is presently applicable to about 9,000 items. The criteria for the selection of items for high-value management are to select 1 percent of the items with the highest sales volume, determine the average annual sales for the group, and designate for high-value management those items having a forecasted requirement equal to or greater than

[13] Service Headquarters, Briefing, subject: Item Visibility, Inclosure to Deputy Chief of Staff, for Logistics, U. S. Army Memorandum, Service Headquarters Briefings; request for, 23 October 1969.

[14] Assistant Secretary of the Army, Memorandum, subject: Item Visibility, 17 February 1970

the computed average sales figure for the group. Items having program requirements or planned procurements in excess of $100,000 per year will also be designated as high-value items. Those items in this category having a unit price of $1,000 or more are designated for High Value Asset Control (HIVAC). For these items, asset reporting procedures are extended to designated fleet and shore activities outside the normal asset reporting system. Activities involved are tenders and repair ships, fleet issue ships, aircraft carriers, and nonreporting stock points ashore. These units provide the inventory manager with a monthly status of all HIVAC assets and an audit trail of all transactions occurring between the monthly reports. The worldwide asset reporting procedures are applicable to approximately 6,000 items located at over 300 locations. (This is a refinement of a program initially instituted in 1963.)[15]

(2) Navy inventory control points also employ specialized systems for obtaining visibility of assets outside of the normal reporting system. Monthly reports are rendered by contractors engaged in depot-level repair of repairables to all ICPs. The Electronics Supply Office has a Critical Item Reporting procedure under which special reports are provided on items essential to operational readiness that are in short supply or are expected to be in short supply due to procurement lead time. The Aviation Supply Office maintains a reporting system for Support Equipment covering those items in store and in-use. In FY 66, this system covered 4,268 items valued at $880 million. By 31 March 1969, this system had been expanded to cover 6,500 items valued at $973 million.[16]

(3) In August 1968, the Aviation Supply Office instituted a program for obtaining worldwide visibility of all depot-level repairables. This program extended quarterly reporting to 29 additional CONUS activities, 17 extra-CONUS activities, 31 ships supporting aircraft, and 16 Fleet Marine Force units supporting aircraft. The objectives of this program were to obtain additional visibility for purposes of filling back orders, assisting in budgetary and procurement computations, and identifying excessive maintenance-float quantities.

(a) The results of this increased visibility are encouraging. For example, this program resulted in back orders being filled by nontransaction reporting activities as indicated in this following tabulation.

Period	Net Back Orders Filled
July-September 1968	1,389
October-December 1968	2,484
January-March 1969	1,709

(b) Although the dollar value of procurement reductions and cancellations achieved through the use of increased item visibility is not available because such actions cannot be readily isolated as being specifically applicable to item visibility, the Aviation Supply Office had computed certain savings as being primarily relative to asset visibility. The applicable time period and estimated savings are tabulated below.[17, 18]

[15]Secretary of the Navy Instruction 4440.29A, High Value Item Management - A Policy Manual, 8 February 1968.

[16]Deputy Chief of Naval Operations (Logistics), Memorandum, subject: Item Visibility, 3 November 1969.

[17]Ibid.

[18]ASO, Briefing, to JLRB Team, subject: Visibility of Assets, 18 August 1969

(7) Implementation plans for the application of DOD Instruction 4140.37, Asset Knowledge and Control of Secondary Items, to consumable items within the Air Force have not been developed. The Air Force intends to implement the directive with the first increment of the Advanced Logistics System. Of the 600,000 consumable items managed by the Air Force, 2,270 or .37 percent have an annual demand in excess of $50,000. For items subject to repair, the dollar value of annual sales and issues is not available.[31]

f. Defense Supply Agency Systems--Strengths and Weaknesses. As an integrated inventory manager, the Defense Supply Agency is basically a "wholesaler," maintaining wholesale stocks of materiel in depots, subject to the control of the inventory manager at the appropriate Defense Supply Center (DSC). Individual Service activities forward requisitions for their retail requirements to the DSC where they are processed and materiel release orders forwarded to the depot storing the materiel. DSCs maintain 100-percent visibility and control over items in the wholesale system. In addition, in conjunction with the Navy, the DSA employs the direct supply support point (DSSP) and specialized support depot (SSD) concept. Under these programs, selected DSA-owned and managed wholesale stock is physically located and stored at Naval activities. The stocks are primarily positioned to support Navy customers, although other Services may be supplied from these sources on occasions. To obtain these stocks, Navy customers requisition directly on the stock points. The stock points issue the materiel and forward transaction reports of issues to the DSC managing the materiel. This concept permits the inventory manager to maintain visibility of materiel in the possession of another Service, thus extending the depth of visibility.

(1) In implementing DOD Instruction 4140.30, Selective Inventory Management of Secondary Item, DSA found it necessary to obtain below depot visibility of only 27 items that met the SIMSI criteria. In view of the small number of items involved, DSA considered it impractical to establish a separate system in conjunction with the Services to obtain the required data, and requested the Services to add the DSA items to the systems they established. Because the items involved are usually issued and stocked in small quantities at retail level, the reports received from the Services have not generally indicated any significant assets.[32]

(2) Probably the most important vehicle for obtaining retail asset information in the DSA system is the credit return procedure. Under this procedure, retail activities advise the inventory manager of assets no longer required and make them available for redistribution or issue to another activity. During FY 68, creditable materiel valued at $98 million was applied against requirements, thereby reducing or delaying the initiation of new procurements.[33]

(3) In general, retail DSA assets that are available for redistribution are redistributed by Service operated programs such as the program for Utilization and Redistribution of Material (PURM) in the Pacific. Through PURM the inventory manager is made aware of excess assets, and if they are not utilized by the Services, DSA may utilize these assets.

(4) DSA managers considered themselves handicapped by the lack of asset knowledge during the Vietnam era. The following statement is typical of the views expressed by the DSCs:

"The knowledge of asset positions during the Vietnam period would have assisted in the avoidance of both excesses and shortages. In the first weeks of the Vietnam movement several units requisitioned full complements of Body Armor, Steel Helments and related items of individual combat equipment over and above

[31]Hq, USAF, AFSSS, Letter, subject: Item Visibility, 19 January 1970
[32]Defense Supply Agency, DSAH-OSF, Memorandum, subject: Item Visibility, 3 July 1969.
[33]Ibid.

what would be considered their immediate operational needs. This situation reflects a shortage position in on hand Unit assets. Knowledge of these conditions, particularly on items with low peacetime demands, would have enabled us to more equitably allocate our available monies and resulted in supply decisions leading to procurement requests more closely attuned to real future needs. Conversely, the presence of excesses within the Vietnam theater, when unreported, can lead to the development of excess positions. This is particularly true in the case of heavy tentage, where once the permanent housing was constructed, tentage needs were diminished and excesses developed. Lack of knowledge concerning these excesses resulted in buys, in some cases, which were not required to support the Military Services as they already had sufficient assets to meet their requirements. This condition is not limited to the Vietnam era, but is one which is continuous throughout our experience as a Center. Timely accessible information concerning the shortages and overages at the retail level would materially improve our supply procurement decisions."[34]

(5) In a briefing to the DSCs Commanders' Conference on 4 December 1968, the Commander, Defense General Supply Center, cited the following advantages that would accrue to inventory managers if overseas asset data could be used in the DSA system:

(a) "Early knowledge of asset position would assist in the avoidance of both excesses and shortages."

(b) "Maximize redistribution of materiel, both interservice and intraservice, to meet requirements without increased investment. Redistribution is equally important in filling urgent requirements."

(c) "Better forecasts and procurement decisions will result. This itself, will permit timely reaction to changes in demand."

(d) "Reductions in total inventory investment."[35]

(e) General Hines concluded that: ". . . DSA knowledge of both overseas retail assets and their forecasted usage, will improve support to the Services and reduce overall investment in inventories. . . A formal system is therefore required to provide for military service reporting of asset and usage data. Because of the intensified management required to make effective use of such data, reporting must be limited to a small number of selective, highly critical items, and by specified major users. The DSCs should designate the items, elements of information, and the reporting activities. But they must accept the data in the format that the Services are now using."

"The informal management programs have been effective for obtaining asset data—and should be continued."

"The 'special Pacific' and the 'materiel returns programs' contribute to asset knowledge and stability—and they should continue."

"However, 'SIMSI' has been of little value to DSA and should be discontinued."[36]

(6) DSA Headquarters representatives in a briefing to the JLRB took the position that one of the lessons learned in the Vietnam era was that visibility of assets should be improved.[37]

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[34]Hq, DSA, First Endorsement, DSAH-OP, 24 September 1969 on JLRB Memorandum of 6 August 1969, subject: Review of DSA Support Request for information concerning.

[35]Hines, Brigadier General, Briefing, to Commanders Conference, subject: Acquisition and Application of Retail Asset Knowledge, 4 December 1968.

[36]Ibid.

[37]Hq., DSA, Briefing, to JLRB, subject: Introduction to DSA, 17 July 1969

(2) The Air Force Equipment Management System (AFEMS) is the principal means for maintaining item visibility for equipment items, primarily aerospace ground support equipment (nonexpendable), throughout the Air Force. Assets and condemnations are reported monthly to the AFEMS data bank, centrally maintained at the Sacramento Air Materiel Area. Both in-use and in-stock assets are reported from all activities, wholesale and retail. This system encompasses approximately 81,000 line items with a total value of $7.2 billion, of which $.50 billion was in stock as of 31 December 1967.

(3) Prior to November 1967 visibility over recoverable and some consumable assets below the depot level was obtained quarterly by the Stock Balance and Consumption Reporting (SB&CR) procedures. These reports were and still are submitted by Air Force bases worldwide. The SB&CR show not only on-hand balances but a complete range of supply management data. Supplementary to the stock balance and consumption report, a daily critical item report and monthly asset status report, showing on-hand balances only, is received by inventory managers.[26]

(4) During the early buildup in SE Asia, capability to report assets and usage from SE Asia bases was essentially nonexistent. The Air Force suspended all asset and usage reporting from these bases and modified the method of computing requirements for recoverable items to compensate for the lack of data previously utilized. Factors contributing to item visibility problems during the early buildup that necessitated suspension of reporting were:

(a) Use of manual stock-record accounts

(b) Lack of supply personnel

(c) Lack of adequate facilities and communications

(d) Limited capability to compute base stock levels

(e) Questionable base on-hand inventory position.[27]

(5) In November 1967 Phase 1 of the Air Force Recoverable Assembly Management System (AFRAMS) system was implemented within the Air Force worldwide. The system essentially utilized the existing SB&CR reporting formats but provided for the submission of the data on a daily basis for items active that day. The system provides for detailed asset and requirements visibility and control over approximately 77,000 line items of depot repairable material. AFRAMS also provides for in-transit visibility and control. Since November 1968 redistribution actions, as a result of AFRAMS data, have averaged about $62 million per month. As a side benefit, AFRAMS provides a vehicle for collection of data on critical items on a daily basis and for meeting the requirements of DOD Instruction 4140.30, Selective Inventory Management of Secondary Items.[29]

(6) ICP personnel at the Sacramento Air Materiel Area advised that: "At ICP level, no significant change to current asset visibility procedures are considered to be necessary, although a capability to obtain one-time and periodic EOQ item reports from users is considered to be necessary on a selected basis." Examples were furnished wherein if asset visibility had been available on economic order quantity (EOQ) items on a selective basis, procurement actions could have been avoided.[30]

[26] Department of the Air Force, AFSSS, Letter, subject: Service Headquarters Briefings, 20 October 1969.
[27] Ibid.
[28] Ibid.
[29] Department of the Air Force, AFSSS, Letter, subject: Logistics Review Board (JLRB) Data, 29 August 1969.
[30] SMAMA, Briefing, to JLRB Team, subject: Asset Visibility, 6 October 1969

(1) With the implementation of MUMMS, a centralized inventory management concept was placed in effect. All eight remote storage activities make daily transaction reports to the ICP. All requisitions are forwarded directly to the ICP from bases, posts, stations, and Fleet Marine Force support units. All materiel in bulk store at the remote storage activities, including material that the ICP procures from integrated managers, is visible to the ICP. The Marine Corps Supply Activity's position is that no further asset visibility is necessary or required at this time.[22]

(2) Late in 1968, the Marine Corps instituted a program in connection with the MUMMS system that provides the ICP with worldwide asset visibility of secondary repairable items, including those items in Fleet Marine Force maintenance floats. The ICP also maintains total using units allowance records for these items, thereby maintaining total requirements visibility. Through this program, visibility is also maintained on other selected items, such as critical items or items subject to the Selected Inventory Management of Secondary Items (SIMSI) criteria. (Data are not available to identify dollar values of redistribution and reduced or cancelled procurement actions that may have occurred as a result of increased visibility attained for these items.)[23]

(3) Once these assets come under the control of operational commanders, they are not normally redistributed to other commands. Commanders may redistribute within their respective commands. If declared excess to the commanders allowances, redistribution may be accomplished by the ICP.[24]

(4) The Marine Corps schedule for implementation of DOD Instruction 4140.37 projects an implementation date of December 1970. The instruction will be implemented within the framework of the presently operating MUMMS system. In view of the fact that the MUMMS system now provides visibility of all depot level repairables, their range of asset visibility will be greater than that prescribed by OSD.

(a) The range of Marine Corps items covered by DOD Instruction 4140.37 is shown below.[25]

Type Item	Line Items	Annual Issues	Percent of Total Issue Value
Consumable	511	$106,074,000	64
Repairable	151	$37,857,000	65

e. Air Force Systems—Strengths and Weaknesses. Material in stock in the wholesale depots under the command of the Air Force Logistics Command (AFLC) is subject to the direct control of the designated inventory control point (Air Materiel Area) that manages the assets. All requisitions for Air Force managed items from Air Force bases worldwide are forwarded directly to the ICP where they are processed and materiel release orders are forwarded to the appropriate storage site. The asset records are preposted. Therefore, the ICP has 100-percent visibility and control of all wholesale depot assets, all of which are located in the CONUS.

(1) During the Vietnam era, the Air Force maintained asset visibility below the wholesale level by various systems. For low-cost, nonrecoverable items purchased on an economic order quantity basis, visibility has been limited to wholesale depot stocks. Base level excesses are reported to the inventory manager from the bases; therefore, worldwide visibility of excesses is available on an exception basis.

[22] Marine Corps Supply Activity, Briefing, to JLRB Team, subject: Range and Depth of Visibility of Assets, 15 September 1969.

[23] Senior Marine Corps Representative, JLRB Memorandum, subject: US Marine Corps Inventory Manager Item Visibility, 29 July 1969.

[24] Ibid.

[25] Senior Marine Corps Representative, JLRB, Memorandum, subject: Item Visibility, 9 February 1970.

Period	Estimated Savings
3d Quarter FY 68	$ 238,441
4th Quarter FY 68	133,900
1st Quarter FY 69	876,817
2d Quarter FY 69	246,000
3d Quarter FY 69	626,573

(c) The Aviation Supply Office stated that with the normal transaction reporting system and the quarterly reporting system for nontransaction reporting activities that the range and depth of asset visibility was adequate, i.e., all depot repairable items reported from all users with significant assets. However, that command believed that the frequency of the reports should be changed to monthly or daily, vice quarterly.[19]

(4) The Navy Ship's Parts Control Center now has daily visibility of assets at 43 reporting activities, HIVAC monthly reports, and monthly reports from repair contractors. That command believed that they should have visibility of all depot repairable items and most high cost items from all CONUS activities and larger extra-CONUS activities including larger ships. They considered that the frequency should be at least monthly. Cited as a reason were problems in the retrograde movement of critical repairables.[20]

(5) The Navy plans to implement DOD Instruction 4140.37 as a portion of the Uniform Inventory Control Program (UICP) for ICPs. Presently, asset reports received from other than established daily transaction reporting activities cannot be input to the UICP files but must be handled off-line. Extensive programming effort is required in order to enable this data to be input. The reprogramming project is now operating with a target completion date of January 1971. When this project is completed, ICPs will be able to include the increased asset knowledge and apply automated programs to perform the item selection and control techniques outlines in the instruction.[21]

(a) The range of Navy items covered by DOD Instruction 4140.37 is shown below:

Type Item	Line Items	Annual Issues	Percent of Total Issue Value
Consumable	1,460	$220,729,000	40
Repairable	5,882	$1,812,811,000	84

b. Marine Corps Systems—Strengths and Weaknesses. Prior to the implementation of the Marine Corps Unified Materiel Management System (MUMMS) in May 1967, the Marine Corps supply system was organized with an inventory control point in Philadelphia and two area complex inventory managers, one at Albany, Georgia, and one at Barstow, California. The complex managers maintained a record of the visibility of assets located at the remote storage activities within their complex by means of daily transaction reporting. Redistribution of materiel within these complexes was under the control of the complex inventory manager. On a semimonthly basis, the complex managers forwarded consolidated asset records to the ICP. Management decisions by the ICP were based on needs of the complex as a whole rather than by individual storage activities. ICP redistributions were between complexes only.

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[19] Ibid.
[20] Navy Ship's Parts Control Center, Briefing, to JLRB Team, subject: Asset Visibility. 22 August 1969.
[21] Deputy Chief of Naval Operations (Logistics), Memorandum, subject: Item Visibility, 21 January 1970.

(7) The Defense Supply Agency has not yet finalized implementation plans and schedules for DOD Instruction 4140.37. DSA has requested that the date for submission of implementation plans be deferred until a joint team effort, now underway, has completed its work. The team is improving and expanding Military Standard Transaction Reporting and Accounting Procedure (MILSTRAP) with a view toward developing uniform data elements and formats, which would apply to all elements of DOD. The estimated number of line items managed by DSA and the dollar value of annual demand meeting the reporting criteria of DOD Instruction 4140.37 are tabulated below.[38]

Grouping Designator	Annual Demand Range	Unit Price	Number of Items	Dollar Value Annual Demand (millions)	Percent of Annual Demand
CV 1	Over $500,000	Over $100	52	$74.8	3
CV 2	Over $500,000	$10 to $100	197	361.7	14
CH 1	$50,000 to $500,000	Over $100	960	119.0	5
CH 2	$50,000 to $500,000	$10 to $100	1734	241.0	9
Total			2943	$796.5	31

g. SUMMARY. All of the Services have complete visibility of all items located in the wholesale depots of their distribution systems. After stocks leave this level, the Services maintain varying degrees of visibility by various means. The Army obtains visibility of below depot-level stocks through several systems, ranging from transaction reporting of OASIS items to quarterly reporting of other items. The Navy's primary means of obtaining below depot visibility is through the HIVAC reporting system, which prescribes transaction reporting from certain activities and periodic reporting from others. The Marine Corps maintains visibility of depot repairables and other selected items at below depot level through the MUMMS system utilizing transaction reporting. The Air Force maintains worldwide visibility of depot repairable items on a daily basis through the AFRAMS system and visibility of excess of quantities of consumables below depot level through excess reporting. The Defense Supply Agency has visibility of stocks in the hands of Service retail activities only on an exception basis through excess reporting and informal contacts. The needs and missions of operational commanders must be considered by inventory managers in the implementation of DOD Instruction 4140.37. All of the Services are presently proceeding toward the implementation of DOD Instruction 4140.37.

7. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) Item visibility below the CONUS wholesale level in accordance with DOD Instruction 4140.37 is required in order to manage efficiently inventories involving high-dollar value sales and issues (paragraph 3).

(2) During the Vietnam era, the Services made considerable progress in obtaining additional item visibility and control, resulting in increased efficiency in the utilization of inventories (paragraph 5g).

(3) The Joint Logistics/Materiel Commanders' efforts contributed greatly to the improvements in item visibility systems during the Vietnam era (paragraph 4c).

(4) Lack of visibility below the wholesale level made it difficult for inventory managers to distinguish issues for purposes of filling retail stock levels from issues for immediate use. Sporadic demands for purposes of filling stock levels were sometimes interpreted as increased recurring demands, resulting in excesses (paragraph 4d).

[38] DSAH-OSF, DSA, Memorandum, subject: Item Visibility, 7 January 1970.

(5) Visibility is required on a selective basis. Value of annual demand and issues or procurement should not be the sole factor in determining range and depth of visibility (paragraphs 5b(8) and 5e(6)).

(6) All active depot-level repairable items should be visible, regardless of condition, to provide a tool for the use of inventory managers in expediting their return and repair (paragraphs 5b(7) and 5c(4)).

(7) The procedures and guidelines established in DOD Instruction 4140.37 are sufficiently flexible for the efficient management of worldwide inventories (paragraph 4c).

(8) Due to limitations in communications and data processing capability, all of the Services will probably not be able to implement fully DOD Instruction 4140.37 for several years (paragraphs 5b(9) and 5e(7)).

(9) Ownership at the item-manager level is not essential to visibility and control. The data at the decision-making level and at levels affected by decisions must be consistent, and procedures for reaching decisions must be clear and authoritative (paragraph 4e).

b. Recommendations. The Board recommends that:

(SM-18) Recognizing the potential benefits to be gained by increased asset visibility, the Services and the Defense Supply Agency take action to expedite the implementation of DOD Instruction 4140.37 as soon as practicable (conclusion (2)).

(SM-19) For the long range, the Services and the Defense Supply Agency plan to develop the capability to attain worldwide visibility of high-dollar value items for which this depth of visibility may be required, recognizing that the range and depth of visibility should be variable as selected by the Service concerned (conclusion (8)).

(SM-20) Because it is not necessary for the item manager to own an asset in order to have the visibility necessary to make or recommend appropriate decisions, the question of ownership of assets visible to an inventory manager should be decided by the Service concerned (conclusion (9)).

CHAPTER VI

SERVICE STOCKAGE IN CONUS OF INTEGRATED-MANAGED ITEMS

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1. INTRODUCTION AND BACKGROUND

a. Since its establishment the Department the Department of Defense (DOD) has steadily increased the degree of integrated management in logistics. This integration has not been confined to the area of common, commercial type items but includes peculiar and combat-type items. The intent of the integrated materiel distribution system is to provide effective logistic support to the Services, other Federal agencies, and authorized civil or foreign requisitioners at the lowest overall cost to the Government, consistent with adequate responsiveness.

b. The DOD integrated managers (the Defense Supply Agency (DSA) and the Army Tank Automotive Command (ATAC)) and the General Services Administration (GSA) are funded for maintaining peacetime wholesale system levels to support all DOD customers. Procedures are established for direct support of continental United States (CONUS) field and operating forces, as well as support outside of CONUS when mutually agreed upon by the integrated manager and the supported Service. The integrated managers position materiel at designated storage activities in CONUS based on known demand patterns to provide responsive support by supplying materiel from production sources directly to the user or through the cost favorable storage location to the point of ultimate consumption. This procedure is extended to each commodity for both CONUS and overseas support.

c. There are other special variations, however, where DSA positions materiel at Navy tidewater stock points in support of fleet units and overseas bases. This arrangement is managed under a DSA Specialized Support Depot (SSD) concept where assets are retained under Defense Supply Center (DSC) item accountability until issued by Navy and transaction reported to respective Defense Supply Centers. Inasmuch as DSA also operates SSDs (for clothing and electronics) further reference to SSDs in this review should be considered as relating only to those depots operated by the Navy at Naval Supply Center (NSC), Oakland, and NSC, Norfolk. Also, DSA positions selected items at specific Navy installations under a direct supply support point (DSSP) concept. This arrangement is designed to take maximum advantage of the economies of direct procurement deliveries to high volume consumers. At present, these DSA special arrangements involve only Navy training, supply, and maintenance activities in CONUS. Another variation is the GSA's agreement with Navy to pre-position items at tidewater stock points to enhance the responsiveness of support of fleet units.

d. Service support concepts for integrated materiel vary widely from the Air Force use of direct requisitioning worldwide to the Marine Corps stockage in CONUS for support of deployed units. The Army employs direct requisitioning in CONUS and from inventory control centers overseas. All Navy CONUS activities, except those in close proximity of SSDs, Oakland, and Norfolk, requisition directly on integrated manager systems (except items assigned for DSSP). The Navy also distributes wholesale stocks in the Pacific area through Naval Supply Depots (NSDs) which requisition on NSC, Oakland, (direct to General Services Administration (GSA). The Marine Corps maintains a wholesale level of centrally managed items at remote storage activities (RSAs) in CONUS for support of Marine Corps organizations and deployed forces in overseas areas. The Marine Corps' overseas customers requisition on the single Marine Corps inventory control point (ICP) and are supported from Marine Corps stocks in CONUS.

e. This review examines the various means by which integrated manager (DSA and GSA) items enter and flow through respective Service supply systems. Specific emphasis is placed on stockage of integrated-managed items in CONUS for support of Service field and operating activities both in CONUS and overseas. The overall objective of this review is to determine the relative effectiveness of current concepts for stockage and distribution of integrated materiel in support of Service requirements. Specific objectives of the review are to develop recommendations with respect to the following issues:

(1) Determine the merits of altering the current concepts of specialized support depots and/or direct supply support points.

(2) Validate the necessity for Marine Corps stockage of integrated materiel for wholesale distribution in the Marine Corps Supply System.

(3) Determine benefits of pre-positioning arrangements for GSA items.

(4) Recommend other actions to improve supply support of integrated materiel within the Department of Defense.

2. INTEGRATED MATERIEL SUPPORT TO THE SERVICES. The function of integrated logistics management refers to the assigned responsibility of a single agency or Service to procure and maintain levels of a specified range of items or groups of items, for issue in support of all DOD customers. Examples of integrated management responsibility assigned to the Services are the Air Force as integrated manager for the F-4 aircraft and the Army for tactical wheeled and general purpose vehicles. The Department of Defense relies upon two primary organizations and systems —DSA and GSA— to provide the majority of integrated items to the Services. One of the objectives of this review is to determine the validity and effectiveness of various support systems for integrated items used by the Services. All of these special systems involve either DSA or the Federal Supply Service (FSS) of the GSA, therefore, other integrated manager systems will not be discussed in this review.

a. Defense Supply Agency

(1) As an element of the Defense Logistics System, the effort and operations of DSA are oriented primarily toward logistic support of the missions of the Services and the unified and specified commands under all conditions of peace and war. The Defense Supply Agency provides support to the Services for assigned materiel commodities and items of supply that are determined to be susceptible of integrated management by a single agency for all DOD customers.[1]

(2) DSA was assigned a group of regional depots, consisting of seven principal distribution depots (PDDs), five other depots specialized as to type of materiel or scope of support, and an unspecified number of activities through which direct support would be furnished (direct supply support points (DSSPs). Noteworthy in this assignment is the specific charge with respect to support of the Navy, as follows:[2]

> "At the Navy's Tidewater Depots located in Bayonne,[3] New Jersey; Norfolk, Virginia, and Oakland, California, DSA will arrange to position inventories which will be received, stored, and issued by the Navy for DSA. These functions generally will be performed on a reimbursable basis with a minimum of reimbursement involved. DSA will exercise only such review as necessary to assure proper care, stock levels, custody of stocks and on-time service to customers who will reimburse DSA".

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[1] DOD Directive 5105.22, Defense Supply Agency (DSA), 9 December 1965, p. 2.

[2] Secretary of Defense, Memorandum, to Services and DSA, subject: DSA Materiel Distribution System, 6 August 1962, Enclosure 1.

[3] Later disestablished.

(3) The DSA materiel distribution system stockage of such items is limited to only those where the quantity requisitioned is insufficient to warrant contract action. Limited stocks are also maintained for priority demands in which the urgency of delivery to the requisitioner is not appropriate for the time required in direct vendor deliveries. DSA-owned materiel is positioned in designated storage activities consistent with requisitioner demand patterns to provide adequate responsive support at the lowest overall transportation cost in supplying materiel from production source through cost favorable DSA storage locations to the point of ultimate consumption. The support of overseas requisitioners is accomplished from the DSA depot that provides the lowest overall cost to the port of overseas discharge.

(4) DSA-owned stocks are positioned at NSC, Norfolk, and NSC, Oakland, designated as SSDs, for support of the Atlantic and Pacific Fleets and overseas Navy bases. Excepted is medical materiel that is not positioned at NSC, Oakland. NSCs, Norfolk, and Oakland, may also support local CONUS activities of any Service that are located within a 25-mile radius of the SSDs for which economy and responsiveness of supply support for DSA-owned materiel can best be achieved.[4]

b. The General Services Administration

(1) The GSA has cooperated with the DOD in arriving at areas of understanding aimed at enhancing the development of the national supply system. The primary objective has been the elimination of avoidable overlap and duplication of supply functions throughout the Federal Government. Current DOD policy states that the GSA is the primary source for items it procures provided that the items are available from GSA sources and delivery requirements can be met.[5]

(2) The Federal Supply Service, headquartered in Washington, D.C., is the organizational element within the GSA responsible for supply system functions and operations. The National Inventory Control Center (NICC) maintains updated availability information nationally and ensures full use of all assets in the total system.

(3) The FSS has 10 regions located throughout the United States. Each Region functions as a semiautonomous inventory control ICP and has its own depot complex situated within the geographic confines of the Region. Requisitions placed on a region that is in a "stock-out" condition are referred to the NICC (Central Office), which screens against national assets. If stock is not available nationally, the requisition is returned to the region originally receiving the demand for procurement or for back order against replenishment stocks due in from existing contract/order. The Federal Supply Service utilizes the direct delivery technique on large orders for stock items. Regions have "call" type contracts established for stock items that allows prompt shipment from the contractor. In some instances, partial shipment is made from stock to satisfy the requisitioner's immediate requirement with the remaining large quantity shipped directly from the contractor to the consignee (discounted 5 percent).[6]

(4) On 10 May 1968, an agreement was reached with DSA whereby general mobilization reserve responsibilities would be transferred to GSA for the items it manages and GSA would assume full responsibility for supply support of military activities during periods of mobilization or war. In essence, this agreement provides that GSA will conduct industrial mobilization planning; will determine the items and depth of stocks required; and will consider and use the planning information provided by DOD activities in arriving at these judgements, finance and acquire stocks to meet these requirements, and advise the DOD activities needing such information of the support capability developed to meet contingency or related mobilization plans.[7]

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[4] In accordance with provisions of DSA/Navy agreement of 1 August 1963.
[5] General Services Administration, Briefing, to the Joint Logistics Review Board, August 1969.
[6] Joint Working Group Report on Navy/GSA Support Arrangement for the Bay Area, 18 February 1969, p. 17.
[7] U.S. Congress, House of Representatives, Hearings before a Committee on Government Operations, June-July 1969, p. 234.

3. SUPPORT CONCEPTS FOR INTEGRATED-MANAGED ITEMS WITHIN THE AIR FORCE AND THE ARMY

a. Supply Support of Integrated Materiel in the Air Force

(1) The Air Force Logistics Command (AFLC) is the wholesale supplier for the Air Force. It is responsible for all aspects of supply management from determining requirements to consumption or disposal of supplies. Most of the AFLC functions are carried out by its five subordinate Air Materiel Areas (AMAs). Each AMA is organized along identical lines and carries out its responsibilities based on standard policy and procedures established by Hq., AFLC. Each AMA is responsible for managing specific weapons as well as designated classes and commodities and items therein. Centralized control and requisition processing is a basic management philosophy within the Air Force.[8] In addition to other logistics missions, each AMA is an inventory control point (ICP) for those classes and commodities assigned and performs the supply management responsibilities attendent thereto. Materiel for which the AMA is the ICP is stored not only at the parent AMA, but also at any or all of the other four AMAs. Within the AMA, management of items is carried out by individuals designated as item managers. Each AMA is also assigned management responsibility for a portion of the various weapons and/or support system of the Air Force. The systems support managers (SSM) is responsible for ensuring support of assigned systems and works in conjunction with the item managers and other commands to resolve support problems.[9] Worldwide logistics management and distribution are vested in the system and item managers at the AMAs.

(2) Air Force bases are the primary customers of the Air Force wholesale logistics system. Bases requisition directly on AMAs having management responsibility for items requested. Since the Air Force operates depots only in CONUS, shipments from AMAs are made directly to customers worldwide. Bases also requisition on other Services, the Defense Supply Agency, and the General Services Administration. Like CONUS activities, overseas bases rely on direct support and requisition on applicable Air Materiel Areas (inventory control points) and directly from integrated materiel managers (DSA, GSA, and the Tank Automotive Command (TACOM)). There are no wholesale levels of integrated items maintained within the Air Force logistics system in CONUS or abroad.

b. Supply Support of Integrated Materiel in the Army

(1) The Army Materiel Command (AMC) is the manager of wholesale inventories for the Army. Management by AMC is limited to inventories in Army depots within CONUS. The U.S. Continental Army Command (CONARC) is the principal retail manager for supplies at posts, camps, and stations within CONUS. AMC accomplishes wholesale distribution through its seven commodity commands, each of which manage a subordinate inventory control point. All of the wholesale functions and technical assistance and supervision of retail functions of inventory management for an item are centralized at the ICP.[10] Physical distribution of materiel is accomplished from AMC depots located throughout the United States. Assets are positioned based on distribution and consumption patterns determined by each commodity command. Stockage at retail level installations (posts, camps, stations, field armies, and overseas commands) is based upon demand or approval of proper authority that an item is required as mission essential, for standby, or for application to the maintenance float. Within the CONUS the principal supplying agencies are the U.S. Army Materiel Command commodity commands, the Defense Supply Centers, and the General Services Administration regional offices. Each of these activities support the Army retail level installation. They are responsible for the management of inventories of assigned commodities and for meeting Army retail installation supply needs by filling requisitions either from on-hand stocks or by procurement.

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[8] Prepared statement by BG Riemondy, USAF, at Hearings, House of Representatives, June-July 1968, p. 144.

[9] Ibid., p. 144.

[10] Prepared statement by MG. J. M. Heiser, Jr., at Hearings, House of Representatives, June-July 1968, p. 42.

(2) Distribution of materiel within overseas theaters is a responsibility of the Army component commander. The Army normally employs the Logistical Command as the supply manager for specific geographical areas within the theater. As such the Logistical Command operates inventory control centers and distribution depots. Depots are established overseas only when the tactical or strategic situation permits relatively fixed installations. Where more than one depot is required in an area, provisions are made for an inventory control center to consolidate requirements and provide for interarea redistribution of stock. Army inventory control centers usually perform all requisitioning to maintain levels overseas. Where no other in-theater support is available, requisitions are channeled directly to ICPs in CONUS. Integrated items are maintained within the Army supply system overseas and are obtained directly from Defense Supply Centers and regional offices of the integrated manager systems.

(3) The Army plans to conduct a test of a new direct delivery technique for overseas support beginning 1 July 1970. The technique involves "inventory in motion" which provides for direct delivery from the CONUS supply source to the customer and includes complete status data for materiel in the pipeline. Initially the test will be limited to direct support units (DSU) replenishment requisitions for class IX (repair parts) materiel on the DSU's authorized stockage list (ASL).

(a) The concept utilizes a theater-oriented depot complex (TODC) and a logistics control office (LCO). The depot complex will store all Army-managed items contained in the supported unit's ASLs, and will receive additional support directly from integrated manager systems. The concept provides for maximum use of containers and employment of the most modern means of packaging and transportation to ensure delivery of materiel within 35 days after the order was placed on the supply system. All depots in the TODC, as well as integrated managers, will containerize or unitize materiel and ship it directly to the consignee overseas. One depot within the TODC is designated to consolidate less-than container loads received from other TODC depots and integrated managers for containerization and onward movement direct to customers overseas. Containers used to ship materiel to DSUs will be used to return retrograde to CONUS.[11]

(b) The Logistics Intelligence File (LIF) at the LCO will contain supply and transportation data to provide visibility of inventory while in transit. DSU replenishment requisitions flow through the theater Materiel Command for edit and funding and thence to the CONUS supply source via the Defense Automatic Addressing System (LCO receives image of requisitions and status). Non-ASL requisitions are filled in-theater, or otherwise treated as ASL requests. The Army inventory manager will receive supply management information from the DSU and the LCO to enhance the degree of item and inventory visibility.

(c) The Army's direct delivery test is designed to conserve resources by concentrating management effort on fast moving repair parts that most effectively support readiness; to reduce the amount of inventory required for pipeline and operating levels; to provide a greater degree of item visibility and management control of inventories; and to improve supply responsiveness by reducing order-ship-time (OST), requisition review echelons, and direct delivery to using units from CONUS supply sources.[12]

4. SUPPORT CONCEPT FOR INTEGRATED-MANAGED ITEMS WITHIN THE NAVY

a. Navy Supply Support

(1) Integration of the distribution systems of the various inventory managers for items used by the Navy into the Navy Supply System is accomplished at the Navy tidewater stock points. It is the responsibility of these stock points to tailor distribution of materiel to meet

[11] AMC Concept Paper, Direct Delivery Test - Europe, 19 March 1970.
[12] Ibid.

operational requirements of each ship under the direction of the cognizant fleet commander. Materiel obtained from or furnished by the various inventory managers and positioned at Navy tidewater stock points provides assurance that fleet logistics requirements will be satisfied to the highest possible degree under conditions varying from normal peacetime operations to sudden emergencies or even full-scale mobilization.

(2) Supply support to the Navy operating forces is furnished primarily by the eight NSCs.[13] NSCs, Norfolk, and Oakland, have the additional responsibility for support of overseas bases and for resupply of the mobile logistic support forces (MLSF) i.e., the tenders, repair ships, reefers, the combat stores ships, and the combatant ships while deployed.

(3) There are three overseas NSDs, all located in the Western Pacific area.[14] These activities, as part of the integrated Navy supply system, carry a range of materiel required to support local Navy facilities. In addition, these overseas NSDs may have a responsibility to provide direct support to fleet units operating on independent duty and for fleet materiel requirements developed through overhaul and maintenance work. The overseas NSDs generally receive their materiel requirements from NSC, Oakland. (Certain categories of Navy managed items are requisitioned directly from the cognizant Navy inventory control point (ICP).)

(4) CONUS Navy activities that perform their own accounting (includes all major activities such as shipyards, air stations, naval bases, supply centers, etc.) submit requisitions for DSA/GSA stock items directly to DSCs or GSA regions. Pacific and Atlantic overseas bases (except Naval supply depots for GSA items) and deployed fleet units submit their requisitions to NSC, Oakland and NSC, Norfolk, respectively. Requisitions for GSA stock items that cannot be filled by NSC, Oakland, and NSC, Norfolk, are passed to the appropriate GSA Region unless a receipt of materiel for stock replenishment is imminent. Requisitions for DSA items flow directly to Norfolk and Oakland and are passed to DSA centers under the conditions previously stated. Ships operating with the First and Second Fleets in the Eastern Pacific and Western Atlantic submit their requisitions to any tidewater stock point. Requisitions for DSA/GSA items are processed in the same manner.

(5) The Navy is involved in a number of special support concepts for integrated items as follows:

(a) DSA has agreed to position materiel at tidewater stock points (Oakland and Norfolk) while retaining accountability and visibility at the cognizant Defense Supply Centers. Under this specialized support depot concept, DSA maintains levels for the Navy at these activities based on anticipated demand for direct local issue and support of overseas bases.

(b) The DSA/Navy agreement includes a similar arrangement where specified classes or items are positioned at selected locations for exclusive use by that activity. These direct supply support points are established where single activities are large or predominant users of DSA items. Table 24 is a summary of dollar value and tonnage of DSA assets positioned at SSDs and DSSPs as of 31 August 1969.[15]

(c) The Navy buys and maintains operating levels of GSA stock items at Oakland and Norfolk for local direct issue to fleet units and supporting forces. To minimize Navy retail investment, GSA has agreed to pre-position a limited range of high-demand items at these stock points under GSA ownership and management.

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[13] Newport, R. I.; Norfolk, Va; Charleston, S. C.; Puget Sound, Bermerton, Wash.; Oakland, Calif.; Long Beach, Calif.; San Diego, Calif.; Pearl Harbor, Ha.

[14] NSDs in WESTPAC - NSD, Guam, NSD, Yokosuka (Japan), and NSD, Subic Bay (Republic of the Phillippines).

[15] Defense Supply Agency, Analysis of Summary of Short Tons of DSA Stocks, as of 31 August 1969, enclosure 1.

TABLE 24

DOLLAR VALUE AND TONNAGE OF DSA ASSETS AT SSDs AND DSSPs, AUGUST 1969

Commodity	SSD Oakland	SSD Norfolk	DSSPs	Total
Clothing				
STONS	3,000	2,000	6,000	11,000
Thous. of dollars	10,440	6,918	17,685	35,043
Subsistence				
STONS	63,239	15,340	0	78,579
Thous. of dollars	23,693	6,323	0	30,016
Medical				
STONS	0	900	0	900
Thous. of dollars	203	2,916	0	3,119
Industrial				
STONS	30,830	9,712	23,878	64,420
Thous. of dollars	31,099	19,551	34,515	85,165
General Supplies				
STONS	24,862	14,585	0	39,447
Thous. of dollars	24,800	14,500	0	39,300
Construction				
STONS	55,709	10,040	0	65,749
Thous. of dollars	53,759	26,808	0	80,567
Electronics				
STONS	1,900	1,800	0	3,700
Thous. of dollars	41,214	42,094	0	83,308
Total				
STONS	179,540	54,380	29,878	263,798
Thous. of dollars	185,270	119,198	52,000	356,668
Percent of DSA Total Assets				
STONS	10.7	3.2	1.8	15.7
Thous. of dollars	6.4	4.1	1.9	12.4

b. Specialized Support Depots

(1) A SSD is so designated on the basis that either the commodity mission or the assigned distribution mission is specialized in nature. NSCs, Oakland and Norfolk, stock all DSA commodities (except medical materiel at Oakland),[16] but the distribution mission is limited to only Navy requisitioners of the fleet and overseas Navy bases. Under the SSD/DSSP concept wholesale assets are positioned at principal stock points, with ownership retained by the wholesale manager until such time as property is withdrawn from storage for issue to retail consumers. The fundamental distinctions between SSDs and DSSPs are two: (1) SSDs stock DSA materiel to support overseas activities, on base and CONUS activities within 25 miles, (2) DSSPs support only on-base and adjacent large-volume users such as shipyards and for selected items only. SSDs carry a wide range of DSA-owned inventory that could include any items for which the Navy is registered as a user and applies to all DSA-managed classes.[17]

(2) The concept of operation provides that units submit requisitions to the appropriate SSD or DSSP where memorandum balance and location records are maintained. To the extent materiel is on hand, issues are made and reported to the appropriate Defense Supply Center through transaction documents that adjust DSC balances and serve as the basis for billing. Issue data are used by the DSCs to replenish SSD/DSSP stocks automatically. In the event required materiel is not available at the SSD or DSSP, the requisition is passed to the appropriate DSC for future supply action.[18]

(3) Experience has shown that in order for Navy support systems to be effective, they must be integrated systems from tidewater in CONUS to the customer. Hence, the tidewater stock points are responsible to tailor distribution and shipping arrangements to the specific operational requirements of each individual ship under the direction of the cognizant fleet commander. The availability of materiel at tidewater and the control of its issue are interdependent and are necessary for the efficient and effective support of fleet units and supporting forces. The considerations that make these two conditions mandatory areas follows:[19]

(a) Ships, including supply ships, are self-sustaining and must be fully ready each time they leave port. The ready-for-sea period in port prior to deployment may be several weeks or a few hours.

(b) Tidewater resupply points in CONUS maintain up-to-date technical reference media and qualified technicians. This is necessary to accomplish on-the-spot determinations for ships at sea.

(c) Replenishment shipments to ships and overseas bases are closely controlled by CONUS tidewater points. This involves cyclical shipping schedules which require special programming for picking, packing, and marking of materiel.

(d) In the case of fleet units for which underway replenishment type delivery is contemplated, items are packed for each ship under a "port-a-pack" program in special modular type waterproof containers without regard to type of materiel or cognizant wholesale inventory manager.

(e) In the case of supply ships, items issued by the tidewater depots are especially coded for consolidated packing and marking by hold and level within the supply ships to expedite segregation and stowage below docks immediately upon receipt of materiel on board. Replenishment is frequently accomplished underway, requiring rapid breakout of consolidated packs.

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[16] DSAR 4145.5, DSA Materiel Distribution System, 14 October 1969, enclosure 1.
[17] OASD (I&L), Study Progressive Refinement of Integrated Supply Management, March 1965, p. 355.
[18] JASD (I&L), Study, Progressive Refinement of Integrated Supply Management, March 1965, p. 356.
[19] Navy reply to GAO Letter Report of 12 April 1967, (OSD Case #2588) p. 6.

(f) DOD Directive 4140.21 prescribes that "Prepositioned War Reserve Stock (PWRS) of an item will be owned, financed and managed by the using Service." When it is desirable to rotate this materiel it is commingled with peacetime operating stocks.

(4) DSA issues from Navy managed SSDs and DSSPs (high priority only) are sequenced within the overall edit pattern to preclude crosscountry shipments before SSD and DSSP stocks on the same coast are edited for availability. The SSD is sequenced prior to the DSSP on the same coast and to preclude stock drawdown, which could impact on the SSD or DSSP assigned mission, a designated level of stock is protected.[20]

(5) The Navy and DSA have made extensive efforts to make the current SSD/DSSP system workable; however, there are problems that are difficult and require concessions from both. The result is therefore an arbitrary system not considered entirely satisfactory by either the Navy or DSA. The following paragraphs describe a few significant operational problems of the SSD support technique.[21]

(a) DSA tend to restrict the criteria for selecting additional items for stockage at SSDs to items of relatively high local demand. The Navy historically maintained a supporting range and depth of stocks at all major operational training or industrial activities, particularly at SSDs and especially for fleet issue load list (FILL) items. The Navy takes exception to the practice of limiting the range of items because maintenance of SSD stocks was viewed as necessary to fill shortages of combat and support ships.

(b) In order to avoid the costs of needless handling and transportation, DSA centers permitted system long-supply stocks to remain at SSDs/DSSPs. A large percentage of these stocks involve items for which Navy is the sole user.

(c) DSA stocks are not generally ordered shipped from Navy SSDs/DSSPs unless the stocks are required to fill priorities 1 through 8, which are not otherwise available from the system.[22] Emergencies and shortages of items can result in placing a considerable material release order (MRO) workload on the SSDs and DSSPs.

(d) The DSA and the Navy have experienced automatic data processing (ADP) interface problems wherein the Navy is less responsive to DSA program and system changes, compared to response by DSA managed activities. Similarly, the Navy has been unable to fulfill inventory schedules on DSA's timing.

(e) Under the SSD concept, DSA has ownership of the stocks located at the SSD and theoretically has control over these stocks. However, in reality, control of stock is limited, because DSA does not have physical possession of it or control of the personnel who do. MROs may be subjected to a warehouse denial because the SSD Commander considers the items urgently required for the accomplishment of his own local mission.

(f) In spite of intensive efforts to redistribute materiel into SSDs, it is virtually impossible to achieve parity with DSA systems availability.

(g) The agency responsible for supply support should also be provided with the authority to control resources and procedures in order to ensure that the responsibilities are fulfilled. Division of responsibilities and controls between several agencies tends to confuse command relationships.[23] Lack of clarity in command relationships and controls between stock managers and facility operators creates problems.

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[20] DSAR 4145.5, DSA Materiel Distribution System, 14 October 1969, p. 18.

[21] DSAH-OSCP, Memorandum, to OASD (I&L), subject: Marine Corps Stockage of Integrated Managed Items, 3 May 1969, enclosure 1e.

[22] DSAR 4145.5, DSA Materiel Distribution System, 14 October 1969, p. 13.

[23] DSA, Memorandum to ASD (I&L), subject: Marine Corps Stockage of Integrated Managed Items, 3 May 1968, enclosure 1f.

(h) Establishment of SSDs/DSSPs eliminates Service retail levels and consequently reduces overall stocks available in the national supply system. Therefore, every reduction of stocks-on-hand of mobilization type items, unless replaced with service-funded PWRS or integrated-manager funded GMRS, will result in greater mobilization reserve deficiencies and thereby reduce available support for combat-type troops.[24]

(6) Overall, DSAs job becomes increasingly difficult. More distribution points require greater intensive management. Noncompatability of ADP systems and differences in procedures and standards of performance presents the problem of system interface. DSA's past experience with SSDs has demonstrated that system interface with Service supply operations, variances in reporting techniques, anomalies in depot SOPs, and divergencies in stock control methods, all tend to hinder efficient operation of the DSA system. The necessity for a dual system also impacts the Services' operations.[25]

c. Direct Supply Support Points

(1) There currently exists 10 direct supply support points, all of which involve DSA assets positioned in support of Navy requirements. DSSPs have been established at Naval Supply Centers, shipyards, and personnel centers which are volume users of certain DSA materiel in performance of their assigned missions. While stocks remain under DSA ownership, storage and issue of materiel is accomplished by the using activity.

(2) Criteria for design and employment of the DSSP concept is based on rationale of achieving economy by:

(a) Reducing administrative costs at the retail level through elimination of the need for stock level determination, item accounting and the need for requisition submission (stocks replenished automatically).

(b) Reducing stocks in the system and making a larger portion of the total DOD assets available to the inventory manager for supply management decisions.

(c) Direct shipment from the producer to the DSSP in economical transportation increments.

(d) Reducing materiel handling costs through the elimination of one echelon of handling i.e., the distribution depot.

(3) The application of the DSSP concept requires item selection criteria to ensure compatability with the objectives of providing supply support to a maximum number of Service customers on a timely basis through a minimum number of well-located depot installations. Specific criteria for item selection under the DSSP concept and the rationale therefor are outlined below.

(a) Stock positioning of DSA-owned materiel at DSSPs is limited to the minimum quantities of the authorized range of items that are considered essential for responsive support of the DSSP mission.

(b) DSSP assets are solely in support of the on-site activity mission for which DSA-owned stocks were positioned. DSSPs are not to be assigned off-base distribution support missions.

(c) The primary source of DSA-owned stock replenishment for DSSPs is through direct delivery from procurement.

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[24] Ibid., enclosure 1g.

[25] ASD (I&L), Memorandum, (SR), subject: Marine Corps Stockage of Integrated Managed Items, 4 April 1969.

(d) DSSP stocks are reviewed not less than annually to determine continued qualification for stockage of each Federal Stock Number (FSN) positioned at the activity.

(e) DSC nominations for DSSP stockage must reflect a definite economic and improved supply responsiveness benefit to be realized over the normal support provided through the designated DSA distribution depot.

(4) DSSP clothing support for personnel centers of the Navy extends to a wholesale backup with the Navy stock fund authorized 30 days retail operating stock. Issues to the Navy Stock Fund from the DSSP are accomplished locally with daily transaction reporting to the Defense Personnel Support Center (DPSC) for post-post recording as an issue or sale, which results in dollar transfer from Navy to DSA. DPSC has no knowledge or control of those assets owned by the Navy stock fund at the Navy recruit issue line.[26]

(a) In 1965 OASD (I&L) identified possible economies through extension of DSSPs to recruit induction centers of the Army, the Air Force, and the Marine Corps. The Defense Supply Agency headed a study to recommend the most effective method for management of clothing support for recruit induction centers within the Services.[27] A joint report on the clothing DSSP principle concluded that although there appeared to be many advantages to a DSSP for clothing, sufficient evidence existed to indicate that all advantages could not be realized, and new problems would be created. Further, that improvements to the present system could produce many of the anticipated savings without expanding the DSSP concept. Based on the foregoing[28] the group recommended:

1. That DSSP concept not be expanded to additional recruit induction centers (RIC).

2. That asset data on service-owned bulk stocks at RICs be reported periodically to the DPSC for use in making supply management decisions.

(b) Significant findings revealing new problems and shortcomings of extending DSSP for clothing to all Services are described below:[29]

1. Problems inherent in distribution from production to user for other than high-dollar value repetitive demand-type items, militates against stockage at induction centers.

2. There are apparent storage and shipping limitations that would require additional storage space to accommodate adequately the level of stockage necessary to achieve the economies anticipated under the DSSP concept.

3. There are problems of long procurement lead time and short notice on recruit input changes resulting in the malpositioning of stocks.

4. Service induction centers are neither staffed nor have the capability to react to MROs in a timely and efficient manner, particularly preparation of overseas shipments.

5. Expanding the DSSPs concept to service recruit induction centers would add 14 stock points to the DSA distribution system, and existing problems of record imbalances, differing ADP equipment, and programs designed to meet Service needs (sometimes at variance with DSA) would become greatly magnified.

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[26] Joint Task Group Report, The Clothing DSSP Principle, p. VII-1.
[27] OASD (I&L), Memorandum, subject: Direct Supply Support Points (DSSPs) for Clothing, 25 October 1966.
[28] DSA, Memorandum, to ASD (I&L), subject: Clothing Support for Recruit Induction Centers, 9 June 1967.
[29] Joint Task Group, Report, The Clothing DSSP Principle, June 1967.

d. Pre-Positioning Arrangements of GSA Items at SSDs

(1) To further reduce inventory investment costs at Naval Supply Centers, GSA-owned stocks of selected high-demand items are pre-positioned at Norfolk and Oakland for Navy use. The pre-positioned inventories are not issued directly to customers as this would involve reporting individual issues to GSA and require GSA to accomplish direct billing. Instead, the Navy commingles limited operating stocks of these items under Navy ownership. These are augmented as necessary by financial transfer of GSA pre-positioned stocks to Navy ownership.[30] Because the pre-positioning technique has merit, the Navy would favorably consider as a near-term improvement effort any proposals by GSA to expand the range of pre-positioned items at NSCs, Norfolk, and Oakland, and/or to extend this arrangement to other tidewater stock points.[31]

(2) In May 1968, the GAO reported to the Congress on, "Savings Available to the Government Through Elimination of Duplicate Inventories."[32] The report addressed duplicate inventories of GSA stock items in the Navy and GSA distribution systems and concentrated primarily on the NSC, Oakland. It concluded that Navy wholesale inventories and similar GSA stock held for Navy use unnecessarily duplicate each other, resulting in duplication of both management and warehousing functions, and suggested that new arrangements be made for Navy supply support of GSA items.[33]

(3) A Joint Working Group concluded that approximately one-third of the GSA inventory held at NSC, Oakland, for direct issue to fleet units and operating forces is necessary and should not be eliminated; that the remainder of the inventory held for support of overseas activities requisitioned directly on GSA regions; and, that Navy investment in stocks of GSA items held by NSC, Oakland, for these purposes could be further reduced through expansion of pre-positioning arrangements[34] with GSA, on a selected items basis.

(4) Based on the above, the working group recommended to the ASD (I&L)[35] that all overseas NSDs except NSD, Guam, requisition GSA stock items directly from the region office servicing that geographical area and begin at a time mutually agreeable to both Navy and GSA; that NSD, Guam, begin direct requisitioning concurrent with implementations of phases I and II for the Common Supply Systems for Guam; and, that Navy and GSA should establish, standardize, and systematize the pre-positioning arrangement for selected items, as an interim measure to adoption of the Defense Supply Agency/specialized support depot (DSA/SSD)[36] concept.

(5) The Navy has taken subsequent actions to revise requisitioning channels for GSA items required by NSDs. Stock levels at NSC, Oakland, have been adjusted and unneeded stocks are reported to GSA. GSA, in turn has reviewed items and indicated those acceptable for credit transfer to the wholesale system. NSC, Oakland, will process GSA materiel release orders against attrition records for issue to any military activity for an appropriate period beyond the effective date of 1 December 1969.[37]

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30 Navy reply to GAO Letter Report of 12 April 1967 (OSD Case #2588) p. 8.

31 Navy reply to GAO Report B-146828, p. 9.

32 GAO Report B-146828 OSD Case #2588, 16 May 1968.

33 Working Group Report, Navy/GSA Support Arrangement for the Bay Area (GAO Report B-126828 OSD Case #2588) p. 8.

34 Pre-positioning arrangements are designed to position assets at using activities while retaining accountability at the supply source.

35 Ibid., p. 4.

36 Specialized Support Depot's (SSDs) stock DSA materiel for support of their assigned overseas activities as well as on-base and CONUS activities within a 25-mile radius.

37 Secretary of Navy, Memorandum, to Secretary of Defense, subject: Navy/GSA Support Arrangements for the San Francisco Bay Area, 28 January 1970.

5. SUPPORT CONCEPT FORINTEGRATED-MANAGED ITEMS WITHIN THE MARINE CORPS

a. Marine Corps Supply Support

(1) Unlike the other Services, the Marine Corps does not have a separate logistics command for its supply system. The Quartermaster General on the Marine Staff is the system manager and provides staff supervision over the Corps single inventory control point. The Marine Corps Supply Activity, Philadelphia, Pa., performs inventory control functions for the entire system and provides centralized management for all aspects of supply distribution within the Marine establishment.

(2) Assets in the Marine Corps supply system are in two categories, "in-stores" and "out-of-stores." The assets in-stores with central item accountability are generally positioned at eight major bases called remote storage activities. Out-of-stores assets are generally in the hands of organic units (users) or service support units. The service support unit both consumes assets and issues materiel to supported units. Materiel carried in the Marine Corps stock fund account (MCSFA) is in the in-stores portion and is sold to out-of-stores customers.[38] Remote storage activities distribute materiel directly to CONUS customers. Out-of-stores distribution is accomplished through a direct support stock control (DSSC) system operated to position low-cost, fast-moving items at issue points close to on-base customers.[39] The Marine Corps retail level supply management program encompasses those supply units below the inventory control point level. These units are primarily in the DSSC function at remote storage activities (RSAs) or in fleet Marine Force (FMF) service units and organic supply accounts. DSSCs are primarily responsible for providing supply support to using units on a geographical basis and are so located to be convenient for customer pick up. Materiel positioned within the DSSC belongs to the distribution system and is accounted for at ICP level.[40]

(3) In overseas areas the out-of-stores assets are generally located at fleet Marine Force organic and service support accounts. Organic accounts are at the battalion, squadron, or separate company level. Service support accounts are at division service battalion. force service regiments, wing support groups, and division support units. The Marine Force Logistics Command in Vietnam has received support from a force service regiment in Okinaw except for common-support items obtained through the Navy Support Activity, Danang, and some low density electronics peculiar items obtained directly from the CONUS ICP.[41]

(4) The mission of the fleet Marine Force dictates that all component units maintain a high degree of readiness so that given assignments can be accomplished with maximum efficiency. The principle of item control is extended to provide readiness data to all echelons of command and to the Commandant Marine Corps (CMC). Each squadron, battalion, and separate unit has a property account and is authorized direct requisitioning on service support accounts. Specific allowances of items and quantities of items have been established for all Fleet Marine Force air and ground units and are mandatory allowances for units to have on hand. Marine Corps units, which are the principal customers of the Marine Corps Supply System, are deployable supply activities known as force service regiments, which in turn support Fleet Marine Forces. Each force service regiment is designed and organized to provide logistics support to a Marine air-ground task force consisting of a Marine division, a Marine aircraft wing, and other supporting force troop units. The force service regiments are in a high state of readiness for immediate deployment, wherever located.

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[38] Prepared statement by MG Paul R. Tyler (QMG), Marine Corps, at Hearings, House of Representatives, June-July 1968, p. 130.

[39] OASD (I&L), Report, Marine Corps Stockage of Integrated Managed Items, 11 March 1968, p. 6.

[40] Ibid., p. 10.

[41] Ibid., p. 8.

b. Marine Corps Concept for Stockage of Integrated-Managed Items

(1) Upon implementation of the Marine Corps Unified Materiel Management System (MUMMS) in FY 67, integrated managed items, along with all other items of materiel procured with stock-fund dollars throughout the Marine Corps, were brought under the control of a single ICP—MCSA, Philadelphia. During the review of the Marine Corps stock fund budget for FY 69, Program Budget Decision (PBD) 410 was promulgated and called for the phased draw-down of integrated managed items during FY 69 and FY 70, with the ultimate elimination of these items from Marine Corps wholesale inventories.

(2) The Commandant of the Marine Corps objected to the full requirement of the PBD and requested relief. Relief was granted and the requirements were changed to require an adjustment of inventory levels (stockage levels from 120 to 60 days and order, shipping time from 45 to 30 days) and revision of the inventory control program to prevent redistribution between east and west coasts.[42]

(3) A primary policy objective of the Marine Corps is to provide continuing effective support to the Fleet Marine Forces, while maintaining a capability to support their immediate deployment. In consonance with this policy the Marine Corps strives to make maximum use of integrated managers and, in turn, maintain minimum Marine Corps asset levels of integrated managed items. To this end, system changes presently planned for accomplishment will include the following features:

(a) Centrally managed operating levels of integrated managed items currently maintained in support of consumption by the eight major Marine Corps bases will be eliminated.

(b) The eight major Marine Corps bases will requisition integrated managed items directly from the integrated managers for general purpose consumption. This will include garrison type and individual clothing and equipment items provided by the bases to tenant units of the Fleet Marine Forces.

(c) The management of items for the Fleet Marine Forces, except those items provided by the base, will be characterized by: (1) computation of levels by the ICP separately, but locality, on the basis of local demand; and (2) replenishment of these levels by the ICP through direct delivery from integrated manager warehouses to Marine Corps storage locations at the point of consumption, except for forces while deployed.

(d) When directed by the Commandant of the Marine Corps, deployed forces will be supported by the Marine Corps inventory control point.[43]

(4) The above planned system modifications will not change the current management of Marine Corps pre-positioned war reserve assets. Pre-positioned war reserve assets not held by the Fleet Marine Forces, including intergrated manager items, will continue to be centrally managed by the Marine Corps inventory control point. The Marine Corps is proceeding with the development of detailed system specifications encompassing the stated changes.

6. EVALUATION

a. GSA regions (in conjunction with the central office) perform wholesale supply management functions for the items they manage comparable to Defense Supply Centers in support of Service requirements. Although some differences in management philosophy and techniques of operations exist between the DOD integrated managers and the Federal Supply Service, there

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[42] Ibid., p. 32.

[43] ASN (I&L), Memorandum, to the OASD (I&L), subject: Marine Corps Stockage of Integrated Manager Items, 14 October 1969.

is little significant variation in results and in general they are compatible.[44] Without exception the Services have indicated overall satisfaction with supply support rendered by the integrated managers. DSA has demonstrated that it can support the Services effectively in the major military commitment in Vietnam. In doing so, the DSA has proved the soundness of the concept of integrated management of supplies and that it is workable in time of war, mobilization, or peace.[45]

b. The Army does not manage integrated items (except the Tank Automotive Commands (TACOM)) at the inventory control point level. Posts, camps, and stations in CONUS and support activities overseas all requisition directly on integrated manager systems. Units deploying from CONUS are supported by the receiving overseas command which receives support directly from integrated manager systems in CONUS. Operating units do not deal directly with integrated managers. However, the Army is planning a test of a new technique for overseas support, which features maximum use of containerized shipments, information and control of materiel while in-transit, and direct delivery to using units, bypassing intermediate hold points (depots) overseas. One depot within a theater-oriented depot complex in CONUS will receive, consolidate, and containerize replenishment materiel for rapid transit direct to support units overseas. Initial plans proposed the collocation of integrated manager items with Army materiel within the TODC, under a DSA specialized support depot concept.[46] However, DSA has expressed opposition to the proposal of total support from a single Army depot (or complex) on the basis that experience with other similar concepts has proven difficult due to present DSA/Service interface problems. DSA concurs in the direct support concept, but is willing to participate in the test only by providing support directly from DSA distribution points.[47]

c. The Air Force does not maintain wholesale levels of integrated items within their support system. All air bases worldwide requisition directly on integrated manager systems in CONUS. Units deploy from CONUS with adequate levels to sustain supply until support is established to their new base of operations. The Air Force receives effective support from integrated managers to units in CONUS and support activities overseas.[48]

d. Navy has an unique operational requirement to ensure full and responsive support directly to fleet units from tidewater stock points Oakland and Norfolk. Unpredictable duration of ships in port and tightly controlled schedules for replenishment of ships at sea require that all supply materiel be available at tidewater for immediate direct local issue to individual ships or logistics support forces.[49] Maintaining levels of supply at Oakland and Norfolk for support of this mission requirement is considered essential, and support could not reasonably be performed by support directly from integrated manager systems. Maintenance of additional levels at Oakland for support of overseas bases, although not essential, does produce added economies. There are savings available through direct vendor deliveries in economic transportation increments that bypass wholesale distribution depots. Maintaining levels of integrated items at Oakland provides overseas bases a direct resupply channel from CONUS to simplify requisitioning and flow of materiel. When GSA fully develops Military Standard Transaction Reporting and Accounting Procedure (MILSTRAP), NSCs, Norfolk, and Oakland, will be established as SSDs for GSA items as well as DSA materiel and support to overseas bases for GSA items will revert from Region 9 to NSC, Oakland.[50]

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[44] Working Group Report, Navy/GSA Support Arrangements for the Bay Area (GAO) (Report B-146828 OPD Case #2588), 18 February 1969, p. 2.

[45] Hearings before Subcommittee of House of Representatives, June-July 1968, p. 330.

[46] Department of the Army, Message 022153Z, March 1970.

[47] DSAH-O, Memorandum, subject: USAREUR Briefing of AMC on Implementation of Test for CONUS Direct Support of USAREUR Direct Support Units (DSUs), 10 February 1970.

[48] Service responses to JLRB inquiries on DSA/GSA supply support, dated Agust-September 1969.

[49] Navy reply to GAO report on Navy Stocking material managed and stocked by GSA, 12 April 1967, p. 6.

[50] Working Group Report, Navy/GSA Support Arrangement for the Bay Area (GAO Report B-146828 OSD Case #2588), 18 February 1969, p. 4.

e. The Secretary of Defense and the Services are vitally interested in reducing inventory investment wherever possible. The SSD/DSSP concept supports that objective by replacing Service retail operating stocks with integrated manager owned assets for retail issues, thereby negating Service investment in retail levels. These concepts produce other economies with respect to direct deliveries avoiding costs related to wholesale distribution points. However, where mobilization-type items are involved elimination of those levels has a corresponding impact on integrated managers general mobilization support posture.

f. The concept of SSDs appears from a theoretical basis to have certain advantages related to administration, transportation, and warehousing costs. However, DSA operational experience over the past several years indicates that advantages are limited and many problems are created such as lack of clarity in command relationships as regards responsibilities and controls of stocks and operations; elimination of Service retail levels causes a corresponding general mobilization support deficiency; intensive efforts have failed to maintain stock availability at SSDs in parity with the total system; ADP program and systems changes cause DSA/Service interface problems; procedures and standards of performance oftentimes differ widely. System interface, varying reporting techniques, depot SOPs, and divergencies in stock control methods all tend to hinder efficient operation of the DSA system. In spite of operational problems, the SSDs for Navy function successfully and serve the Navy unique requirement for materiel at tidewater for prompt direct local issue, and provide significant one-time inventory savings.[51]

g. Direct supply support points as currently used provide significant economies in transportation costs, inventory investment by eliminating retail inventories, and reduction in handling and warehousing cost resulting from direct vendor deliveries bypassing wholesale distribution points. Item selection criteria as presently established will minimize unrealistic item selection and restrict additional storage sites for DSA materiel. DSC nominations for DSSP stockage must reflect a definite economic savings and improved supply responsiveness benefit greater than support provided through designated DSA distribution depots. Prime candidates for DSSP stockage are large, heavy, or costly items with sufficient consumption by one activity to warrant direct vendor delivery. Minor operational problems are far overshadowed by the substantial economies available. Establishment of this concept for clothing support is not advisable due to the great number of new problems created and the economies are questionable.

h. The GSA is pre-positioning a limited range of high-volume, low-cost items at NSCs, Norfolk, and Oakland, to augment minimal operating levels owned by the Navy. These arrangements provide similar benefits of SSD/DSSP techniques where service-owned operating levels are not required. The pre-positioning concept requires after-the-fact requisitioning to replenish operating levels, whereas under the SSD/DSSP concept each issue is transaction reported. The difference threrefore is the frequency and amount withdrawn from wholesale assets, and the Service investment in operating stocks to be supported by pre-positioned assets. Pre-positioning is less effective than the SSD/DSSP technique but is necessary where wholesale managers lack a capability to process transaction reporting under MILSTRAP.

i. The Marine Corps is taking action to realign requisitioning and support channels directly from integrated manager systems to major bases and nondeployed Marine units in CONUS. These changes will begin reducing levels of integrated items heretofore held in the Marine Corps supply system for support of CONUS Marine activities and units. Elimination of those levels will move toward the OSD objective of avoiding duplicate inventory investment within the Defense supply system, without degrading readiness of the Fleet Marine Forces and the capability to immediately deploy such forces.

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[51] DSAH, Memorandum, to ASD (I&L), subject: Marine Corps Stockage of Integrated Items, 3 May 1969.

7. CONCLUSIONS AND OBSERVATIONS

a. Conclusions

(1) The Air Force, the Army, and the Navy receive effective and economical supply support from integrated managers without Service investment in additional wholesale levels for stockage in CONUS to ensure readiness and sustained supply support (paragraphs 6a, 6b, 6c).

(2) Greater range and depth of DSA and GSA items provided by the SSD concept compared to retail levels promotes maximum responsiveness in meeting the needs of fleet units, such as brief periods in port. Storage of integrated materiel with other Navy materiel at tidewater facilitates the consolidation of a full range of items for one destination into containers, and in particular the port-a-pack program adapted to efficient underway replenishment of individual ships (paragraphs 4b(1) and 6d).

(3) Although collocation of DSA/Service material poses management and procedural problems for DSA, in special situation collocation facilitates expeditious consolidation, containerization, and improved responsiveness to requisitioners (paragraph 4b(3) and 6d).

(4) The specialized support depots and direct supply support points eliminate Service retail levels, which results in a reduction of total DOD assets on hand and some degradation of the integrated managers' capability to support contingencies (paragraphs 4b(5), 4b(6), and 6f).

(5) In spite of intensive management of specialized support depots and direct supply support points stocked items, some operational problems result from lack of proper system interface between DSA and the Navy (paragraphs 4b(5), 4b(6), and 6f)

(6) These problems have not impaired the successful operation by the Navy under the specialized support depot concept at Norfolk and Oakland (paragraphs 4b(5) and 6f).

(7) The direct supply support points concept produces significant economies but is limited due to the small number of items to which the concept is applicable (paragraph 4c(3)).

(8) Sufficient evidence exists to indicate that suggested advantages of extending direct supply support points for clothing to other Services cannot be realized and new problems would be created (paragraphs 4c(4) and 6g).

(9) Pre-positioning of stocks at selected activities in accordance with GSA concepts is preferable to SSD/DSSP techniques only when activities involved are not capable of transaction reporting under MILSTRAP (paragraphs 4d and 6h).

(10) Marine Corps implementation of plans for direct supply support to major bases and nondeployed Fleet Marine Forces in CONUS will initiate reduction of levels of integrated items stocked within the Marine Corps supply system and is considered a reasonable and prudent measure in light of Fleet Marine Force commitments (paragraphs 5b and 6i).

b. Observations

(1) The review of Service stockage of integrated materiel in CONUS and the effectiveness of support provided reveals no basis for recommending a change to the present use of the specialized support depot and direct supply support points support concepts operated by DSA and the Navy. Unless the Army test of direct shipments to using units establishes a requirement for SSD or DSSP type support, further extension of this concept to other Service supply systems does not appear likely.

(2) Action proposed by the Marine Corps to realign requisitioning and support channels is in consonance with the Office of the Secretary of Defense and Marine Corps objectives of achieving maximum economies while preserving supply responsiveness to the deployed forces.

CHAPTER VII

MANAGEMENT AND CONTROL OF MATERIEL IN OVERSEAS AREAS

SECTION A

INTRODUCTION

1. This chapter brings into perspective the various Service concepts, organizations, and procedures involved in providing supply support to forces deployed in overseas areas, and Vietnam in particular.

2. This chapter examines the management and control of materiel in overseas areas with respect to secondary items, particularly maintenance-related consumables and general supplies required for administrative and housekeeping support of deployed forces for the purpose of:

a. Identifying the strengths, weaknesses, and problems in the organizations and procedures used by the Services in supporting overseas supply and storage operations during the Vietnam era.

b. Presenting recommendations pertaining to specific areas of logistic organizations and procedures that appear to provide the most significant potential for improving the capability, responsiveness, effectiveness, and efficiency of supply and storage operations in overseas areas.

3. Supply management functions performed by Continental United States (CONUS) supply sources were not a part of this study area, except to the minimum extent necessary to provide requisite interface. Petroleum and ammunition are the subjects of other monographs.

4. This chapter is comprised of four sections. Section B is a brief description of the Services' concepts and procedures for accomplishing overseas supply support. Section C contains a general description of the Services' overseas supply operations in support of Vietnam during the period 1965 to 1969. It provides a background for identifying the significant strengths, weaknesses, problems and lessons learned in the organizations and procedures used by the Services in providing supply support. These are considered, as appropriate, in developing the issues of Section D.

a. An important lesson previously learned in providing logistic support to forces deployed in overseas areas was re-emphasized, particularly, for the Army, in Vietnam; an adequate and timely logistic management capability must be provided very early in the buildup of forces. The importance of providing such a capability is considered, as appropriate, in developing the discussions, conclusions, and recommendations of each of the topics in Section D.

b. Paragraph D1 includes a discussion of the potential of technological advances in transportation, automatic data processing (ADP) systems, and containerization to reduce substantially the range and depth of materiel stocked in overseas areas with improved capability for responsive supply support to the ultimate consumers.

c. Paragraph D2 emphasizes the importance of inventory control and supporting automatic data processing systems, supply storage facilities, materials handling equipment (MHE), and logistic communications, particularly during the early introduction of forces in an overseas area.

5. Differences in Service missions, operating environment, concept, organization, and procedures for overseas supply operations, and the size, complexity and diversity of the military inventory are considered throughout this chapter. These differences generally account for the variances of logistical resources required in-theater to perform supply management operations.

SECTION B

DESCRIPTION OF SUPPLY OPERATIONS IN SUPPORT OF VIETNAM DURING THE PERIOD 1965-1969

1. THE LOGISTIC SITUATION AT THE COMMENCEMENT OF THE BUILDUP

a. In early 1965 the major elements providing logistical support for forces in Vietnam were the Navy Headquarters, Support Activity, Saigon (HSAS), and the U.S. Army Support Command, Vietnam (USASCV). HSAS, exercising the Navy responsibility as "administrative agency" for support of Military Advisory and Assistance Groups (MAAG) in the Pacific area, provided administrative and logistic support, including common item supply support. The USASCV provided supply support for service-peculiar items and maintenance for Army aircraft. From the start it was envisioned that when various contingency plans were implemented, most HSAS functions would ultimately be turned over to an Army logistical command.

b. On 30 October 1964, MACV recommended the prompt introduction of an Army logistic command to provide a high level of expertise in logistic planning and management and to remedy the lack of a retail supply and maintenance capability outside of the Saigon area as well as to bolster the base wholesale system in Saigon. The Commander in Chief, Pacific (CINCPAC), then recommended to the Joint Chiefs of Staff that a single organization become responsible for all common-user logistical support functions in the Republic of Vietnam (RVN) and that the U.S. Army should assume the support functions that an Army logistical command would perform upon implementation of contingency plans.

c. The CINCPAC plan, dated 30 December 1964, recommended 2,100 logistical personnel to provide common support for a total strength of about 26,000. On 15 January 1965 the Joint Chiefs of Staff concurred in the deployment of a 2,100 man logistic command with a 230 man advance party to be deployed as soon as possible.[1]

d. On 12 February 1965 the Secretary of Defense (SECDEF) approved in principle as well as the deployment of 38 logistical planners and 37 operating personnel who became the nucleus of the 1st Logistical Command, Type A(reduced).[2] Almost before the planners were on board and planning initiated, however, and long before any transfer of responsibilities could be initiated, the planners were overwhelmed by the tide of increased troop deployment and faced the reality of becoming an operating command with the task of supporting the arriving Army troops.

e. The strength authorization of the logistical command was increased to 618 personnel on 26 March 1965 and finally on 2 April 1965, coincident with the decision to introduce U.S. combat troops into Vietnam, SECDEF approved the total 2,100 logistical personnel.[3] By this time, however, total U.S. in-country strength was already nearing 30,000 and was to exceed 36,000 by the end of the month.

2. ARMY SUPPLY OPERATIONS

a. General

(1) The primary U.S. Army, Pacific (USARPAC) supply and maintenance facility in support of South Vietnam in 1965 was located on Okinawa and operating by the Commanding

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[1] JCS Message 23-65, 15 January 1965.
[2] Deputy Secretary of Defense, Memorandum, 12 February 1965.
[3] Secretary of Defense, Memorandum, 2 April 1965.

General, U.S. Army, Ryukyu Island the 2d Logistical Command and the 70th Medical Depot The primary South Vietnam supply and maintenance facilities located at Saigon, Cam Ranh Bay, and Qui Nhon were operated by the Commanding General, U.S. Army, Vietnam (CGUSARV), using the 1st Logistical Command, the 44th Medical Brigade, the 34th Aviation Group, and the 97th Artillery Group.

(2) The 1st Logistical Command was responsible for supply management of clothing and textiles, subsistence, general supplies, ground support equipment, construction materiel, electronics less avionics, weapons and fire control less aircraft armament, industrial supplies, tactical vehicles, and packaged POL.

(3) Materiel management of aircraft, aircraft armament, avionics, and associated repair parts was the responsibility of the 34th Aviation Group. Medical materiel management was under the 44th Medical Brigade. The Fourth Materiel Support Commander, the commander of the 97th Artillery Group, was responsible for the management of materiel peculiar to the Hawk Missile System.

b. Plan of Support. The overall Army plan for support of the buildup of Army forces after May 1965 was basically divided into three phases.

(1) Phase I (May 1965-November 1965). During this phase, units were deployed with equipment and accompanying supplies necessary to sustain themselves until resupply was established. Three major complexes were established at Qui Nhon, Cam Ranh Bay, and Saigon. The Saigon complex supported forces in the III and IV Corps Tactical Zones and Cam Ranh Bay and Qui Nhon complexes supported the forces in the II Corps Tactical Zone. Simultaneously, the logistic base on Okinawa functioned as the principal offshore base in support of the logistic complexes in RVN.

(a) Automatic resupply from CONUS, consisting of twelve 15-day increments, was shipped directly to Vietnam for support of forces deployed initially through D+180 days. Initially, the first two increments were shipped to the using unit while the remaining 10 packages were shipped to the in-country depot responsible for support of the area in which the tactical unit was employed. Eventually, all packages destined for in-country depots were shipped directly to them. In addition, 30 days of supply was shipped to Okinawa.

(b) Demands for emergency requirements in Vietnam were placed on Okinawa. If Okinawa was unable to satisfy the demands, they were passed to CONUS supply sources for direct shipment.

(c) This phase terminated during the first half of CY 66. During this time, almost 600,000 measurement tons (19 percent) of the total 3.2 million tons of supply shipped were push packages with the last shipment made in June of 1966.

(2) Phase II (November 1965 - May 1966). Resupply after D+180 days was based on normal replenishment requisitioning. In order to preclude a void in the supply pipeline at D+180 days, it was essential to initiate replenishment requisitions early in Phase I based on actual and projected deployments. Okinawa continued to serve as the primary source for materiel in supply Classes II and IV (including repair parts) and for Class III (packaged). A replenishment requisitioning channel was established from Vietnam depots to Okinawa. Okinawa passed those requisitions to CONUS that it was unable to fill. Demands passed to CONUS from Okinawa were shipped directly by CONUS.

(3) Phase III (May 1966 - February 1969). During this phase decentralization continued as capabilities improved. Eventually all demands from Vietnam were placed directly on CONUS supply agencies, and those agencies shipped directly to Vietnam. Okinawa became an emergency supply and a maintenance base for Vietnam.

c. Depot Facilities

(1) Warehouses, storage areas, and maintenance facilities were literally non-existent except for limited facilities in the Saigon area and there were no major U.S. base complexes in South Vietnam. At the time the 1st Logistical Command became operational there was already a big construction backlog for the troops already in-country and construction of logistics facilities was generally at the bottom of the priority list. Supplies were scattered in nine various locations throughout Saigon, all of which were substandard and overcrowded and some of which were only open storage.

(2) To initially offset this shortage of facilities, negotiations were initiated with the United States Overseas Mission (USOM) to obtain 13 Japanese built warehouses with dirt floors and no electrical wiring in the Fishmarket area in Saigon. Three of these buildings were obtained by the end of 1965 and the balance in 1966. A contract was also let to construct an added 210,000 square feet of covered storage and to fill an area behind the warehouses that would serve as hardstand for open storage and a cantonment area for the troops. This was the Fishmarket area that housed the 506th Field Depot—from that time until a new depot was constructed in Long Binh in 1968. Additionally, agreement was reached with USOM on 16 March 1965 to provide and erect some Butler buildings owned by USOM for use as warehouses in the Qui Nhon, Da Nang, Cam Ranh, Nha Trang, and Saigon areas. These buildings were not available for occupancy until February 1966, almost 1 year after the concept was envisioned.[4]

(3) The same basic situation prevailed at Qui Nhon where substandard and overcrowded facilities were occupied until completion of the new depot at Long My in 1968. Cam Ranh Bay, which was originally nothing more than a large sand dune, suffered a better fate since it was necessary to build a facility from scratch.

(4) By way of comparison, the new depot facilities at Long Binh provided 207,700 square yards of black-topped hardstand and 1,458,800 square feet of covered storage, whereas the depot facilities at the Fishmarket and in Saigon had a total of only 670,000 square feet of covered storage space as late as March 1967. The move of the 506th Field Depot to the new facilities at Long Binh was completed 1 July 1969.

d. Inventory Control

(1) Initially each depot maintained separate stock-status data and demand data, established its own requisitioning objectives and initiated its own replenishment requisitions. In early 1966 the 14th Inventory Control Center (redesignated Inventory Control Center, Vietnam (ICCV) in June 1968) was activated and began the task of establishing a system of integrated materiel management under the 1st Logistical Command. Equipped intially with electrical accounting machines and then with UNIVAC 1005 computers, the Inventory Control Center (ICC) began a phased program to establish a system of centralized management over all theater assets. For each depot requisitioning objectives were established, replenishment requisitions initiated, dues-in-and dues-out files maintained, demand history maintained and analyzed, and recurring and special management reports prepared. At the completion of the phased program, a capability was created at the ICC to cross-level stocks among depots and to screen high-priority requisitions against total theater stocks, thus referring requisitions to another depot in-country rather than passing them to CONUS. Procedures were also developed that provided for the 2d Logistical Command to furnish the Inventory Control Center, Vietnam, with asset visibility tapes of long supplies available in Okinawa and Japan. If the required item was available from either location, the ICC requisition was passed through the 2d Logistical Command (LOGCOMD) for replenishment action. Upon receipt of the requisition, 2d LOGCOMD issued the item, if available at the time, or passed it on to the CONUS inventory control point (ICP) if in an out-of-stock position. Requisition for items not in long supply at Okinawa or Japan were submitted directly to CONUS ICPs.

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[4] History of the 1st Logistical Command from 1 April 1965 until January 1966, Historical interview given to the 15th Military History Detachment, 20 May 1966.

(2) Conversion to an IBM 7010/1460 in November 1967 further improved the management capability of the ICC. By early 1968 the rate of referrals was running between 20-40 percent of all requisitions passed to the ICC, which represented a significant improvement in customer satisfaction as well as improved use of available theater stocks. Figure 28 reflects trends in the 1st Logistical Command's authorized stockage list (ASL) from October 1966 to August 1969. These data indicate among other things that as in-country supply management capabilities improved the ASL was reduced drastically, from 200,000 line items in October 1966 to a low of 94,000 line items in May of 1969. In actual practice the ASL should have been kept at the lowest possible level when supply management capabilities were very limited during the first 2 years of the buildup in 1965-1967. Operational lessons learned reports from Army units in Vietnam and other data available to the Joint Logistics Review Board (JLRB) state that the Army's supply management capabilities improved substantially during late 1967 and the 1968-1969 time period. This indicates that an ASL containing far fewer line items properly managed can provide improved supply support. Beginning in early 196. order and ship times were reduced, dues-in and dues-out reconciliations were initiated, programs to identify and retrograde theater excess were established, and controls were established on the use of high priority requisitions.

(3) Major problems encountered by the ICC were the availability of qualified personnel, the saturation of machine capability because of the continued growth of requirements between the time improved equipment was justified and finally became operational, and until mid-1967, the lack of reliable, high-quality transceiver circuits.

e. Retail Operations

(1) Normally the link between the depot and the customer for retail support was the direct support unit (DSU) for maintenance and repair parts support and supply and services units for all other support. For divisional units this support was provided by units organic to the division operating under the division support command commander. For nondivisional units and backup support for the divisions, this support was provided on an area or mission basis by task organized elements of the support commands (Figure 29).

(2) Precise channels of support were developed on a case-by-case basis dependent largely on time-distance factors. Although divisional units often requisitioned directly on the depot, more often support was provided from a logistical support area (LSA) or, for a specific combat operation, from a specially established and stocked forward support area (FSA).. For example, in late 1967 and early 1968 the 29th General Support Group, a subordinate unit of the Saigon Support Command, operated an LSA at Tay Ninh to provide services and all classes of supply for both 25th Division and nondivisional troops in the Tay Ninh area. 25th Division troops in the Cu Chi area were supported by organic logistical units drawing directly on the depot. At the same time an FSA was established at Katum by the 29th GS Group to support 25th Division units participating in Operation Yellowstone. This example serves to illustrate the complexity of logistical support arrangements and the need for detailed planning. This system of forward supply support proved flexible and responsive to the needs of the customer and extended support forward within the logistical island from the base to the fighting unit where it was required.

(3) Personnel and equipment comprising the FSA were drawn from tables of organization and equipment (TOE) and table of distribution-augmentation (TDA) units assigned to the parent support command. Typically, the FSA stocked Class I, III, V, and also the fast moving Class II and IX items if the tactical unit was unable to provide its own support of these items. Stockage levels were set at a minimum level consistent with operational requirements and generally involved approximately 200 different line items of materiel.

(4) Initially, all requisitioning and stock control at the user and retail level were performed manually with the point of conversion from manual to automated records being the depot. In 1966 a program began to provide an improved capability at the maintenance unit (DSU) through conversion to an automated stock record accounting system using NCR 500 equipment Introduction of this equipment improved the capability of the retail system to interface with the automated wholesale system and has done much to simplify requisitioning procedures and maintenance of prescribed load lists (PLLs) at the using unit level Although planning is underway

to provide additional ADP capability at the retail level, during the Vietnam era the scope of manual effort required served to detract from the efficient operation of a highly complex system.

f. Factors Affecting Supply Operations During the Initial Buildup

(1) General

(a) Prior to the Vietnam era the Army supply system had for several years been undergoing a period of evolutionary but continuous transition that affected all echelons of supply from the customer level to the wholesale commodity command ICP's. This transition was generally toward a more sophisticated, centralized supply control system requiring standardized procedures, trained personnel, supply discipline, modern high-speed communications, and time-phased implementation in order to function successfully.

(b) The Army supply system in early 1965 was faced with the real-life situation of South Vietnam and the prospect of supporting a major tactical force engaged in combat. Initially difficulty was encountered in maintaining control of supply operations. Some of the significant factors operating within or upon the Army supply system that directly attributed, or were at least conducive, to this difficulty are discussed below.

(2) Personnel. Logistical units of the types required were not available in the force structure of the active Army to meet deployment requirements.[5] Even if they had been available, the step by step deployment decision process was not timely, as in the case of the decision to deploy a 2,100 man logistic command capable of supporting 26,000 troops when over 36,000 troops would require support by the time the logistic command arrived. Personnel trained and experienced in wholesale logistics were not available and the civilianized CONUS base did not provide a source for retention or development of requisite skills.

(3) Facilities. Facilities to receive and store materiel were not available and the construction of required facilities enjoyed a relatively low priority until 1967 when the problem had already become critical. As the shipping backlog grew, materiel was moved directly from ship and port areas to any available storage area and stacked at random. Documentation was lost or became illegible, locator systems were ineffective, needed supplies were inaccessible, packaging became weathered and damaged, and markings became illegible. Consequently, because needed items could not be identified or located, they were re-requisitioned, further increasing the incoming flow and compounding the problem.

(4) Item Proliferation. The delay in developing standardized criteria for austere cantonment facilities and the permissive policies regarding post, camp, and station type property and expendable supplies were major contributors to the excess problem in bulk, if not in dollars. Deploying units brought all available supply catalogs, which opened a literal Sears and Roebuck system to them. The resulting proliferation of items was sufficient to inundate any supply system. For example, requisitions for 5 gallon cans of white paint passed through the machine identified only by an FSN and were literally invisible to the human eye while excess quantities of white paint in 1-gallon cans were being retrograded from the depot. Stringent controls on what a unit could order and machine programs to cross reference items for interchangeability and substitutability were instituted long after the damage was done.

(5) Supply Discipline. Failures of the supply system to locate, identify, and provide a required item undoubtedly degraded supply discipline at the using unit level. However, this breakdown made a substantial contribution to the excess in its own right. Rather than using normal follow-up procedures, it was common for the requesting unit to re-requisition the needed items one or more times, thereby bringing unneeded items into country as well as creating inflated demand data at the supporting units and depots. The magnitude of this problem is evidenced by the dues-out reconciliation conducted by the 506th Field Depot in February 1968 when over 80 percent of the dues-out were cancelled as invalid. Because of the lack of confidence in the supply system there was a tendency to assign high-priority designators to all requisitions and to hoard scarce items at using unit level.

[5] President, Harbridge House Inc., Letter, to the Joint Logistics Review Board, 11 July 1969.

(6) ADP Capability. The delayed availability of an adequate stock control capability contributed substantially to the supply operations problem. During the initial year and a half of manual operation, the sheer volume of traffic and the inability to interface with the automated CONUS system resulted in a near insurmountable backlog of management problems that required 2 years to untangle. Even though the UNIVAC 1005 system was introduced late in 1966 and replaced by the IBM 7010/1460 in 1968, the lead time associated with the approval process, construction of facilities, writing and debugging conversion programs, and making the system operational was such that by the time the new system was on line it was barely adequate to cope with the continually increasing requirements.

(7) Other. Additional factors that made supply operations difficult included maintenance policies which created a proliferation of repair parts in forward areas and fragmented scarce maintenance skills required to repair and return repairables to stock, item turbulence and cataloging changes which resulted in delays due to misrouted requisitions, rejected requisitions due to erroneous stock numbers, and changes in unit of issue which resulted in substantial overshipments.

g. Actions Taken to Improve Supply Effectiveness

(1) General

(a) In 1966 difficulty was encountered in the supply of repair parts which constituted the great majority of the repair parts requisition workload. Under the system of supply then exisitng, fill of repair parts requisitions averaged about 36 percent from South Vietnam depots and 46 percent for Okinawa.

(b) Notwithstanding the preceding statistics, the condition of the support effort for end items of equipment and repair parts decidedly was subject to several interpretations. For example, logistical summaries submitted during the first 6 months of 1966 spoke of unsatisfactory supply support for these materiel, but at the same time concluded that there were no critical shortages. This apparent ambivalence derived largely from the sheet scope of the range of items involved and the wide initial gulf between the desirable and the attainable. Thousands of different items were involved and they created isolated problems that often required separate solutions. There developed a number of expedited supply procedures to cope with the more severe of these problems.[6]

(2) Red Ball Express

(a) As an outgrowth of his 28-29 November 1965 visit to Saigon, SECDEF directed the Army to establish a temporary method of expediting the flow of repair parts to remove Army equipment from deadline. The system that was developed was known as the Red Ball Express. As a prerequisite for submission of a Red Ball requisition, a piece of equipment had to be deadlined with no parts available. Red Ball could not be used to fill prescribed load lists or authorized stockage lists which had to be filled through normal requisitions.

(b) All Red Ball Requests were consolidated by the 1st Logistical Command and placed on machine record cards that were hand carried by a CONUS returnee to the Logistics Control Office, Pacific (LCOP), in San Francisco. LCOP processed the requisitions and forwarded them to the appropriate supply source, performed the necessary follow-up, received cargo, arranged for airlift, and accomplished the necessary documentation. Orders that LCOP could not fill were given to U. S. Continental Army Command (CONARC) for fill from any available CONARC assets. A maximum of 7 days from the time requirements were received at LCOP was the allowed time for fill of Red Ball requisitions and delivery to Saigon.

[6] Headquarters, U. S. Military Assistance Command, Vietnam, Command History, 1966.

(c) During the first 7 months of operation (8 December 1965 to 28 June 1966), a total of 83,615 separate requisitions were processed through the Red Ball Express system resulting in 4,300 tons of critical repair parts being airlifted from Travis AFB to Saigon, which removed 4,747 helicopters, 1,822 heavy duty trucks, 247 bulldozers, and 150 pieces of materials handling equipment from deadline.[7]

(3) Closed Loop Support. Maintaining a balance between equipment required in Vietnam and availability in the Army's inventory required careful planning and programming. In January 1967, as a means of enhancing this balance, the Army initiated an intensive management program to control the flow of critical items to Vietnam. The program was called "Closed Loop Support" and provided shipments based on programmed monthly requirements rather than requisitions. Under this concept the functions of supply, maintenance, and retrograde were integrated into the control system to ensure that critical items were directed to specific customers at the appropriate time and unserviceables were retrograded to designated repair and overhaul agencies in accordance with their production schedule. This program relied on fast, efficient transportation to move serviceable and unserviceable assets between Vietnam and off-shore bases. The program proved successful and was ultimately expanded to include aircraft, artillery weapons, combat and tactical vehicles, construction equipment, generators, materials handling equipment, and selected components and assemblies. As of January 1970 approximately 139 major and secondary items had been included in this program.

(4) Weapons Systems Management

(a) Intensively managed systems were used in supply support of high-cost weapons systems. One of these was the special system to expedite supply of repair parts from Army HAWK units. Under this concept, the flow of requisitions was from the user to the 79th Ordnance Detachment, to the U. S. Army Missile Command (MICOM), to the Raytheon Corporation, which manufactured the missile. This eliminated the various depots and headquarters that served primarily to delay the progress of requisitions. The test of the special requisitioning channel proved effective, and it was placed into operating with but two modifications of the original concept: the use of air mail instead of teletype for the requisitions as the messages were being unduly delayed by higher priority traffic, and the use of any available ship for movement of HAWK cargoes, instead of vessels specifically earmarked for the purpose. This special supply system involved approximately 10,000 items.

(b) Weapons system management was also applied in the supply support of Army aviation. Materiel management was the responsibility of the 34th Aviation Group, which reported directly to Headquarters, U. S. Army, Vietnam (USARV). The effectiveness of Army aircraft maintenance support is attested to by the high operationally ready rate maintained. Compared to a standard of 21 percent not operationally ready because of maintenance (NORM), the USARV fleet fluctuated from 11 percent to 22 percent with an August 1969 rate of 21 percent.

(5) Standardization. Another aspect of the program to improve supply effectiveness was the effort to standardize equipment in use by the combat forces. USARPAC conducted a comprehensive evaluation of practically every category of equipment and, although the program involved long-range objectives, specific progress was made in several areas. For example, 81 generator models were reduced to 61, and 54 different types of materials handling equipment were reduced to 14. Special purpose vehicles were divided into categories, and, as examples of their treatment, 14 types of truck tractors were reduced to 1, and 7 types of the 20-ton crane were reduced to 3.

(6) Project Counter. Early in 1967 the decision was made to send a group of supply assistance personnel, under the code name Project Counter, to Vietnam. These personnel were to provide formal instruction in supply procedures as well as informal instruction while assisting personnel in-country to perform location surveys, conduct inventories, identify and classify

[7] DOD Annual Report, 1966, pp. 55-56.

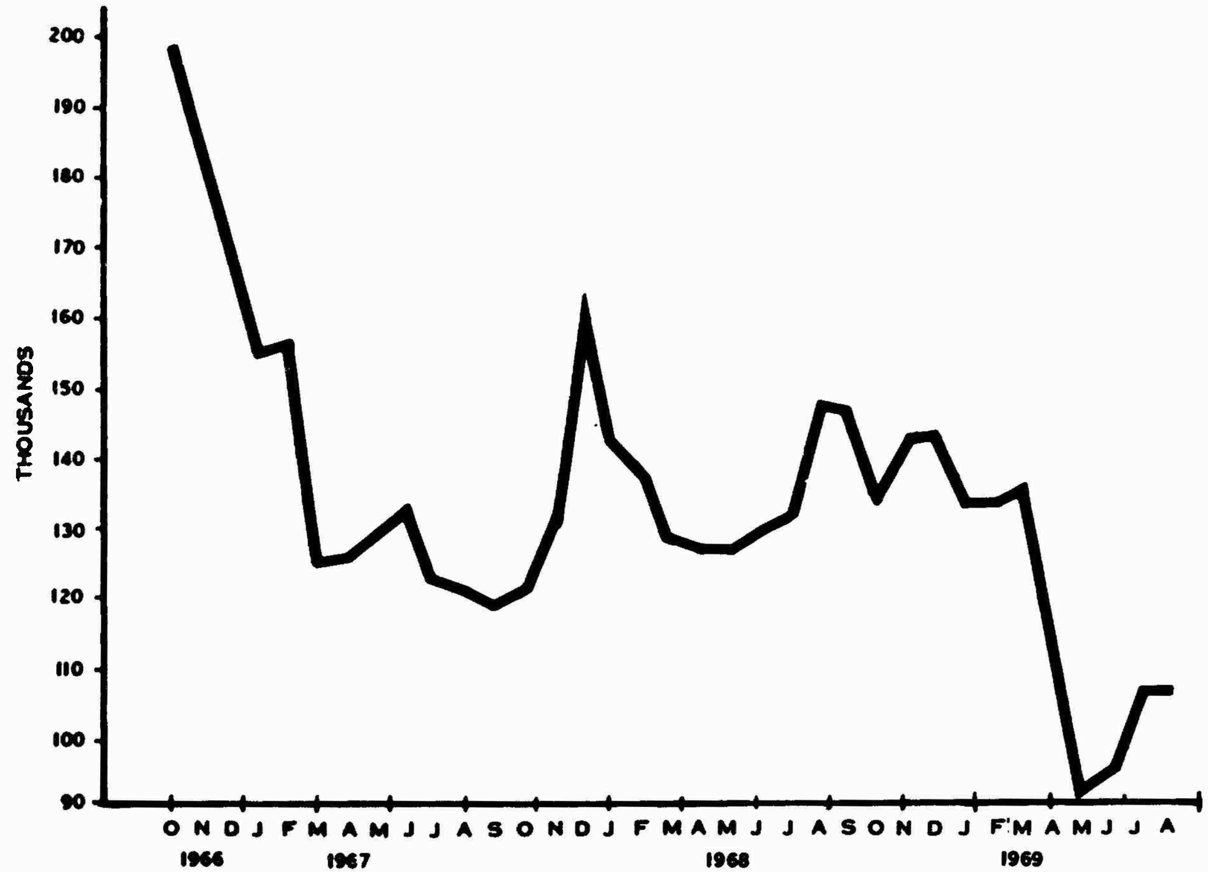

FIGURE 28. TREND IN THEATER-AUTHORIZED STOCKAGE LIST,
CLASS II, IV, AND IX SECONDARY ITEMS (LESS CLASS IV CONSTRUCTION AND AVIATION MATERIEL
1ST LOGISTICAL COMMAND, VIETNAM

SOURCE: 1ST LOGCMD, BRIEFING, TO JLRB, 13 SEPTEMBER 1969.

FIGURE 28. TREND IN THEATER-AUTHORIZED STOCKAGE LIST

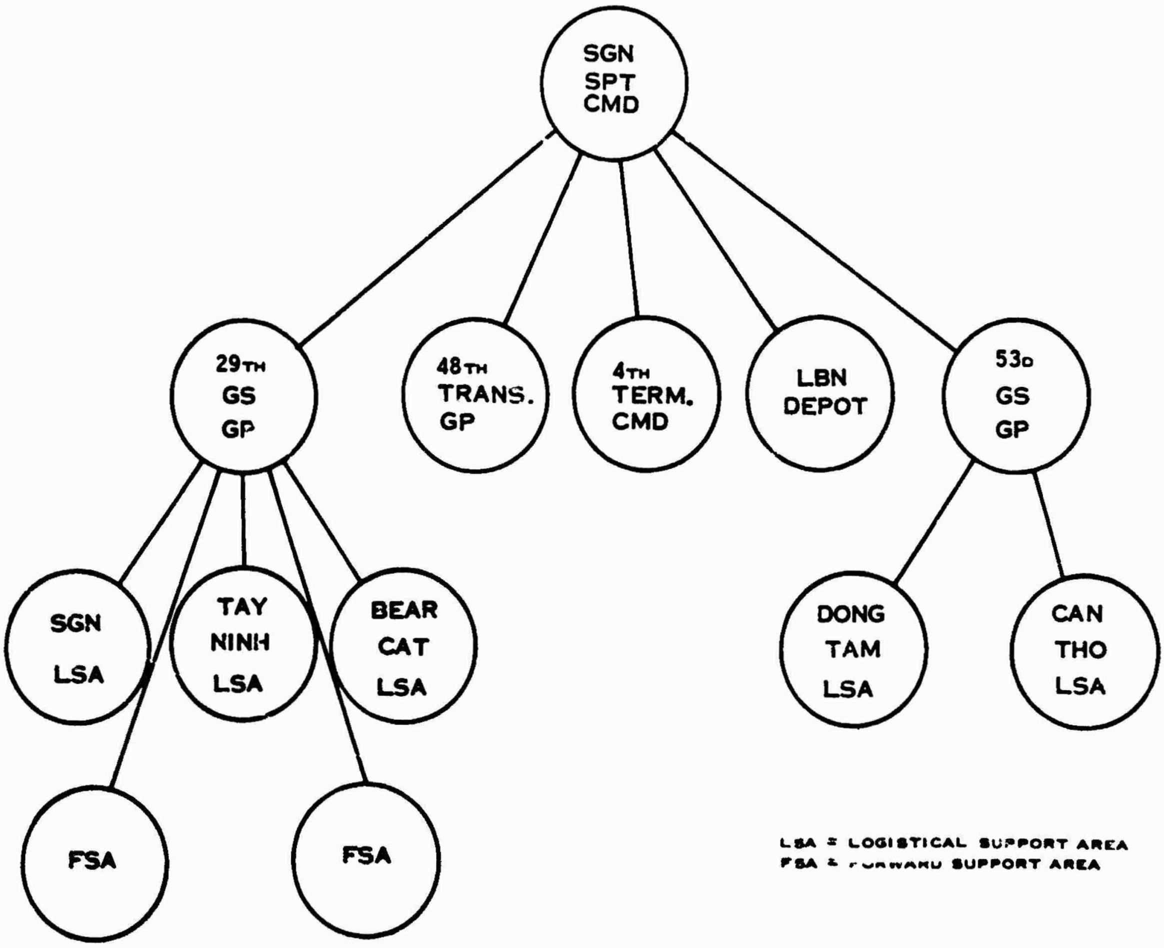

FIGURE 29. NON-DIVISION CUSTOMERS OF THE SAIGON SUPPORT COMMAND, 1967

materiel, review and improve prescribed load lists and authorized stockage lists and generally assist in supply management activities. In all, a total of four Project Counter teams were provided during 1967-68 and proved very helpful in upgrading the short term technical competence throughout the command.

(7) Quick Reaction Assistance Teams. To provide prompt response to requests for assistance from Vietnam, the Department of the Army directed the Army Materiel Command (AMC) to form quick reaction assistance teams. By mid-February 1966, AMC had established a roster of Department of the Army Civilian (DAC) specialists who were prepared to depart from CONUS on 48 hours notice and remain in the theater up to 90 days. This roster consisted of over 300 DAC personnel in various grade and skill levels within approximately 40 functional areas of supply and maintenance operations. These individuals received a passport with a visa for Vietnam and the necessary medical inoculations, and as their particular skills were required, they provided "quick reaction" to assistance requests.

h. Comments, Commanding General 1st Logistical Command. The following comments were provided to the Joint Logistics Review Board by the Commanding General, 1st Logistical Command, on 13 September 1969.[8]

(1) An automated system of supply management, including computer hardware and software programs, must accompany or immediately follow the initial input of logistical troops to capture data and account for the supplies "pushed" on to the beach for support of the maneuver elements.

(2) Based on the experience in Vietnam, a well-developed supply system needs to be engineered in advance to provide a simple but detailed approach to the support of a rapidly increasing force structure. The system must totally integrate CONUS wholesale supply operations with combat zone wholesale (depots) and retail requirements.

(3) Trained logistical troops must be provided or else the system must be simple enough for a high percentage of insufficiently trained personnel to perform the basic logistical operations of receipt, storage and issue.

(4) Initial emphasis must be given jointly to terminal off-loading facilities and depot-receiving facilities; storage areas were inadequate or nonexistent.

(5) The requirement exists for a logistical capability to hit the beaches with tactical elements to assure that supplies "pushed" in support are accounted for and moved onward to the ultimate consumer.

(6) Without asset visibility, "pushed" supplies lose their identity and customers do not receive the support desired.

(7) Equipment in support of logistical operations must be standardized to the maximum extent possible and be present in the quantities required.

(8) Means must be provided to develop an accurate authorized stockage list for the theater of operations as soon as possible and preferably at the same time the decision is made to commit forces.

(9) The number of line items on authorized stockage lists in a combat theater should be kept as low as possible since about 7,000 line items satisfy approximately 50 percent of customer demands (Vietnam experience).

(10) The Red Ball supply system has served as the backbone of supply support for critically needed repair parts in Vietnam.

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[8] 1st Logistical Command, Briefing, to JLRB on 13 September 1969.

(11) The use of Red Ball procedures has expedited the repair and return to use of combat essential deadlined equipment and has increased the operational readiness of all combat units.

(12) There is a need to investigate the distribution and use of materials handling equipment at the different points in the supply pipeline. The full potential of the palletization concept is not realized if at some intermediate point in the supply pipeline pallets are broken because materials handling equipment is not available.

i. Summary

(1) The requirements for a top-level Army logistic management capability in Vietnam was recognized by MACV in October 1964. However, SECDEF approval for a logistical command to provide this capability was not obtained until April 1965.

(2) The Army did not begin to build its logistical base in Vietnam until after combat forces were deployed. When it came to the logistical buildup, under severe time pressure, the means of doing the job rapidly and efficiently were not always available. The capability of the available units, trained people, automatic data processing equipment and programs, materials handling equipment and storage facilities was not adequate to meet all of the requirements for supply management in the Vietnam environment.

(3) It is apparent that to a large degree the problems of the Army in providing supply support in Vietnam were developed during the first year of the buildup when 200,000 men were deployed concurrently with the construction of a logistical base. This situation created a need for supply management techniques that could overcome deficiencies in physical facilities and numbers of personnel and equipment.

(4) Each of the supply management techniques developed by the Army to provide timely supply support in Vietnam, such as Red Ball, HAWK MISSILE, and Closed Loop responded to urgent requirements to support the accelerated deployment of forces and related combat operations. These special supply management techniques were highly successful and were undoubtedly responsible for ensuring the highest operational ready rates for equipment experienced by the Army in any area of the world. With refinement, certain of these procedures and innovations - including the use of airlift and continuous high-level visibility of selected critical items - should be continued and considered essential to a highly responsive supply system under combat conditions of the type encountered in Vietnam.

3. NAVY SUPPLY OPERATIONS

a. General. The Navy fleet support consists primarily of Mobile Logistic Support Forces backed up by advanced bases ashore. Emphasis is on support of the fleet and certain limited fleet-type actions ashore such as amphibious operations. Vietnam introduced two new support aspects that materially affected Navy supply support: (1) providing common support of ground forces in the I Corps and (2) supporting riverine type warfare.

b. Supply Operations in I Corps Tactical Zone, Vietnam (ICTZ)

(1) Background

(a) The Navy was assigned responsibility for common supply of U. S. forces in the ICTZ. This obligation had not been identified in the tasks assigned in earlier contingency planning. Therefore, new Navy logistics organizations had to be created in-country.

(b) In early 1965 Headquarters, Support Activity (HSA), Saigon, provided rations as well as limited-item support to U. S. personnel throughout ICTZ. Contingency plans provided for continuation of logistic responsibilities assigned to HSA, Saigon, until an Army logistical command would assume these functions.

(c) Following review of the situation in early April 1965, CINCPAC directed that military operations at ports and beaches for the support of U. S. forces and attached third country forces in the Da Nang-Chu Lai area would be accomplished using Navy resources. CINCPAC's April decision included assigning responsibilities for facilities development, port operations, and common supply. In June these responsibilities were further defined by CINCPAC and expanded to also encompass the area from Chu Lai to the southern ICTZ boundary.

(d) Drawn from various units operating under Commander, Amphibious Logistic Support Group 76.4, Naval Support Activity (NSA), DaNang, was commissioned on 15 October 1965 with 39 percent of the authorized allowance on board. Although the primary functions performed by NSA, Da Nang, included the conduct of port terminal operations, common supply support, the operation of a combat casualty hospital, and a Navy Public Works Department, the remainder of this discussion will be restricted to the supply operation.

(2) General

(a) The initial stockage list for the NSA, Da Nang, in 1965 consisted of the items contained in the lists of advanced base functional components ordered forward and the 3,500 common-support items stocked by the Headquarters, Support Activity, Saigon. The number of common support items subsequently reached 11,000. The number of line items carried on NSA, DaNang's stockage list totalled 38,000 as of 1 January 1966, 59,000 by January 1967, and 87,500 a year later. The buildup of other U. S. services and Free World Assistance Forces in the I Corps area was accompanied by an increase of the total items stocked by NSA, Danang, to 105,000 by the end of 1968. As a result of analyses of demand history and diminishing requirements as forces were moved out of I Corps, the list was reduced to 60,000 in September 1969 and later to 47,000. (See Figure 30)

(b) The responsibility for the storage and issue of provision stores was assumed in August 1965 when NSA, DaNang, inherited 33,000 square feet of covered storage from Headquarters, Support Activity, Saigon. Pending reefer plant construction, three refrigerated barges (YFRNs) totalling approximately 96,000 gross cubic feet were also available for reefer storage. Additional floating reefer storage was provided by the arrival of SS YAQUE on 7 November 1965, chartered from the United Fruit Company. These floating assets were finally released in June 1967 when adequate refrigerated storage had been constructed.

(c) Initially a control division was set up to provide requirements coordination from stateside sources pending assumption of supply functions. On 23 March 1966 NSA, Da Nang, took over the responsibility for storage and issue of Navy equipment, construction materiel, and common item supplies with about 70 percent of the catalog item range in stock.

(d) Supply operations were first performed using manual procedures. Simplified stores accounting without reconciliation was put into effect. In July 1967 this manual operation was converted to electrical accounting machine (EAM) records using IBM 407 offset equipment. Two personnel from the Naval Supply Systems Command were sent to Da Nang to assist in the conversion. Standard programs previously developed by the Navy were used. With the increase in monthly transactions, the 407 equipment was replaced with a 16 K tape driven IBM 1401 computer in August 1968. The basic inventory management programs used in the 1401 had been developed for fleet-wide use by the Navy's Fleet Assistance Group.

(e) NSA, Da Nang, used a pull, demand-oriented supply system with all materiel purchased by Navy stock fund. For replenishment of depot stocks, the normal channel for requisition flow was direct to the Naval Supply Center (NSC), Oakland.

(f) During the first 2 years of operation the supply depot had an open allotment under the Navy stock fund; i. e., no specific limit was set on obligational authority. Commencing 1 July 1967 this procedure was changed to a closed allotment. This meant that a specific amount of obligational authority was granted on a quarterly basis. Any funds required above this amount had to be justified to higher authority. There were occasions when additional funds

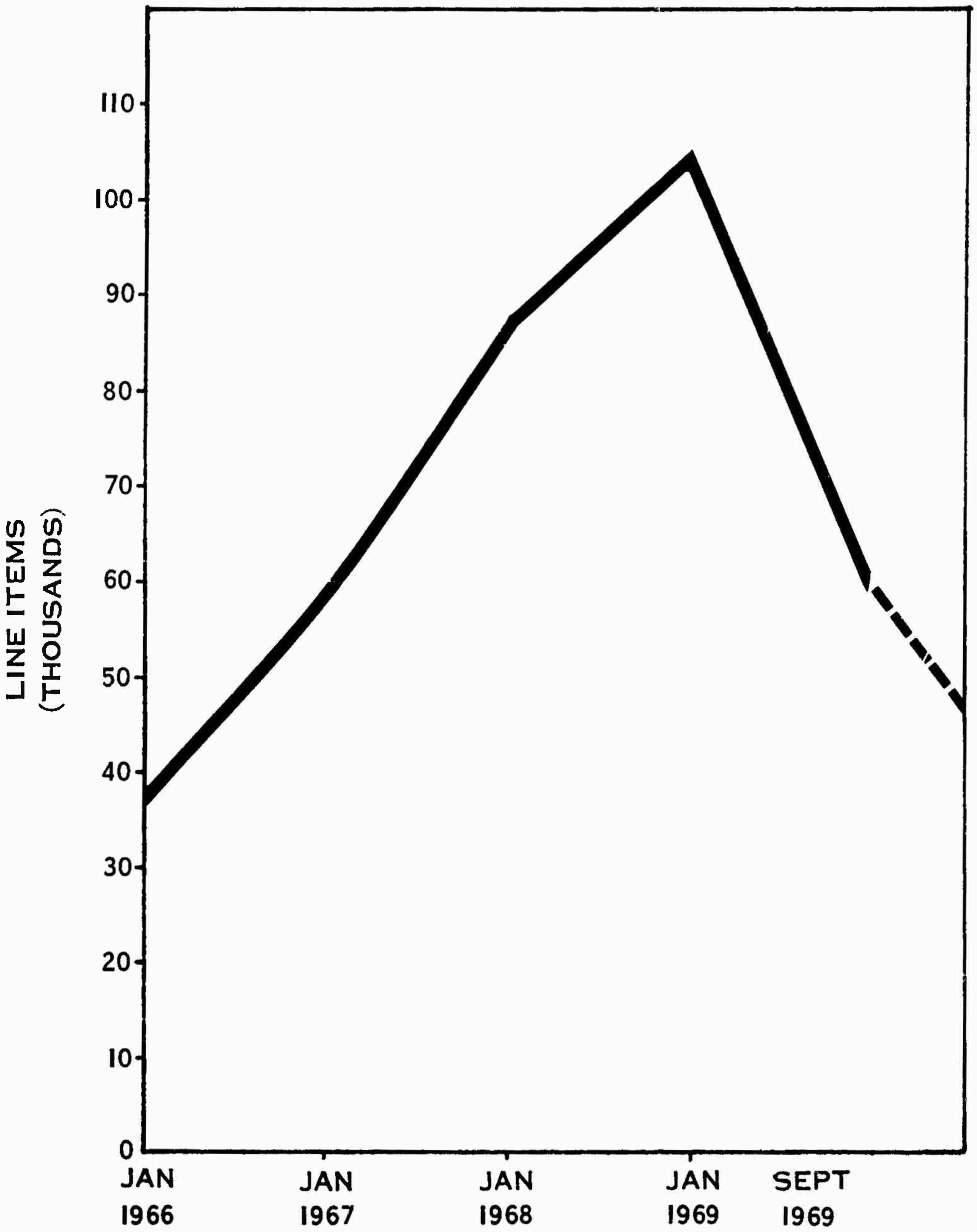

FIGURE 30. STOCKAGE LIST, NSA, DA NANG 1966 - 1969

were needed. For example, additional stock fund obligational authority was required in support of the buildup of forces in the ICTZ during the 1968 enemy Tet holiday offensive. Additional funds were provided on this occasion and at other times when needed.

(3) Storage Facilities

(a) The first problem encountered in the construction of storage facilities was the acquisition of real estate. In 1965 real estate was at a premium requiring much red tape through U. S. and Vietnamese offices. Once property was acquired, there often followed additional delays while local settlers and many graves were relocated. Because of this situation, the development of the supply depot was dependent upon many scattered facilities.

(b) The development of the supply depot at NSA, Da Nang, was based upon the Advanced Base Functional Component (ABFC) concept. Under this concept the refrigerated and dry storage warehouses consisted of prefabricated structures requiring a minimum of additional construction capability to erect. This proved to be an efficient and effective method of establishing an advance base supply depot.

(c) Notwithstanding the advantages of the ABFC concept as pointed out above, the shortage of warehouse and reefer space was nevertheless a problem for the Da Nang supply depot in the early years of the buildup. Navy planning for NSA, Da Nang, envisioned an estimated military population of 48,000. This planning figure proved to be far too conservative. Actual population supported eventually exceeded 200,000 in early 1968. As a result of the above situation, depot facilities consistently lagged behind rapidly increasing requirements and during the early years of operation incoming supplies exceeded the capability of the supply depot facilities to receive and store materiel properly. It was not until January 1969 that facilities were finally completed which provided 900,000 square feet of covered storage, 530,000 cubic feet of reefer space, 15 acres of open storage and 100 acres of open unimproved storage. An additional 200,000 square feet of covered storage and 96,000 cubic feet of reefer space were located at the subdepot at Chu Lai. Even with this large increase in storage facilities, about 15 percent of the materiel requiring covered storage had to be placed outside covered with tarpaulins.

(d) In the development of supply facilities, primary emphasis was placed initially on vertical construction. Horizontal construction was restricted to rough grading of open storage areas and dirt roads between warehouses. During the monsoon season these areas quickly developed into veritable quagmires of mud up to a foot in depth. Materials handling equipment and cargo vehicles mired down in the mud causing equipment to break down and slowing severely the physical receipt and issue of materiel. This slow down in materiel movement at the supply depot caused materiel to back up at the port terminal facilities. The rough dirt drainage ditches overflowed after several days of constant rain and many man-hours were expended in removing water from warehouses. This unsatisfactory condition was finally corrected between October 1968 and March 1969, when drainage and paving of the depot area was completed.

(e) Under the climatic extremes (monsoon rains and intense heat) that existed in Da Nang, the importance of vertical construction in providing proper protection of materiel is recognized. However, this vertical construction should be accompanied by horizontal construction to ensure a capability to receive, store, and issue materiel under the worst of conditions. This balance between vertical and horizontal construction is of particular importance since it affects not only the depot operation but port throughput capability as well.

(4) Other Factors Affecting Supply Operations

(a) Packaging

1. In addition to the problems resulting from initial shortages of adequate storage, matters were also complicated at the start by the poor packaging of cargoes. For

example, pull-out plugs on barrels of asphalt gave way under the pressure of the asphalt heated in the tropical sun. Commercial pallets packed with double the normal load broke under the weight. Cement shipped in paper bags burst when soaked with monsoon rains. The problem resulting from poor packaging was magnified by the many times cargo was moved in reaching the ultimate user. With each move the crate or box became less protective of the supplies inside.

2. To correct this situation Commander, Service Force, Pacific COMSERVPAC in November 1965 instituted a program for all-weather packaging, heavy-duty strapping, and palletization of all cargo destined for Da Nang or Chu Lai, and requested Commander, Western Sea Frontier, to place an embargo on any cargo so destined that had not been unitized.

3. With the advent of containerization to Da Nang in August 1967, the level of packaging was often reduced to domestic pack under the erroneous belief that if the materiel reached the depot intact, overpack was completely unnecessary. The reality of subsequent movement to outlying areas and storage in open areas was not considered.

4. Several actions were taken by NSA, Da Nang, to minimize the loss resulting from poor packaging, e. g., an extensive repackaging and repalletizing program was instituted in 1967, selective overpack was obtained by coding of requisitions.

(b) Materials Handling Equipment

1. In the early stages of the buildup, materials handling equipment had a high percentage of downtime. For example, in May 1966 21 percent of NSA, Da Nang, forklifts were deadlined for lack of parts. Most of the materials handling equipment originally sent to Da Nang had been procured for other applications and without repair parts provisioning. The problem was compounded by a lack of standardization, lack of initial support, and inability of Da Nang to determine repair parts required to support these equipments. A heavy dependence was placed on direct purchase by the Naval Supply Center, Oakland, to fill requisitions for repair parts items. Although substantial quantities of repair parts were procured in this manner, backup stocks were still inadequate.

2. In December 1965, the Ships Parts Control Center (SPCC) commenced a comprehensive program of remedial action including: preparation of coordinated allowance lists to support materials handling, transportation and construction engineering equipments at Da Nang; positioning of spare parts at NSC, Oakland; and pushing 1800-hour repair parts support for all equipment newly assigned to SE Asia activities.

3. The Naval Supply Systems Command was requested to provide additional materials handling equipment to SE Asia activities to compensate for a 25 percent downtime factor.

4. In addition to the above, local manufacture of parts and controlled cannibalization were interim actions taken until additional equipment and spare parts could be obtained. By 1968, as a result of the above actions, downtime of materials handling equipment ceased to be a problem.

(5) Self-Service Retail Outlets. In November 1967 a SERVMART (self-service retail outlet) was established at Da Nang. Through the use of this self-service supply outlet, the process of obtaining supplies was simplified and made easier for the using unit. In order to further expand this advantage of a self-service supply outlet, NSA, Da Nang, supply depot established a retail stores branch in September 1968 with additional SERVMARTS at Chu Lai, Phu Bai, and a BOAT MART at Da Nang. Also falling under the aegis of the retail stores branch were the five Public Works "Shop Stores" containing the large range of parts for NSA, Da Nang's, trucks, materials handling equipment, and utilities. These "Shop Stores" were located adjacent to the applicable repair shops. The extensive use made of SERVMART outlets is indicated in Table 25.

TABLE 25

RELATIONSHIP OF SERVMART DEMANDS AND SALES TO TOTAL DEMANDS AND SALES, NSA, DA NANG (Exclusive of Provisions)

April 1969

	Number Demands	Percent	Dollar Sales	Percent
SERVMART	96,156	66	697,000	6.5
Other than SERVMART	48,409	34	10,097,000	93.5
Total	144,565	100	10,794,000	100.0

(6) Actions Taken To Improve Supply Operations

(a) In mid 1967, about one year after the supply depot became operational, a concerted effort was made to improve the quality of the supply operation. Significant management actions taken included:

1. Conversion to preposting system with prepunched, pre-positioned receipt location cards to expedite receiving procedures.

2. Institution of closed loop document control.

3. Establishment of a procurement review board

4. Selective item management system for high-frequency demand high-value items.

5. Mechanization of receipt control outstanding requisition files to facilitate reconciliations and follow-up.

6. Commencement of a quality assurance program for supply procedures.

(b) Although a good start was made in the first year of the quality assurance program, the need for continued emphasis was recognized by management personnel. In June 1968 the supply depot revised its quality assurance program around the POSSE program (Progressive On-Slaught to Stamp-Out Stock Errors). POSSE is a single integrated program for control of inventory improvement actions. This program was the outgrowth of a study group established by the Office of the Chief of Naval Operations in August 1967 to define and identify the causes of the apparent loss of control over inventory and to effect necessary corrective measures within the Navy supply system.

(c) In the POSSE program sampling procedures were developed for determining the quality of performance rate for each of the various functions in receipt, issue, storage, and inventory operations. The effectivenss of this quality assurance program using POSSE procedures was evident in:

1. Increased inventory accuracy - from 60-65 percent in June 1968 to 89-92 percent in June 1969.

2. Decreased warehouse refusal rate - from 16 percent in June 1968 to 2.3 percent in September 1969.

3. Decreased processing times for receipt and issue operations.

(7) Supply Effectiveness. Figure 31 shows the trend in supply demands and effectiveness for NSA, Da Nang, for the years 1966 through 1968.

c. Supply Operations in II, III and IV Corps

(1) Upon the disestablishment of Headquarters, Support Activity, Saigon, with transfer of its functions to the 1st Logistical Command, it was necessary for the Navy to establish a support activity for its recently established extensive Market Time and Game Warden operations as well as the Naval Advisory Group.

(2) The U. S. Naval Support Activity, Saigon, was established in May 1966 under the operational control of Commander, Naval Forces, Vietnam, and the where-with-all for logistic support provided by Commander, Service Force, Pacific Fleet (COMSERVPAC). The responsibilities of this activity included arranging for or providing logistical support for naval forces in the II, III, and IV Corps. A significant portion of the effort was required to provide maintenance and repair support up to the depot level of maintenance to nearly 500 combat craft and over 150 combat support craft. These craft vary in size from the 18-foot Boston Whalers with outboard motors used in harbor defense to the 165-foot motor gunboat. The main thrust of the supply effort was in obtaining and distributing Navy-peculiar repair parts in support of combatant craft. Common supply support was provided by the Army's 1st Logistical Command through three major support commands at Qui Nhon, Cam Ranh Bay, and Saigon.

(3) The establishment of NSA, Saigon, was accompanied by numerous short-falls; the most notable being a lack of warehouse space, insufficient quantity of materials handling equipment, and the need for a complete rebuilding of stock levels. Initially the activity's major responsibility was to support the 120 Game Warden patrol boats (PBRs) in the Mekong Delta and the 84 SWIFTS (Patrol Craft Fast-PCF) and 26 Coast Guard patrol boats (WPBs) on Market Time and Coastal patrol. In 1967 NSA, Saigon, began support for major U. S. Army and Navy operations in the Delta, the Mobile Riverine Force (MRF). Logistic support for this force flowed through existing channels with the Army responsible for common-item support and Army-peculiar items and exercised operational control of the LSTs that made supply runs from the U. S. Army Support Command at Vung Tau to the field.

(4) The problems of supply management were complicated by the fact that only scattered inadequate warehouses were available in Saigon. Initially, boat repair parts were stocked at the Naval Supply Depot, Subic, for delivery to Vietnam by air and surface shipments. Problems arose from the fact that the first SWIFTS and then the PBRs were placed in operation in Vietnam in advance of experience upon which to base the supporting requirements. In many cases the parts required proved to be in short supply, particularly in view of the need to rebuild the main engines of the SWIFTS. The situation with regard to PBRs was even more difficult. The repair parts situation for these boats became critical in April 1967. Quantities had been determined on the basis of overhauls every 2,000 operating hours. The operating conditions in Vietnam were such as to require overhaul every 900 hours. Unforeseen difficulties were encountered in regard to some of the items of equipment in the boats.

(5) Intensive action was required on the part of COMSERVPAC, the Naval Supply Systems Command, and others to obtain adequate parts, shipping them by air directly to Saigon. The NSA, Saigon, exercised centralized control of the parts at its 12 detachments and redistributed them by air to meet the many emergencies. Further improvements were achieved with the construction of semipermanent facilities at Nha Be and the installation of a Maintenance Data Collection System. By August 1967 the storage situation in Saigon had improved to the point where support by Subic was no longer required. This action improved supply responsiveness to operating units by reducing requisition lead time to a minimum and promoted efficiency through the elimination of one echelon of back up support materiel.

(6) Steps were taken to initiate stock funding of the NSA, Saigon. This later had to be abandoned in favor of more simplified funding arrangements appropriate for an advanced base. On 1 August 1967 NSA, Saigon, was directed by the Navy Comptroller to decapitalize all

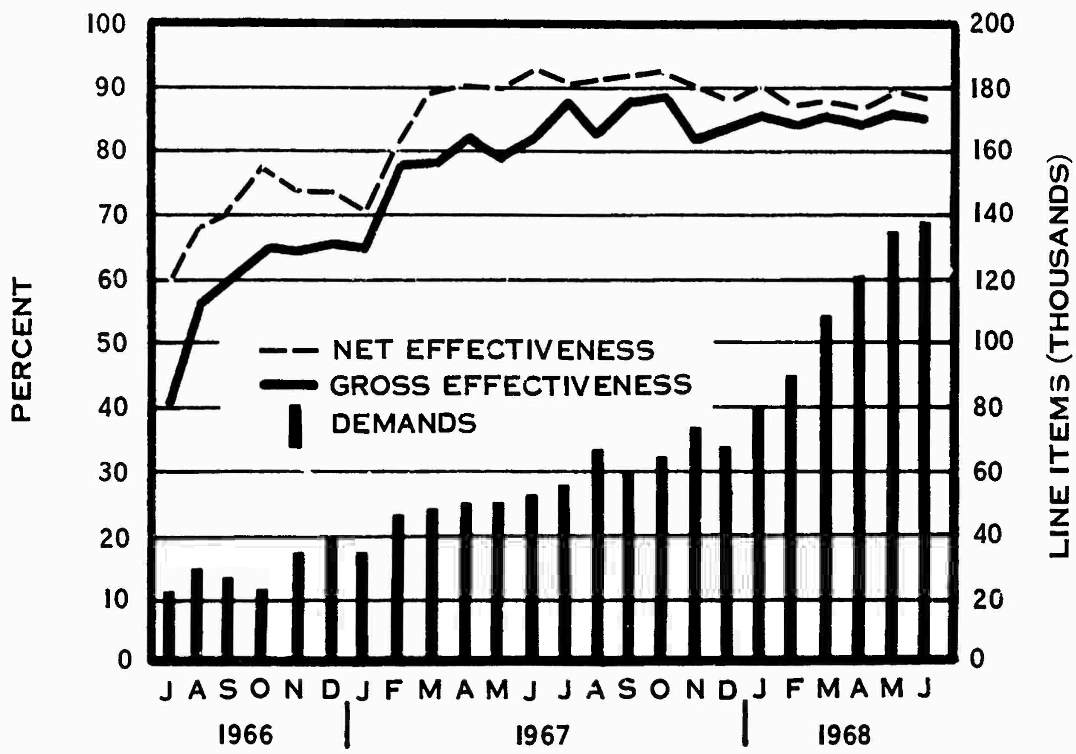

FIGURE 31. SUPPLY EFFECTIVENESS, NSA, DA NANG, 1966-1968

NOTES: Gross Effectiveness - percentage of demand requests for standard stock items totally or partially filled from available-for-issue stock-on-hand (including authorized substitutions) at the activity receiving the demand requests.

Net Effectiveness - percentage of demand requests for standard stock items normally stocked at the activity receiving the requests which are totally or partially filled from available-for-issue stock-on-hand (including authorized substitutions).

Data include all SERVMART sales and subsistance handled by NSA, Da Nang.

Navy stock fund materials on hand. Formal accounting for stocks was eliminated. Inventories were expended to end use.

(7) In July 1968 stock control functions were converted from manual to mechanized procedures using IBM 407 offset equipment (electric accounting machine). And in January 1969 an IBM 1050 Data Link Communication system was installed.

(8) One of the keys to the success of support at scattered bases ashore and afloat was the organic lift by water and by air under the operational control of Commander, NSA, Saigon, supplemented by additional airlift acquired through the Transportation Management Agency when required.

(9) Despite the many supply problems confronting NSA, Saigon, improvements were gradually made in supply effectiveness rates. Supply effectiveness increased from a low of 45 percent in April 1966 to a high of 83 percent by December 1968. (See Figure 32.) The number of line items stocked by NSA, Saigon, increased from about 6,000 in July 1966 to 60,000 in September 1969.

d. Supply Operations in the Seventh Fleet

(1) During the Vietnam conflict ships of the Mobile Logistic Support Force (MILSF) have provided approximately 70 percent of total Seventh Fleet requirements. In addition, materiel not carried as fleet issue in the MLSF was loaded in port as fleet freight for further transfer to combatants at sea.

(2) As the buildup began, with more ships and aircraft to be supported, the requirements for repair parts and general stores support from the Naval Supply Depots (NSD) in WESTPAC increased sharply. The result was depletion of both Western Pacific (WESTPAC) depots and CONUS based stocks. At each of the three WESTPAC NSDs, net supply effectiveness dropped during the first 4 months of FY 66.

(3) The greatest difficulties were experienced at NSD, Subic Bay. With the preponderance of the Seventh Fleet operating in the South China Sea, demands for support increased substantially and the overall workload increased 107 percent. The result was a drop in Subic's net effectiveness to a low of 65 percent in November 1965.

(4) At the time depot stocks were being depleted in WESTPAC, order and shipping times for resupply materiel began to lengthen. Longer order and shipping times resulted both from the buildup of cargo backlogs at WESTPAC loading points and the depletion of CONUS depot stocks.

(5) To overcome these problems afloat and ashore, a series of short as well as longer range actions were taken in late 1965 and early 1966.

(a) Special stocks of fleet program materiel and industrial support materiel were placed at one or more of the WESTPAC depots.

(b) Load lists for specific maintenance programs were developed and materiel positioned at appropriate WESTPAC depots.

(c) As a pre-positioned war reserve augmentation, a complete fleet issue load amounting to 90 days fleet requirements was positioned at Yokosuka (20,000 line items) and Subic (35,000 line items).

(d) Several materiel expediting procedures were instituted to enhance system response to individual ship requirements.

(e) Casualty reports were analyzed to identify items that should be added to ships' allowance lists and fleet issue load lists.

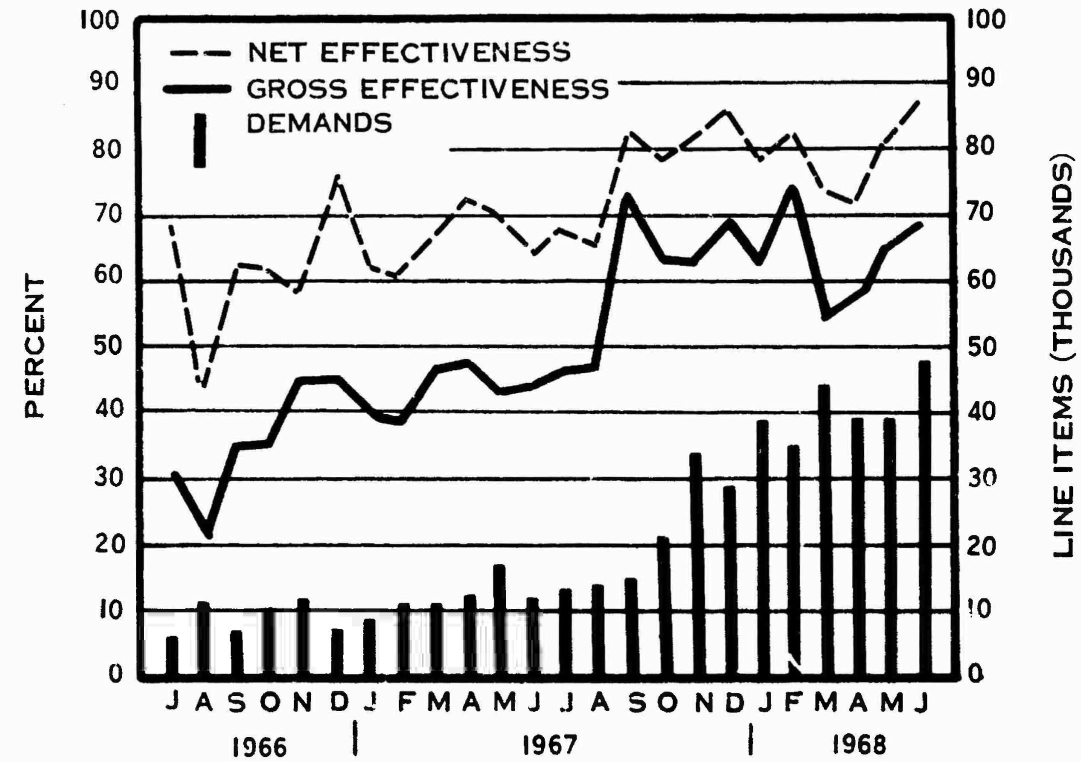

FIGURE 32. SUPPLY EFFECTIVENESS, NSA, SAIGON, 1966-1968

NOTES: Gross Effectiveness - percentage of demand requests for standard stock items totally or partially filled from available-for-issue stock-on-hand (including authorized substitutions) at the activity receiving the demand requests.

Net Effectiveness - percentage of demand requests for standard stock items normally stocked at the activity receiving the request which are totally or partially filled from available-for-issue stock-on-hand (including authorized substitutions)

Data include all SERVMART sales and subsistence handled by DSA, Saigon.

(f) Navy stock funds were obtained for WESTPAC depots based on projected requirements rather than solely on past experience.

(g) To improve inventories aboard ship and provide better data on which to justify materiel budget requests, an improved supply management program called "ACCESS" (Afloat Consumption, Cost and Effectiveness Surveillance System) was developed (implementation occurred in FY 67).

e. Comments, Commander in Chief, Pacific Fleet.

The following comments were provided to the Joint Logistics Review Board at a CINCPACFLT briefing in September 1969.

(1) It is possible to operate in a Vietnam-type war environment with a fairly standard inventory control/fiscal program, and on a pull-, demand-oriented basis.

(2) In a future contingency like Vietnam, the system described in (1) above should be established at the earliest possible time. This suggests advance preparations must be made for:

(a) A computer system and equipment ready to move on short notice

(b) Timely preparation of load lists for equipment and personnel to be supported

(c) Early establishment of demand-based requirements

(d) Early identification and removal of excesses.

(3) New items of equipments should not be deployed until adequate logistic support is established. Significant problems developed when new type or commerical type equipments were deployed without adequate preparation for their support.

(4) Special expediting groups established in CONUS are most helpful in obtaining needed materiel. Utilizing such organization as the Ships Material Office, Pacific (SMOPAC) at the Naval Supply Center, Oakland, has relieved in-country personnel of considerable work and allowed them to concentrate on the war effort at hand.

(5) The assignment of logistic responsibilities, both ashore and afloat, to a single command in the fleet contributed greatly to responsiveness and to the flexibility and efficiency of use of the combined logistic assets in support not only of the fleet but of other forces as well.

f. Summary. Navy supply support in SE Asia has two distinct aspects—first, support of the Seventh Fleet and second, support of ground, coastal, and riverine forces within Vietnam.

(1) Support of the Seventh Fleet has been entirely within the framework of the Navy's normal fleet support doctrine utilizing the mobile logistic force supplemented by overseas bases at Subic Bay, Yokosuka, and Guam. However, it was necessary to build up stocks, particularly at Subic Bay, to support the increased number of ships operating in the South China Sea.

(2) The situation with regard to Navy support of forces operating with Vietnam presented an entirely different aspect than Seventh Fleet support in that much of the support wa required was for forces not previously deployed to the Western Pacific. Procedures used to support existing Navy overseas bases were applied in establishing the Naval Support Activities at Da Nang and Saigon. These two major Navy stock points in Vietnam operate under essentiall the same supply support concepts as the bases at Subic Bay and Yokosuka.

(3) There were some problems and critical supply situations in the early stages of Navy support operations in Vietnam. Solutions were generally found within the normal organizational structure and no major reorganizations were required.

(4) The materiel item lists in the Advanced Base Functional Components' and the Headquarters, Support Activity, Saigon's catalog of common support items served as a basis for establishment of an initial stockage list for the Naval Support Activity, Da Nang, in support of I Corps. During the 3-year period of expansion of forces and activities the number of items grew well above that which could be justified by demands and was substantially reduced in 1969.

(5) As a result of the limitation of in-country storage, heavy dependence for the support of U. S. Navy forces in II, III and IV Corps was placed on Subic during 1965 and 1966. Initial stocks of repair parts proved inadequate. In 1967 with improved storage facilities in Vietnam the backup stocks were moved to NSA, Saigon, and its stockage list was expanded to meet additional requirements created by the establishment of new forces such as the Mobile Riverine Force.

(6) The Supply Functional Components did not provide for automatic data processing equipment. Such equipment was subsequently deployed to both NSA, Da Nang, and NSA, Saigon, to facilitate and improve supply management.

4. MARINE CORPS SUPPLY

a. General

(1) The Marine Corps saw the initial deployments in Vietnam expand into a land campaign of several years duration with commensurate increases in logistic requirements and responsibilities.

(2) These expanded logistic responsibilities were met in part by extension of the basic amphibious concept of task-organized Marine forces landed and initially supported by the Navy in a beachhead area. However, the duration of the deployment made it desirable to have a more formal organization to provide logistic support. Therefore, a new logistic organization was created as the deployment expanded into a protracted land campaign.

b. Plan of Support

(1) COMUSMACV planning assigned initial logistic responsibilities for the Da Nang area to the Marines. Subsequently, the Army was to assume this responsibility. This was in consonance with the temporary nature of the conventional Marine role as a landing force.

(2) Marine readiness for planned and unplanned tasks included a logistics organization tailored to the amphibious mission and a system of pre-positioned stocks and initial automatic resupply for committed units. The 3d Force Service Regiment (FSR) was located on Okinawa at the start of 1965 under operational control of the Commanding General, 3d Marine Division. It was intended as a mobile service support unit that would deploy with and provide sustained support to the 3d Marine Division, the 1st Marine Aircraft Wing, and attached Fleet Marine Force units, employed separately or as a Marine expeditionary force. In this capacity a FSR is designed to back up the service battalion of the division and the Marine Wing Service Group (MWSG). What actually occurred was the incremental deployment of a portion of the 3d FSR to III MAF and the reorganization of the residual portion under a provisional table of organization. The 3d FSR remained on Okinawa and continued to support Marine forces throughout the Western Pacific, as well as to provide critical support to III Marine Amphibious Force (MAF), particulary in the areas of maintenance, supply control, and fiscal matters.

(3) The 1st FSR, Fleet Marine Force, Pacific (FMF PAC), was located in California and became an important source of logistic personnel for replacement and augmentation purposes during the early buildup.

(4) Marine ground units positioned in the Western Pacific prior to deployment to Vietnam were authorized to hold, in addition to normal operating stocks, a 60-day stock of protected materiel, consisting of mount-out (MO) supply which accompanied units into combat, and mount-out augmentation (MOA) in the hands of Marine service support units. In addition, three 30-day automatic resupply blocks were held by the Marine Corps supply system, which, upon release by the Commandant of the Marine Corps, would be sequentially "pushed" to the war zone over a 30-day period. In actual fact, circumstances in Vietnam did not require release of these follow-up supplies. However, they were made available on a pull basis to satisfy requirements for units in the Western Pacific and to fill the pipeline.

c. Factors Affecting Supply Operations During the Initial Buildup

(1) On 8 March 1965 the 9th Marine Expeditionary Brigade (MEB) commenced landing at Da Nang. At the time of this landing there were already 700 Marines of Helicopter Squadron 365 and 405 Marines in a light antiaircraft missile battalion in the Da Nang area. On 10 April a second landing force of Marines was ashore and began establishment of a combat base at Phu Bai. On 6 May Marines landed at Chu Lai which was to become the Marines' southernmost combat base in ICTZ. By December 1965 the III MAF numbered about 44,000 men; at the end of 1966 over 70,000. A peak of 87,700 men was reached in June 1968 and then leveled off at 87,700 late in 1968.

(2) The logistics aspects of the 9th MEB landing were normal to an amphibious operation in an undeveloped area. A brigade logistic support group (BLSG) of about 650 personnel landed at Da Nang as part of the 9th MEB. This BLSG was a task organization composed of elements of the 3rd Service Battalion. It included the Mobile Data Processing Platoon personnel, and the supplies and equipment of the reconstituted 3d Service Battalion's stock account. The ready-for-issue portion of the 3d Service Battalion stock account had been discontinued during 1964 on Okinawa and consolidated with the 3d FSR stock account in an effort to maximize use of available logistic talents; an in-country stock account in Vietnam had to be established and a history of demand data developed under new conditions.

(3) The only covered storage available to the BLSG was the canvas tarpaulins which it brought in for covering mount-out and operating stocks packaged in standard Marine Corps field warehouse containers. Rations and ammunition, as well as other stocks, had to be stored in open dumps without any covering. It was not until October that the first warehouse space, 32 small-sized dilapidated RVN Army warehouses, became available to the logistic support group. Supplies were arranged in location sequence. But as subsequent Battalion and Regimental landing teams arrived in-country and turned in the mount-out blocks with which they deployed, control was lost due to the lack of real estate space, shortage of logistics personnel, and the press of operations. Also, much valuable issue history was lost during the first few months.

(4) The 9th MEB reported in April 1965 that BLSG strength figures had climbed to 934 but that 250 more personnel were needed to perform the BLSG mission. The Fleet Stock Account at Da Nang commenced operations with 15,000 balance cards. The majority of the Marines maintaining these records were receiving on-the-job training in mechanized procedures. An IBM 1401 computer and its peripheral equipment were housed in vans, but, because of insufficient space, the balance, locator and substitute card decks were housed outside. The high humidity caused cards to swell so that they were not machineable. A crash program was then started to erect an insulated, air-conditioned quonset hut for the stock account. This is a typical illustration of the climatic problems encountered in supply operations.

(5) Class I supplies presented a problem at the beginning. One battalion landed with 15 days of rations which had to sustain the two battalions landed. This necessitated a ration airlift from Saigon to Da Nang until arrival of the seatail. There was some confusion in this logistical area as to whether the Marines were to be completely self-sufficient from Marine Corps

and Seventh Fleet mount-out stocks or whether the Military Assistance Command, Vietnam (MACV) would assume part of the burden. For days the air was filled with messages regarding rations. At the end of March, the Commander U.S. Military Assistance Command, Vietnam (COMUSMACV) declared that his command could take on this task.

(6) There were problems with other supply factors. Much of the construction of bunkers had to be halted because of shortages of fortification material and sandbags. The breakdown of electrical generators was a major headache. There was a local commerical power plant in the Da Nang area but it was not located on a protected Government reservation and was subject to sabotage. The constant requirement for ground electrical power produced a high rate of generator malfunctions and the generator problem was to plague the Marines for months.

(7) The resupply of MEB organic equipment was the responsibility of the 3d Marine Division. But the response to MEB requisitions was exceedingly slow due to several causes. There was a shortage at the 3d Force Service Regiment on Okinawa because the use of mount-out supplies had not yet been authorized; there was a lack of shipping compounded by an inability to unload rapidly; and finally there was a breakdown of the IBM 1401 computer maintained by the data processing unit, and 3 weeks were lost before the machine could be repaired.

(8) Heavy equipment maintenance became a critical problem as the fine sand worked its way into everything. Bearings, brake linings, and clutches were quickly ruined and at times during May 1965 more than 50 percent of the available tractors and dump trucks were deadlined. Because the only available usage data had been compiled from peacetime garrison experience, a serious shortage of spare parts arose, and it became necessary to pool all of the earth-moving equipment on the beach for use on airfield construction.

(9) There were some problems connected with mount-out stocks. The following comments on this subject by a Marine officer, assigned to 3d FSR as Logistic Support Officer and later Executive Officer from March 1965 to January 1966, are considered pertinent: "The present concept of the Marine Corps to have such stocks--and have them close by when needed in a hurry--rather than back in CONUS in some Defense Supply Activity warehouse--is sound--very sound. It saved our skins in RVN--and it made the Marines an effective combat force from D-Day on. However, we must improve this concept. Adequate attention had not been given to maintaining these supplies and equipment in a "ready" status. There were too many instances in RVN when Unit Commanders went in to their M. O. stocks and found (1) parts for obsolete equipment (the "old" item that had long since been replaced by a new end item), (2) the "wrong" item i. e., the boxes weren't properly marked to show the contents, (3) a rusted "hulk" of a generator, starter, etc., that had not been opened for several years and checked for serviceability. There are still mountains of gear remaining in RVN when units found they had the wrong items in their mount-out gear and turned it in to the supporting supply units. The supporting supply units could find no use for it either. Point: Our doctrine is sound. We need to keep this valuable tool sharp."

(10) The inadequately staffed, provisionally organized and increasingly semifixed logistic installations in the enclaves of ICTZ faced varied problems, many of which were inherent in the early stages of a large buildup. The service support units were without preservation, packaging, and packing facilities throughout most of 1965. Attempts to use transceiver networks to connect the centralized stock account at Da Nang with the 3d FSR on Okinawa were frustrated by erratic functioning of the complex switching networks so that dependence on an air courier system was necessary. Attempts to build a transceiver network connecting logistic installations with III MAF were similarly trouble-plagued. Meanwhile the IBM 1401 computer at Da Nang and Marine data processing equipment were operated around the clock and by early 1966 were running out of capacity and endurance.

(11) The personnel problem facing the Marines in supply operations in Vietnam during the initial buildup is stated well by Major General Youngdale, Commanding General, 1st Marine Division, from June to November 1968 and Deputy Commander, III MAF, from December 1968 to July 1969.

"I think logistics organization to manage our logistics system in peacetime has to be tied to wartime requirements. We were too thin in certain MOS's when we first came into country. We were particularly short of qualified warehousemen to receive, store and issue gear and supplies. As a result, we lost gear through poor warehouse techniques initially. If we had trained more Marines in warehouse techniques rather than civilianize in our CONUS depots we would have had Marines trained to do the job when we needed them overseas."

(12) Although the organizational structure of the Marine service support units was intended to permit their task organizing among landing teams for amphibious operations, the degree of fragmentation experienced during the deployments to Vietnam had not been envisioned, nor had the burden of simultaneously supporting division and wing units in Okinawa and Japan as well as in a remote objective area. Nevertheless, the circumstances were gradually and successfully adapted to.

(13) Notwithstanding these problems, it must be emphasized that the troops were equipped, armed, and fed; supplies were unloaded and stockpiled; and the MEB was functioning. In the initial stages, the basic mission of the Marines was entirely a defensive one--to safeguard the vital Da Nang air base from enemy takeover or attack.

d. Evolution of the Force Logistic Command

(1) As indicated previously the 9th MEB logistics activities had been established under a centrally managed group on 12 March 1965 with activation of the Brigade Logistic Support Group to provide supply, maintenance, motor transport, and shore party support. On 6 May 1965 when III MAF was activated, the BLSG was redesignated as the Force Logistic Support Group (FLSG) of III MAF. As Marine forces were introduced into the Chu Lai and Hue/Phu Bai areas, separate force logistic support units (FLSU) were established to support these forces. As the various tactical units landed and became established ashore, they passed operational control of their attached logistic support organizations to CG, III MAF, who maintained direct control of these units until 29 June 1965 when the FLSG at Da Nang was given operational and administrative control of the FLSUs at Chu Lai and Phu Bai. At this time, the FLSU at Chu Lai was redesignated a FLSG. From that point on as each new logistic support unit was established ashore, operational control passed to the FLSG, Da Nang.

(2) The incremental buildup of Marine tactical units led to a correspondingly incremental deployment of logistic support units and personnel. As the incremental logistic elements arrived during 1965 and early 1966, personnel, supply, and equipment assets were redistributed among the three base complexes at Da Nang, Chu Lai, and Hue/Phu Bai to maintain a balance. The logistic forces were not standard table of organization forces and included elements of the 3d FSR, the 1st FSR, and 3d Service Battalion, the 1st Service Battalion, the Marine Brigade from Hawaii, and augmentation from CONUS. As a result, organizations were staffed by personnel who had not previously operated as a unit. They also had to develop logistic usage data for Vietnam operations, hampered in part because personnel shortages had prevented the keeping of supply records during the early stages of operations ashore at Chu Lai and Phu Bai.

(3) The Force Logistic Support Group provided the Marine Corps logistical support throughout 1965 and until 15 March 1966 when the Force Logistic Command (FLC) officially was established, one year after the Marines landed at Da Nang. Its evolution was a natural one. When the Marines landed at Da Nang in March 1965 their logistic system was tailored to fit the initial amphibious requirement; streamlined and, by design, suited to amphibious warfare. Gradually, as III MAF's role in Vietnam was expanded, adaptations of this logistic organization paced the changes to keep it responsive to the particular situation and the needs of the moment.

(4) Evolution of the basic structure was not completed until February 1967 when the "flag" of the 1st Force Service Regiment was received from California where it had been based. At this point the strength of the FLC was 5,500 personnel. In essence, the service battalions of the two Marine divisions became the logistic support groups and the organization of the 1st FSR

provided the framework for the headquarters and the heavy logistic activities of the FLC. By adapting existing tables of organization to the particular requirement in ICTZ, the Marine Corps had sought to retain a flexibility for later reconstituting all, or a portion of, the original organizations and preserve the essential amphibious character of Marine forces deployed.

(5) The FLC was conceptually developed and operated with a distinct delineation between its tasks and missions and those performed by the NSA, Da Nang, which was discussed previously. Coordination was maintained at all levels of both commands to avoid duplication of functions. The primary functional principle was to maintain the FLC as the internal support agency for III MAF, thus providing flexibility in the logistic support of amphibious or extended land operations. Naval Support Activity, Da Nang activities, on the other hand, were concerned with the operation of ports and the support of semipermanent, base-type functions and mutual common stock support-type items.

(6) The organization of FLC, its relationship to other commands, and the physical location of its units as of 30 September 1967 are reflected in Figure 33.

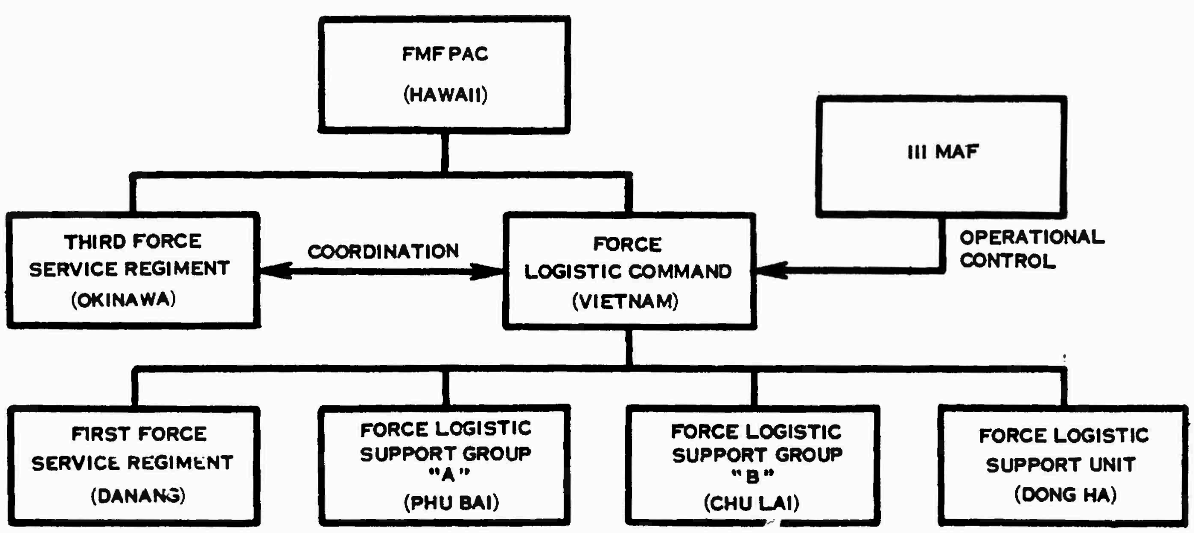

FIGURE 33. FMF PAC WESTPAC BASIC LOGISTIC ORGANIZATION

FIGURE 33. FLEET MARINE FORCE PACIFIC WESTPAC BASIC LOGISTIC ORGANIZATION

(7) To improve logistic support for the combat elements of III MAF that had been shifted north, FLSG Bravo was relocated from Chu Lai to Dong Ha on 30 December 1967. Logistic support of the Marine elements that remained in the Chu Lai area became the responsibility of a provisional supply company. Further changes occurred toward the end of 1968 with the establishment of logistic support units at An Hoa, Hill 55, and Chu Lai. These changes in logistic organization and shifts in the location of facilities to support the tactical situation demonstrated the flexibility that became the hallmark of III MAF logistic support.

e. Aviation Support

(1) Although the overall structure of ICTZ had to be tailored to a provisional organization not envisioned prior to 1965, the aviation elements within III MAF were supported through normal, well-established relationships with the naval aviation supply and maintenance system controlled by the Chief of Naval Operations. The FLC provided the additional logistic support that would normally be available to deployed wing elements through a force service regiment.

(2) The Marine Air Group (MAG) was the focal point for supply operations in the Marine Aircraft Wing. By 1966 all MAGs were authorized to stock a 90 day supply of repair parts for assigned aircraft and associated support equipment. An average range of 20,000 line items was stocked by each MAG. Resupply of this material was obtained by the MAGs directly from Navy sources. The Naval Supply Depot in Yokosuka, Japan continued to support the MAGs as they were deployed. To shorten the extended pipeline, the source was shifted to the Naval Supply Depot at Subic Bay, Philippines on 24 January 1966. At that time about 75 percent of supply materiel were on hand in Subic. Yokosuka was also used temporarily to provide support until the positioning of additional materiel was accomplished.

f. Supply Support Channels. Supplies peculiar to Marine Corps requirements were provided to the Marines in Vietnam by a worldwide Marine Corps logistic network which stretched from the Marine Corps Supply Depots at Albany, Georgia, and Bastow, California, across the Pacific to Hawaii, to Okinawa, and finally to the ICTZ. While the majority of supplies flowed directly into the combat zone, others flowed to the Marines' forward supply base at Okinawa thus providing a "surge tank." Common items of supply were obtained through the NSA, Da Nang.

g. Actions Taken to Improve Supply Effectiveness. While the III MAF logistic organization was characterized by adaptation to the specific requirement in ICTZ, established Marine supply procedures were unchanged, except for management innovations designed to accelerate delivery of critical materiel.

(1) Red Ball. The first of these innovations was the so-called Red Ball System (not to be confused with the Army Red Ball system) established in September 1965. Although the FMF PAC Red Ball operated differently from the Army system, it served essentially the same ends. USMC Red Ball was restricted to repair parts for deadlined equipment which the unit commander designated as critical to the accomplishment of his mission. An item could not be nominated for Red Ball until tracer action on a priority 02 requisition had been unresponsive for 15 days or disclosed that the item had not yet been issued. Once in the Red Ball channel, the item attained a status of continuous command interest, and it remained on Red Ball until supply requirements had been satisfied. All interested headquarters received information copies of messages that related to supply action and transportation routing of Red Ball items. Red Ball cargo was conspicuously marked and was shipped by air under transportation priority 1. The system was only used to procure Marine Corps furnished parts. Requisitions for aircraft repair parts were expedited in accordance with the procedures established by the Navy supply system. By the end of September 1967, 5,747 requisitions had been designated Red Ball and action had been completed on 99 percent of them. Designed to alleviate materiel shortages, the system functioned effectively and, as illustrated in Figure 34, supplies were moving into ICTZ with such regularity after June 1967 that a minimum of Red Ball actions were pending during the ensuing months. The value of Red Ball procedures lay in the quick response they produced for critical items needed at a time when the supply system was highly strained. However, the system aborted regular procedures, was manual, added to administrative burdens and in some cases resulted in duplicate shipments. At the end of September 1968, the Red Ball program was superseded by the Marine Corps Automated Readiness Evaluation System (MARES).

(2) CRITIPAC. CRITIPAC, which resembled in some respects the Army Push system, was a resupply system that provided selected item support without requisitioning. This system was initiated by the CG, FMF, PAC, in November 1965 to augment the normal supply procedures. This system provided battalion-sized units with a direct single box shipment from the Marine Corps Supply Center Barstow, California (MCSCB). Each shipment (box) was limited to a maximum of 50 line items and 400 pounds. The units recommended to the CG, FMF, PAC,

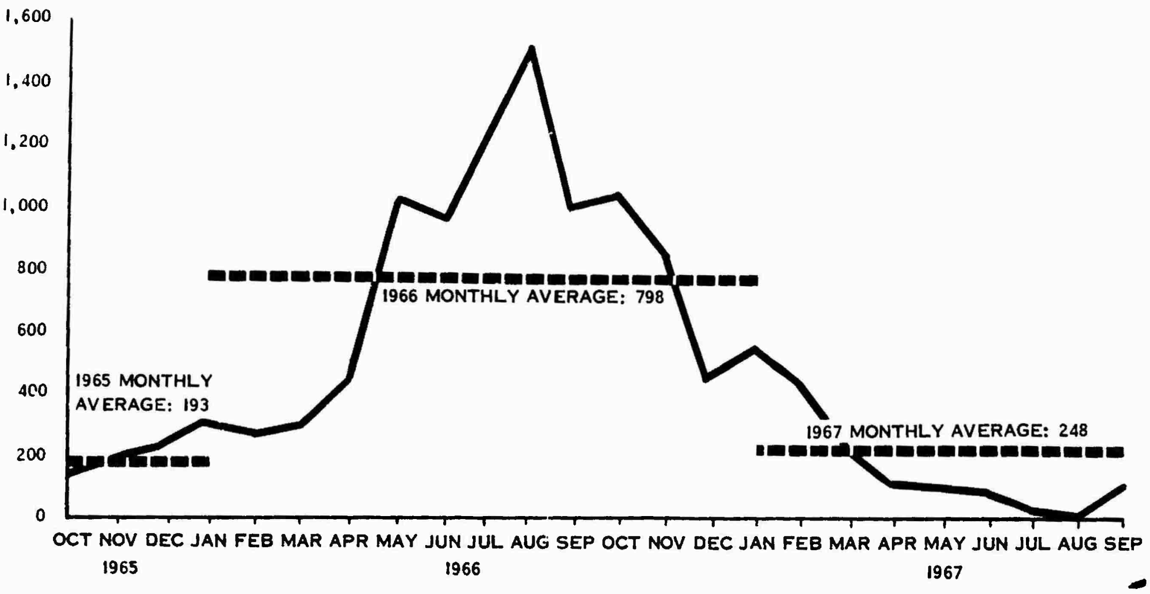

FIGURE 34. MARINE CORPS RED BALL ITEMS REMAINING AT END OF MONTH, 1965-1968

the items to be included. Headquarters, FMF, PAC, then standardized the list for all like units and provided it to the MCSCB. The MCSCB issued the items on a fill or kill basis and packed and shipped the materiel directly to the overseas unit. The system was sometimes used for special purpose shipments such as a one time CRITIPAC of fork lift repair parts. This was a unique system in many ways. It served in particular the small units, and the fact that it lacked the scope of Push proved one of its virtues. In the first month after it was initiated, the CRITIPAC system resulted in 51 combat essential items being removed from deadline. CRITIPAC provided a useful supplement to normal requisitioning procedures, giving an additional safety margin for high-usage but not necessarily high-priority items.

(3) Automatic Data Processing Capability. At the time of Marine deployments to Vietnam, mobile data processing platoons with IBM 1401 equipment were included in the Brigade Logistic Support Group. Shortly after arrival the capability of the IBM 1401 computer was upgraded and the Disk-Pac program, which had been in use at the 3d Force Service Regiment Okinawa, was adopted to improve the processing of supply transactions and to increase the visibility of in-country assets. This program was an interim step to the implementation of the Marine Corps Unified Materiel Management System (MUMMS) and Military Standard Requisitioning and Issue Procedure (MILSTRIP) within the Marine Corps. When this occurred, an IBM-360 computer was installed at Da Nang during March 1967, replacing the smaller IBM 1401, to support these new systems. The programs for this computer were written exclusively for the III MAF Force Logistic Command and accomplished the stock control functions for the Force Logistic Command Stock accounts. With the installation in early 1967 of the IBM-360 at both Da Nang and the 3d Force Service Regiment on Okinawa, the capability existed for the time for fully automated procedures.

h. Supply Effectiveness

(1) As pointed out previously, Marine supply sources were strained during the early buildup. In April 1966, for example, the fill rate was 25 percent at Da Nang and 37 percent

at Chu Lai.[9] Notwithstanding these low fill rates, a Marine team headed by a Marine general officer concluded, after investigation during this period, that using units of all types had no major complaints against the supply system. The units were of the opinion that all actual necessities were being furnished.

(2) The demand for repair parts and other expendable type items (Class II and IX supplies) was high from the beginning. This was attributable not only to the wide variety of supply items, which increased from 25,000 in 1965 to 86,000 by September 1967, but to the high usage rate. The tempo of operations and the deleterious effects of the weather contributed to this high usage rate. Average monthly requisitions for these supplies increased from 2,500 in April 1965 to 70,959 by October 1967

(3) In 1966 III MAF reported that in the maintenance of ground equipment, the problems concerned supply of repair parts more than maintenance itself. The Red Ball expedited supply system was used to procure many of these items. At the end of January 1966 III MAF reported that "all repair parts have been requisitioned and outstanding obligations are held by the supply source." In early March 1966, III MAF indicated that "a shortage of spare parts causes some items to remain unrepaired for an excessive period of time," but that "aggressive supply actions at all echelons have significantly reduced this number." Despite this bromide, it was evident that the availability of repair parts continued to pace the command's maintenance program.

(4) The monthly fill rate attained by FLC and 3d FSR during 1968 is portrayed in Figure 35.

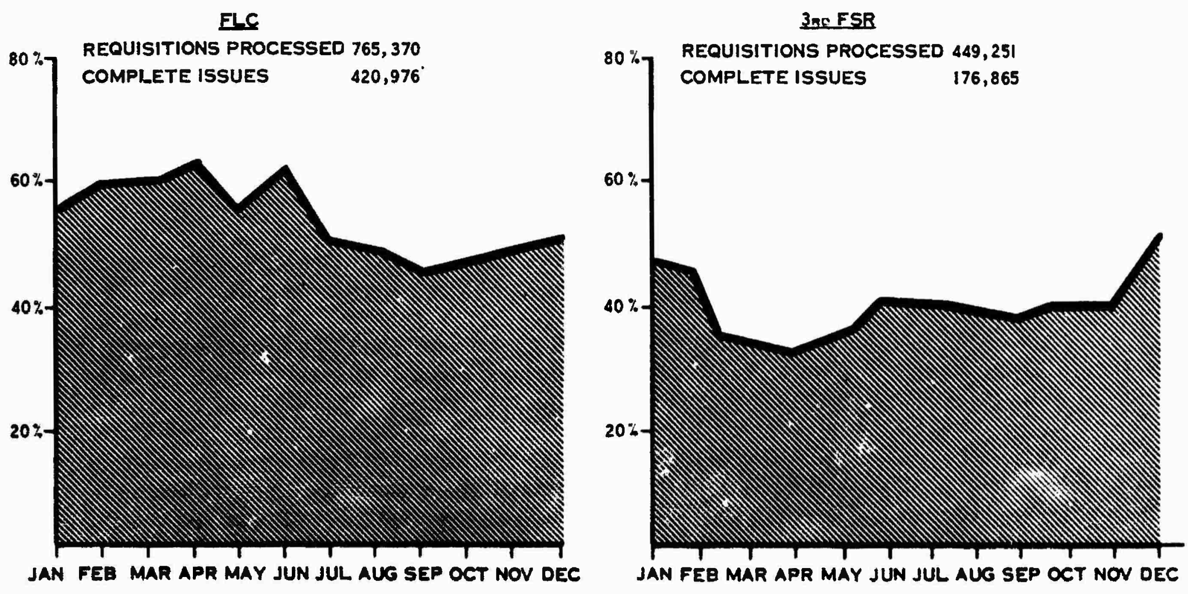

FIGURE 35. MARINE CORPS WESTPAC REQUISITION FILL RATE, 1968

NOTE: Fill Rate—percentage of total demands completely satisfied from available-for-issue stock-on-hand (including authorized substitutions) at the activity receiving the demand. The fill rate shown pertains to demands for Class II, IV, VII, and IX items. It does not include self service or subsistence data. Fill rate data are not comparable to Net/Gross effectiveness or supply effectiveness data.

[9] Fill Rate—percentage of total demands completely satisfied from abailable-for-issue stock-on-hand (including authorized substituions) at the activity receiving the demand.

(5) The following comment by Major General Youngdale, CG, 1st Marine Division, from June to November 1968, is considered typical of the majority of the Marine commanders in Vietnam: "Generally I would say that after the initial buildup in Vietnam, the supply support has been outstanding. We really suffered the first year because we couldn't get our usage factors and tapes modified soon enough to react to the new requirements. Once the factors were realigned and the troop strength increased, things have gone very smoothly. When you consider my deadline rate in artillery tubes last year was consistently less than 5 percent, you know the supply system was functioning."

i. Comments, Commanding General Force Logistic Command. The following comments were included in a presentation to the Joint Logistics Review Board by the Force Logistic Command, Fleet Marine Force, Pacific, on 15 September 1969.

(1) Provisioning processes need to be reviewed to ensure that new equipment is supportable when placed in service since combat readiness is of prime importance.

(2) Accurate and timely budget estimates must be submitted to provide for the cost of a full and realistic provisioning layette.

(3) An adequate amount of secondary reparable assets should be provided in the provisioning package and particular attention paid to combat usage rates.

(4) The initial provisioning of repair parts in sufficient range and depth is essential and should not be sacrificed to gain a few more end items in the inventory.

(5) Assets required for use in the initial stages of an amphibious operation, i.e., war reserve stocks must be on hand and ready for use.

(6) Adequate attention must be given to maintaining the supplies and equipment which comprise mount out/mount out augmentation stocks in a "ready" and up-to-date status.

(7) A standard family of generators must be introduced into the contingency area as soon as possible. These generators must be as simple as possible in design and operator procedures, consistent with precise power requirements.

(8) The development of the Mobile/Deployable Data Processing Activity should be continued. Even the limited capability initially available was of inestimable value.

(9) The development of deployable shelters for automatic data processing equipment should be pursued. Humidity, heat, cooling, and dust control of better quality must be engineered into the ADP facilities to be used in contingency areas.

(10) There is a need to provide for a large refrigeration capacity with a high degree of dependability. Portable refrigerated vans are required which are capable of withstanding difficult weather and terrain. They must be capable of being assembled and dismantled quickly and require a minimal use of power.

(11) Logistic functions cannot be reverted to cadre or inactive status during periods of nonconflict and be expected to function immediately at desired performance levels.

(12) The major importance and increasing complexity and sophistication of logistics must be recognized and sufficient, capable, trained people must be applied to appropriate functions to support properly the combat arm.

(13) The requirement to interface with sophisticated CONUS management systems requires improved procedures and increased information processing capabilities in the field.

(14) The degree of dependence of the Marine Corps on a common supply system must be determined in relation to the Marine Corps requirements to maintain its capability to provide force-in-readiness.

j. Summary. The problems of the Marine Corps supply support system in Vietnam were, to a large degree, developed during the initial buildup. Even though there were many difficulties, supply of III MAF Forces was a logistic feat characterized by magnitude, complexity, and successful accomplishment. During more than four years of war, the tenor of remarks by unit commanders at all levels has continued to address the abundance of supplies and there has been no evidence of the supply system failing the operational commanders of III MAF. Supply problems, many of them severe at the time, created strain and imposed temporary austerity, but did not prevent mission accomplishment.

5. AIR FORCE SUPPLY OPERATIONS

a. General

(1) As of January 1965 the U.S. Air Force (USAF) had the equivalent of eight tactical squadrons in the Republic of Vietnam and two in Thailand. These units were operating from bases that were owned and operated by the respective host country. They had marginal facilities and very little capability to accept and support additional forces.

(2) The 10,000 USAF personnel and 191 aircraft in SE Asia in January 1965 grew to 95,000 personnel and 1,800 aircraft by 1969. The expanding force level made it necessary for the USAF to embark on an extensive program of upgrading the existing bases and plan for the construction of at least six new bases.

(3) The conflict in SE Asia required the employment of tactical air forces under conditions of sustained, conventional warfare. The logistics response required to maintain these forces at optimum tactical readiness and efficiency had to be positive and rapid.

(4) Prior to the buildup in SE Asia, all USAF units were supported by and through Clark Air Base (AB), Philippine Islands. Some materiel was prestocked in Thailand, but very limited stocks had been positioned in South Vietnam.

b. The Forward Operating-Main Operating Base Concept

(1) At the start of 1965 conventional (propeller driven) aircraft units were permanently assigned in RVN. They possessed their own maintenance capability and received their supply support through the one base supply in-country located at Tan Son Nhut, Saigon. Heavy repair beyond unit capability was performed by Clark AB. All jet aircraft in SE Asia were on a temporary duty status from PACOM or CONUS resources, and were supported through the combined efforts of the parent wing and Clark AB.

(2) This method of providing support was known as the forward operating base (FOB) - main operating base (MOB) concept. Under this concept the FOBs concentrated on minor maintenance and the conduct of flying/combat operations while the heavy maintenance requirements were being fulfilled by the MOB. It was never intended that this method of providing support could or would continue indefinitely.

(3) The USAF designated six bases in the Far East as MOBs. They were located at Clark AB, P.I.; Kadena and Naha, Okinawa; and Tachikawa, Yokota, and Misawa, Japan. These permanent bases were in operation with established maintenance and supply systems and had the capability, with little augmentation, to support the deploying forces. As of 1 January 1965 there were three FOBs in SE Asia with maintenance detachments assigned. They were located at Bien Hoa, Da Nang, and Tan Son Nhut, Vietnam. As additional tactical units were deployed new FOBs were established.

(4) All tactical units deploying to SE Asia were provided with war readiness spare kits (WRSK). These kits were air transportable and consisted of a 30 day supply of spare and repair parts at wartime rates for the particular weapons system on a remove and replace concept. Units operated out of these kits requisitioning replacement parts to maintain the desired kit levels.

c. Establishment of MOBs on Mainland SE Asia

(1) As the conflict escalated in late 1965, the USAF deployment policy was changed from temporary duty (TDY) to permanent change of station (PCS) for tactical units. With the buildup of units and materiel it became increasingly apparent that it was no longer practical to rely on the six MOBs located so far from FOBs on the SE Asia mainland. The limited supply and maintenance capability of the forward bases resulted in unacceptable not operationally ready supply (NORS) rates. Shuttling aircraft between MOBs and FOBs was excessively time consuming and wasteful of operational flying hours. Therefore, the logistic planners concluded that the system support should be closer to the actual operational bases.

(2) The change to PCS deployments was to include the deployment of complete Tactical Fighter Wings with their combat and support units. This provided the framework for the establishment of MOBs on the mainland of SE Asia. The previous TDY deployments had been squadron size.

(3) Concurrent with the decision to deploy PCS Tactical Fighter Wings, MOBs were established late in 1965 and during 1966 on the mainland of SE Asia at Bien Hoa, Phan Rang, Cam Ranh Bay, and Tan Son Nhut in Vietnam and at Takhli, Ubon, Korat, and Udorn in Thailand.

d. Expansion of Base Supply Accounts. Related to the switch over from the FOB/MOB concept to MOBs on the mainland was the problem of providing adequate supply support. At the outset of 1965, Tan Son Nhut at Saigon had the only major supply account in SE Asia with about 25,000 items in stock. Concurrent with establishment of MOBs, action was taken to establish 16 new base supply accounts all using manual accounting systems. Each Base Supply requisitioned directly from one or more of the nine air materiel area (AMA) depots in CONUS. (Since then, the USAF has closed some AMAs thereby reducing the number to five.) Requisitioned items were shipped directly to the requesting base supply from the depots rather than through Clark AB.

e. The Buildup Period

(1) By the middle of 1965, the SE Asia base supply and equipment management accounts had grown to the point that manual accounting methods could not accomplish the workload. In order to speed up the processing of supply transactions, accounts were mechanized using the punched card accounting machine (PCAM). Although limited in capability the PCAMA system was initially able to provide USAF aircraft excellent supply support. However, by December 1965 the support picture had deteriorated to the point that very few aircraft in-theater were operating at or below the USAF NORS standard of 5 percent. Supply systems at this time were primarily ordering, receiving, and issuing activities. Stock control was practically nonexistent and very little effort was available or used to control or reduce the size of supply accounts. As specific types of aircraft were relocated in-theater, no system was available to identify and extract the items applicable to that aircraft from the losing account and transfer them to the gaining base account. The expedient solution was to load the initial supply support list of the gaining base thereby distorting theater consumption data and generating excesses.

(2) In the early days of the buildup, as previously stated, PACAF combat squadrons were provided WRSK's on the basis of 30 days support on a remove and replace concept pending the input of base supply spares under initial spares support listing (ISSL). This ISSL provided the initial stock of maintenance spares and repair parts for a particular aircraft type. Range and depth of the ISSL developed by the system manager was based on provisioning

data for new aircraft and Air Force-wide consumption data for existing in-service aircraft. With the ISSL the USAF moved from a remove and replace concept to a remove and repair concept which is the normal base repair cycle concept.

(3) To illustrate the size of an ISSL, for an F-4D squadron the ISSL consists of 5,132 line items valued at $1,256,817 and for an F-4E squadron, 5,198 line items valued at $1,854,296.

(4) When the first three squadrons of F-100's moved into Da Nang, the housekeeping items were furnished as a Grey Eagle Set. Today it is known as a Harvest Eagle Set. These sets generally contain sufficient housekeeping equipment and supplies to accommodate 1,100 people moving into a bare base. As of 1 January 1965, 16 of these sets were in being.

(5) In order to determine what to push into SE Asia, the Logistics Activation Task Force (LATAF) was organized at the Air Force Logistic Command (AFLC) with the assigned top-priority mission of ensuring orderly and timely logistics actions to the expanding bases. LATAF was composed of experienced logistics specialists drawn from the functional staff agencies. They monitored and assisted in the equipping of newly constructed bases in order that proper facilities were prepared in advance of the arrival of assigned tactical units. In this way the time lag between deployment of a combat unit and its operational readiness within the theater was held to the minimum or eliminated altogether. Also the combat unit was assured that its weapons systems would have equipment needed to stay at peak efficiency.

(6) LATAF, in conjunction with personnel from PACAF, established a program called Bitter Wine which was initiated in late 1965. The purpose of this program was to expedite the transition from the FOB/MOB concept to MOBs located in the SE Asia mainland. The project was designed to program and automatically furnish equipment, interim facility structures, aircraft spares, and general supplies concurrent or ahead of the arrival of combat units in SE Asia. Some units were to be located at bare bases. A variety of functional packages were developed that would provide for the organizational needs of a 4,000 man base supporting combat wing. These packages covered the entire spectrum of systems support; i.e., field maintenance, armament, electronics, communications, and munitions maintenance shops. By April 1967 when project Bitter Wine was terminated, 23 USAF bases had been developed to full combat capability; 1,525 functional packages valued at $82.5 million had been procured and placed in operation in SE Asia; 339,000 line items consisting of 29 million units and weighing 124 million pounds had been moved to SE Asia.

f. <u>Storage Facilities</u>

(1) As stated in a PACAF briefing to the Joint Logistics Review Board on 9 September 1969, the supply storage problem was probably one of the most serious supply problems faced by the USAF in SE Asia. Receiving and storage difficulties resulted because of the large and steady volume of equipment and supplies to be processed and because warehouse space was inadequate or unavailable. Because of inadequate warehouse space, backup stock was stored outdoors or in temporary, inflatable shelters. Cartons deteriorated due to the weather. Pilferage, damage, and obliteration of identifying markings resulted. Accounting for receipts fell behind because the systems used in the early stages of the buildup were essentially manual and too slow. Because the receipt of much of the equipment and supplies was not recorded, the obliteration of identifying markings made the identification of materiel in outside holding areas practically impossible.

(2) At the beginning of the buildup, the USAF was confronted with a number of peacetime constraints on buildings using the standard military construction program laws and regulations as to amounts that can be spent and how buildings are to be constructed. In late 1966, out of desperation, the USAF procured through supply channels 288 prefabricated buildings for use as supply and maintenance facilities. If this action had not been taken, many millions of dollars of supplies would have been lost or ruined because of the lack of facilities. As it was, greater losses than necessary occurred because of the late construction progress attendant to

following military construction program rules before the prefabricated buildings arrived. USAF attempted to improvise by using inflatable shelters which proved unsatisfactory except for very limited periods of time.

(3) Subsequent to the shipment of the prefabricated buildings, a decision was made at higher levels that future deployments of these types of buildings must also come under normal military construction program rules. In the PACAF briefing to the JLRB it was proposed: "One solution to this problem is to have air transportable structures, which can be erected and dismantled in a minimum of time using very basic skills. Such a capability is being developed. However, its ultimate destiny will undoubtedly be governed by the prevailing fiscal climate."

g. The Standard Base Supply Computer

(1) The USAF was quick to recognize that action had to be taken to bring supply operations in SE Asia under control. In late 1965 the decision was made to put the standard supply system of the Air Force in operation in Vietnam and to equip all base supply activities with the UNIVAC 1050-II computer. The first of these computers was placed in operation at Cam Ranh Bay on 11 April 1966 with 4 additional computers being placed in operation in 1966, 10 in 1967, 1 in 1968 and 1 in 1969.

(2) Initially, communications within supply systems was a major problem. Under the manual system in effect in early 1965, many problems existed in attempting to reconcile requisitions with CONUS supply agencies; the primary reason being that the manual system could not keep pace with the automated supply systems of the Air Force Logistics Command, Defense Supply Agency, and the General Services Administration. The same basic problem existed after conversion to punch card accounting machine (PCAM) procedu

(3) The USAF supply support situation was greatly improved with the introduction of the automatic digital network (AUTODIN) system in 1965 and the computers in 1966 and 1967. Bases in SE Asia and supply depots in CONUS were now able to speak the same language. The results obtained under the computer system in SE Asia compares favorably with those of comparable CONUS activities and proved its ability to provide timely and adequate support in a combat environment.

(4) Conversion from a manual or an automated system to a more sophisticated system is accompanied by many problems even in peacetime. When attempted during hostilities it is even more difficult. Therefore, it is understandable that the conversion in SE Asia brought its share of problems and trying moments. As conversion to the computer was accomplished, much of the materiel located in outside storage was found not to be on supply records; there was unidentified materiel and multiple locations of the same item. These conditions complicated the conversion. Nevertheless, it was accomplished. For example, the team leader of a rapid area supply support (RASS) team located at Cam Ranh Bay from 6 October 1967 through February 1968 observed, "...computer control has come of age at Cam Ranh Bay, AB." At the conclusion of his team's tour he described his observations as follows: "There has been a comprehensive and steadily expanding improvement in logistic management and control at Base Supply. Past storage procedures, which frequently caused unrecorded duplicate locations and resulting 'loss'. of property, have been corrected. Cam Ranh Bay AB logistics management and control now has direction and purpose." This was an encouraging trend. However, he also pointed out that "... a massive physical improvement of the storage area is an absolute prerequisite to successful and economical logistics management."

h. Standardization

(1) There was proliferation in the number of makes and models of vehicles and materials handling equipment at SE Asia bases. For example, one study identified approximately 250 different types of vehicles in Vietnam. Another study revealed 13 different makes, models, and types of forklifts at a base which had a total of only 34 forklifts. This proliferation of makes and models meant larger stocks of spare parts and paved the way for higher vehicle down for parts (VDP) rates.

(2) At the time the SE Asia crisis began, the USAF concept of support for commercial vehicles was to rely on commercial sources of supply. The situation was different in SE Asia. As a result of the USAF heavy reliance on commerical sources for supply support, most of the vehicles had not been provisioned. Problems developed due to the fact that most of the repair parts had to be ordered by part number, not by Federal Stock Number (FSN). This meant a lot of research was involved. At one time Warner Robins AMA was set up as the single point for processing all vehicle requisitions. Eventually, most vehicles were supported by the Defense Construction Supply Agency. Columbus, Ohio. As a result of intensified efforts by the USAF, supply support of commerical vehicles improved greatly.

i. Actions Taken to Improve Supply Operations. Previous paragraphs discussed the decision to put the standard supply system of the Air Force in operation in Vietnam and to equip all base supply activities with the Air Force standard base supply computer, the UNIVAC 1050-II. Other actions were also taken to improve supply operations. These are discussed below.

(1) Speed Through Aerial Resupply

(a) Speed through aerial resupply (STAR) (in operation prior to the SE Asia crisis) was refined to meet the increasing demands of the war. STAR was a high priority system authorized for use when the urgency of the logistics situation, as jointly decided by the Air Force Logistics Command and the using major command, required expeditious processing and transportation of support materiel. At the same time it was determined that STAR procedures were to be employed in support of deployed activity, a forward support base was designated. The forward support base was responsible for providing all materiel required by the deployed unit. When such materiel was not available at the forward support base, requisitions were submitted to the weapon system control point (WSCP). The WSCP was an AFLC organization responsible for providing materiel support for deployed activities and was normally located at an AFLC Air Materiel Area responsible for the system management for the weapon. Most needed items were flown directly to the requester by the Military Airlift Command (MAC).

(b) The objectives of STAR were twofold: first, to simplify procedures for bases and deployed units by specifying the sources of supply and points of contact in obtaining solutions to logistics support problems; second, to provide a minimum pipeline time in support of deployed overseas units under emergency conditions.

(2) Rapid Area Supply Teams

(a) Recognizing that the base supply functions at the new and expanded SE Asia bases were unable to reduce their backlogs, AFLC, in June 1965, developed the rapid area supply support concept. RASS teams were composed of AFLC AMA personnel, generally civilian, of various supply skills selected to meet the specific requirements of the workload that had been generated. These teams contained the necessary skilled personnel to assist in organizing newly formed supply activities, identifying property, establishing inventories and inventory procedures, converting to computer operations, and similar functions. The size of the various teams and length of stay at SE Asia bases varied depending on the work to be accomplished.

(b) Use of RASS teams was effective in providing newly formed supply activities the temporary help they needed to meet peak workloads. Materiel was reidentified, used to fill existing requirements, or stored to await future requirements. Excesses were redistributed or returned to the item manager allowing more efficient use of storage space. Establishment and operation of the standard base supply system at the SE Asia bases was the ultimate benefit. During the period June 1965 through October 1968 AFLC dispatched a total of 63 teams (2,792 personnel) to SE Asia.

j. Supply Effectiveness

(1) Table 26 shows the tremendous growth in SE Asia supply activity during the period 1965 through 1969. As the USAF installed the UNIVAC 1050-II, the objective of improving

supply effectiveness took a sudden drop for the year 1967. This was a result of activating a large number of SE Asia supply accounts almost overnight. However, a sizeable recovery was achieved with supply effectiveness reaching 82 percent in 1968 and 83 percent in 1969.

TABLE 26

AIR FORCE SUPPLY ACTIVITY, SOUTHEAST ASIA

	1965	1966	1967	1968	1969
Demands	7,800	54,333	293,200	380,900	373,300
Issues	4,733	36,833	157,333	313,466	312,166
Supply Effectiveness (Percent)	60	67	53	82	83
Inventory Value (Dollars)	Not Avail.	Not Avail.	Not Avail.	348,900,000	280,900,000

Note: Issue and demand data are monthly figures. Supply Effectiveness—percent of demands filled from base supply account stocks.

(2) Another indicator that showed that USAF supply support in SE Asia was highly effective was that USAF Operational Ready (OR) objectives were attained by the Seventh Air Force during the period 1965 through 1969. Table 27 compares USAF worldwide and SE Asia NORS rates.

TABLE 27

SEVENTH AIR FORCE NORS RATES

Year	percent Worldwide	SE Asia
1965 (July-Dec)	4.5	6.0
1966	5.1	6.3
1967	3.7	4.2
1968	3.0	3.0
1969 (Jan-July)	3.2	2.4

From the above table it is seen that there was a steady decline in the NORS rate in SE Asia reaching a low of 2.4 percent for the first 7 months of 1969. This rate was less than the USAF worldwide rate for the same period.

k. Comments, Commander in Chief, Pacific Air Forces. The following comments were provided as a part of a briefing by PACAF to the Joint Logistic Review Board:

(1) An unlimited amount of supplies is of very little value unless they can be received, stored, and issued to the proper person at the proper time.

(2) Storage facilities, regardless as to who funds, erects, or provides these facilities must be considered as the initial part of a bare-base contingency operation.

(3) Automated supply accounting is a proven necessity. Development of advanced equipment in this respect is advisable and the acquisition of transportable computers should be included as part of war-readiness materiel in support of contingencies.

1. Summary

(1) Early reliance on remote main operating bases resulted in an unacceptable NORS rate at the forward operating bases and demonstrated that system support must be close to the operational bases.

(2) Manual accounting methods could not handle the workload at the base accounts. Although the introduction of PCAM provided an initial improvement over the manual system, it could not support stock control at the bases. The introduction of computers in 1966 and 1967 brought the standards of base operations up to those found in CONUS and demonstrated the efficiency and desirability of a standard system. As the conversion to the standard base computer system was accomplished it revealed the magnitude of unidentified assets and multiple locations for the same assets that had developed under the manual and PCAM systems. It is apparent that the initial deployment of a standard computer system to the base is not only desirable but actually necessary for the accomplishment of a responsive supply system and the avoidance of preventable excesses.

(3) Like the other Services, USAF supply operations in SE Asia were initially hampered by lack of adequate storage facilities. However, aggressive action by USAF in the procurement of prefabricated buildings in late 1966 helped in alleviating the storage problem until such time as more permanent buildings were constructed.

(4) Rapid area supply support teams were effective in providing newly formed supply activities the temporary manpower needed to inventory, warehouse, convert to computer operation, and set up improved supply procedures.

(5) The high effectiveness of the USAF supply system in SE Asia is attested by a steady decline in the NORS rate from 1965 through 1969 with a low of 2.4 percent for the first 7 months of 1969; a steady increase in supply effectiveness with a high of 83 percent in 1969; and attainment by the Seventh Air Force of the USAF Operational Ready (OR) objectives during 1965 through 1969.

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SECTION C

EVALUATION OF POTENTIAL AREAS FOR IMPROVING THE EFFECTIVENESS AN EFFICIENCY OF OVERSEAS SUPPLY OPERATIONS

1. REQUIREMENTS FOR IN-THEATER LOGISTIC RESOURCES

a. Background. This section sets forth certain considerations, concepts and principles that influence the organization and procedures used and logistic resources required to provide overseas supply support to deployed forces. An appreciation of these factors is appropriate as a basis for analyzing the more detailed discussions, conclusions and recommendations of the issues. in subsequent parts of this section.

(1) Military logistic operations are dynamic and characterized by variable demands. One of the key requirements in the support of overseas millitary operations is the ability to relate these consumption variability patterns into a responsive, cohesive, effective and efficient supply system. The dynamic characteristics of supply requirements are more pronounced at the lower echelons of supply, particularly at the using unit level.

(2) The planned theater overseas supply system that is deployed and placed into operation during the initial buildup phase must be designed and equipped with resources to support the fluctuating user requirements over the duration of the conflict.

(3) Overseas supply systems should be predicated on, and responsive to, the volume of supplies that must flow from supply sources to final users together with the in-theater inventory levels maintained at intermediate echelons of supply. These systems should be simple, reliable, responsive, and readily adaptable to changing situations. The system used determines the requirements for in-theater logistic resources.

(4) The overseas supply distribution system may be viewed as the function which moves items of supply from the source to the user. The elements of the system between source and user are useful only to the extent that they aid in delivery of materiel to the ultimate consumer when he needs it. Thus, depots, terminals, transportation systems, supply points, and issue points must each be evaluated in terms of their contribution to the effectiveness of support of the user.

(5) An important factor in developing an overseas supply system is the time required by the system to respond to user supply demands. Different Services' supply concepts are characterized by varying response time from the source of supply to final user depending on the echelons of supply management involved, the degree of data processing automation, communications, and transportation employed.

(6) The relative mobility requirements of supported forces can be expected to be an important factor influencing the concept of a particular supply system. Mobility may generate requirements for additional logistical resources if the supply system is to remain responsive.

(7) The distance of the supported activities from the sources of supply and the environment in which support must be accomplished may also account for unique characteristics of a particular supply distribution system within a theater of operations.

(8) An effective supply distribution system should function in a routine fashion for the major portion of its operation. This result can be achieved only through the establishment

and dissemination of effective procedures. The customer in the field requesting supplies must know what forms should be used, how many copies are sent, and to whom. Similarly, on receipt of supplies, the recipient should know what reports are expected. The storage or warehousing personnel along the pipeline must know the procedures to be followed with respect to stock receipt, storage, issue, accounting, and reporting. Special instructions for particular materiel, use, careful handling, and limited storage life, must be furnished to the organizations concerned.

(9) Supply discipline, like military discipline, is every one's responsibility. It is as applicable to users as a group as it is to the distribution system. It requires the practice of conservation of materiel by every individual in the Armed Forces, and is developed through training and practice until it becomes habit. It includes conservation, maintenance, safeguarding, recovery, repair, and salvage of food, fuel, clothing, weapons, expendable supplies, and all other supplies and equipments. It also includes careful accounting and reporting so that there will be no unnecessary losses through inability to locate stocks or through duplication of requisitions.

(10) For overseas theaters, shipping time becomes a major factor in responding to random or surge requirements of consumers. When air shipment is used, supplies may be delivered to an overseas theater in a matter of a few days or even hours. If adequate landing strips are available in the vicinity of using units or if helicopter transshipment is feasible, time for shipment from the United States to a unit may not be greater than time for shipment from a major depot in the theater to the unit. If the requirements for items are not predictable over a long term and if the consequences of shortages are serious, a fast mode of delivery must be employed or stockage points must be established in which sufficient ranges and quantities of items are maintained to give commanders a reasonable assurance that items will be available when needed. For bulk shipments of the more frequently demanded lower cost materiel where future requirements are reasonably predictable, surface shipment is generally more practicable, desirable and efficient.

(11) The criticality of materiel represents an important aspect in supply management. If difficulty is experienced in maintaining specific combat essential equipment such as aircraft, ships, missiles or armored vehicles, management emphasis may be placed on this aspect of the distribution system. This emphasis may go so far as to establish, at least temporarily, an essentially separate distribution system for critical items of combat materiel. These special support systems usually involve distribution techniques in which echelons of supply are by-passed both for requisitions and for deliveries. Frequently, highly expedited administrative techniques and rapid transportation are employed to ensure the shortest possible response time to requisitions for urgently needed parts. Using the degree of criticality as an approach to analyzing distribution,, the special distribution systems that have been established during the Vietnam era (e.g., Red Ball Express) can be analyzed and viewed as an integral part of the total supply distribution system. Under this intensive management, CONUS commodity managers stand ready to search for, locate, and deliver those repair parts not in the normal distribution system.

(12) Automated data processing systems and improved communications applied effectively can improve supply response. Automated procedures, however, are management tools, not a replacement for judgement. Automated data processing systems and improved communications facilitate centralized decision-making. Traditionally, the management of combat service support operations has been decentralized to the extent that some levels were nearly autonomous, while others were managed only by mission assignments, policy directives, and limited reviews of performance. Now, it is practicable for overseas component or joint commanders to be provided with more timely pertinent logistical management data to facilitate more centralized management and control to the extent this may be desired or dictated by combat operations, or other considerations. This concept, of course, is predicated on the availability and employment of automatic data processing equipment linked together by a high-capacity, reliable communications system that provides the necessary, responsive management information system. Included in this management information must be information on planned tactical operations to permit proper planning for their support. In turn, tactical commanders need information on materiel readiness.

(13) Differences in roles and missions may very well preclude uniformity in the organization of the logistics systems of the Services for the conduct of overseas supply and storage operations. The logistics support of a naval task force requires somewhat different organizational arrangements than the logistics support of a field army. Similarly, the problems supporting a mobile striking force, from the size of a Marine battalion landing team to a large scale amphibious assault, point up the necessity for differences in organization.

(14) Even though there are differences in the nature and organization of their overseas supply and storage operations, the Services have all been confronted with broad supply management problems which are quite similar. Each, for example, has had to break down its enormous inventory into manageable segments and apply controls selectively in accordance with the dollar value of items, frequency of demand, mission and combat essentiality, and other criteria.

(15) With the accent on good performance and economical military operations, the establishment of proper levels of supply and control of inventories have become increasingly important. Maintaining a balanced and economic inventory contributes much to effective supply management. In establishing and maintaining his inventories, the supply manager faces a formidable challenge in ensuring against shortages and simultaneous excesses. A constant task facing the supply manager is that of purging the inventory of stocks that are excess to current needs or foreseeable requirements. Realizing that it is costly to maintain an inventory larger than needed to support using units, supply managers must determine what portions of stock in "long supply" (that is, in excess of the quantity authorized or required to be on hand) can be economically retained for future use or disposed of as "surplus."

b. Range and Depth of Stocks in Overseas Areas

(1) Discussions

(a) General

1. The stockage of secondary items of materiel in an overseas area should be maintained at a minimum range consistent with the assigned mission of each echelon of supply. Primary management emphasis should be directed to stockage of those items essential to the maintenance of equipment in a high state of materiel readiness.

2. The range of items that must be stocked is influenced by Service missions, prescribed supply effectiveness standards, supply distribution systems employed, and concepts for accomplishing maintenance of equipment. Timely supply support must be provided to meet the requirements generated by maintenance activities. Where practicable responsive supply and transportation may be used in lieu of stockage of infrequently demanded items of materiel.

3. The range of items of materiel stocked in an overseas area generally consists of items for which future requirements are predictable and other categories of materiel where the frequency of demand is not the primary consideration. The latter includes pre-positioned war reserves stock, materiel in support of specific contingency plans and project stocks. Other items are designated as insurance or mission-essential on the basis of their importance to the support of an essential principal item of equipment, long lead time involved in future procurement, or both.

4. The availability and capabilities of communications, automatic data processing systems, trained personnel, and other logistic resources will also represent important considerations in determining the range of items that are required and can be effectively and efficiently stocked and managed in an overseas area.

5. The depths of stocks maintained overseas is also influenced markedly by Service roles, missions and related logistic support concepts. The Army and

Marines, when operating over extensive land areas, place primary dependence on surface lines of communications. This may require greater depths of stocks and more echelons of supply for effective support of their deployed forces than the Air Force operating from fixed bases with greater reliance on air transportation. The Navy stocks will normally be afloat with replenishment from the CONUS and a minimum dependence on overseas land bases.

6. The authorized levels of stocks for support of operations in Vietnam were generally as discussed in Chapter II. However, there was a substantial overall increase in the depth of stocks in the supply pipeline. This was the result of delays in unloading ships in Vietnam, "push" shipments, buildup of supplies at off-shore bases such as Okinawa, Subic and Clark and the generation of excesses in Vietnam.

7. Exploitation of air transportation, containerization, automatic data processing systems, and advanced communication capabilities could provide a potential for minimizing requirements for logistic resources in overseas areas and contribute to overall effectiveness and efficiency of overseas supply operations. These are discussed as separate subjects in other sections within this chapter.

8. It is very important in considering a reduction in the range and depth of stockage to consider maintenance policies and concepts as well as the entire supply distribution system, including transportation and communication, as an integrated operation. Emphasizing improvements or changes in a single segment of the system will not in some cases contribute to overall effectiveness or efficiency of supply operations. An example is the impact on depot operations as a result of the emphasis placed on the unloading of ships in Vietnam during 1965 and 1966.

9. The following discussions are presented as areas of primary interest in relation to the subject issue.

(b) Range Criteria

1. Determining the range of items to be stocked overseas involves six separate but related considerations.

a. The organization's mission, and management capability of the supported and supporting units or activity, i. e., combat, combat support, services, or administrative.

b. Service concept, organization, and procedures used for logistic support.

c. The capability to forecast future requirements with reasonable accuracy, i. e., frequency of demands.

d. The capability to substitute responsive supply and transportation procedures for stockage.

e. The levels of supply effectiveness established by the Services.

f. Type of materiel and its relative essentiality.

2. The fifth consideration, supply effectiveness, i. e., the capability to fill a customer's demand from stocks on hand at the supporting supply activity, is the most important in determining stockage criteria. Despite attempts by the Services to establish the optimum stockage criteria for range of stocks overseas, the data presented in the following section of this chapter would indicate that the criteria employed during the Vietnam era were too liberal both for initial stockage of items of materiel and their retention on stockage lists.

These data should serve to illustrate the difficulty in establishing supply effectiveness standards that can be effectively and efficiently supported with minimum requirements for logistic resources overseas.

3. Too stringent criteria could reduce supply effectiveness below acceptable standards with possible adverse affects on mission accomplishment and increase high-priority requisitions and related requirements for air transportation.

4. As demonstrated in Vietnam and as described in this monograph a too liberal stockage criteria and thereby too wide a range of items stocked overseas can be especially damaging to logistic support efforts. Some of the indications of these in Vietnam were: inaccurate inventories, increased requirements for storage facilities, a high turbulence in demand-based stock lists, reduced effectiveness of supply management activities, increase in the use of high-priority requisitions and super-priority supply and transportation procedures, excessive inventory investment, excesses, and increased requirements for logistic resources. All of these conditions add up to serious obstacles to effective and efficient supply support. Each of these conditions and their impact on supply operations are described in this monograph.

5. Stockage criteria may also differ by categories of materiel. Far more stringent criteria may be indicated for items that are not essential to mission accomplishment such as furniture and comfort items; a more liberal stockage criteria might be used for repair parts. Depending on Service policy and stockage criteria nondemand supported items for materiel may also be stocked at designated echelons for supply. These include maintenance float items, initial stockage of parts for equipment or components newly introduced into Service inventories, and items designated as insurance or mission-essential

6. Exceptions would also be required for items of materiel with special supply or storage considerations. For example, high-value items with supply or resupply accomplished routinely by air transportation from CONUS might require special stockage criteria. Shelf life items such as film and batteries may also be subject to a modified stockage criteria.

7. The objective in establishing the criteria for the range of items to be stocked overseas should be to balance effectiveness, turbulence, generation of excesses, and overall costs to achieve optimum efficiency. However, effectiveness of support of the combat units remains the primary objective.

(c) Depth Criteria

1. The depth of stocks for a particular item of materiel authorized for stockage is determined at each echelon by a combination of authorized operating and safety levels. The number of echelons maintaining stocks between the CONUS source of supply and the overseas consumers of materiel also serves to increase the total depth of stocks. Intermediate echelons of supply management between the overseas retail consumers and the CONUS inventory control points can increase the order and ship times. Each echelon for maintaining stocks or for supply management purposes also creates requirements for additional logistic resources.

a. Operating stocks are defined as the quantity of materiel required to sustain operations in the interval between requisitions or the arrival of successive shipments. These quantities should be based on the established replenishment period (monthly, quarterly, etc.). DOD policy prescribes that operating levels for each repetitively demanded consumable item will be adjusted to that point where total variable costs of operations are minimized. The economic order principle will be used as much as possible. Exceptions to this policy are permitted where there are compelling military reasons; deterioration, spoilage, or loss would result; or storage space is unavailable.[10] Operating levels of stock in Vietnam were

[10] Joint Chiefs of Staff, JCS Pub 3, Joint Logistics and Personnel Policy and Guidance, 18 April 1969.

generally 30 days of supply at supply support activities and 15 or less days of supply at DSUs and user units.

b. Safety level of supply is defined as that quantity of materiel, in addition to the operating level of supply, required to be on hand to permit continuous operations in the event of minor interruption of normal replenishment or unpredictable fluctuations in demand. It is DOD policy that safety levels will be maintained at minimum levels and calculations will normally include the following factors: frequencies of demand, size of demands, reliability of resupply, mission of the unit, and military essentiality of the item. Safety levels of 30-60 days were employed for supply support activities in Vietnam and 0-30 days for user units.

c. Order and Shipping Time (OST) is defined as the time elapsing between the initiation of stock replenishment action for a specific activity and the receipt by that activity of the materiel resulting from such action. Order and shipping time used in reorder computations in Vietnam ranged from 30 to 122 days for replenishment from CONUS sources, depending upon the item, requisition priority and mode of shipment; times of 10-30 days were used for in-country replenishment. Some activities in Vietnam used a fixed order and ship time for all items ordered; others used times that varied by class or type materiel or by past OST experienced for the particular item being ordered.

2. Supply Pipeline. One-quarter to one-third of the stocks committed for specific overseas areas of operations are generally contained in the pipeline of supply; thus, the importance of accelerating all administrative and physical functions involved in the pipeline or supply to reduce investment, obsolescence, and administrative costs is really apparent. The supply distribution pipeline is both physical (with storage and transportation facilities) and administrative (requiring processing of documents). The functions and operations embraced by the supply pipeline include preparing and forwarding requisitions; processing and packing material for shipment, movement, receipt, storage, and issue. Every physical element of the pipeline has a corresponding administrative element, because every movement of supplies requires processing of documents. Document processing time may exceed the time for the physical movement of supplies.

(d) Criteria for Deletion

1. Equally important with establishing the criteria for qualifying items of materiel for initial sotckage is selecting the criteria to determine what items are no longer adequately demand supported and should be deleted from the stockage list and are subject to retrograde and/or disposal action. Such criteria are generally prescribed by the Service, inventory point, or theater commander in the same instruction(s) that set forth stockage criteria and are generally expressed in numbers of demand per period of time. Both criteria are necessary to achieve the optimum range and depth of stocks.

2. Determination of the optimum criterion is difficult, but it is also important for good inventory management. The danger of too high a criterion, i.e. requiring too many frequencies of demand for retention within the prescribed time period, is that excessive turbulence in authorized allowance list items could result. Many of the adverse effects of too strict a range criteria for initial stock could result. Too lenient a criterion could result in many of the problems associated with the generous criteria for initial stockage previously described.

3. Supply activities should accomplish frequent computations of excesses and take aggressive action to report promptly those items not meeting the prescribed retention criterion to the applicable inventory manager in accordance with Service procedures. While the frequency of computations will vary by Service, activity, and their degree of mechanization, it is concluded that computation of excesses should occur at least quarterly at an activity with ADPS and their retrograde and/or disposal should be a continuing program.

4. Determinations of criteria for the range, depth, and retention of stock at overseas shore-based activities are interrelated and must be made in conjunction with each other for optimum effectiveness and efficiency of support. After determining and establishing the criteria, they must be enforced and emphasized by the appropriate command level. Such actions will make a significant contribution to minimize requirements for in-theater logistic resources.

(e) Service Stockage Criteria

1. General

a. The criteria for the stockage of Class IX materiel in overseas areas are prescribed by each of the Service headquarters. Some items of materiel are authorized or directed for stockage on the basis of repetitive demands while others represent pre-positioned war reserve stocks (PWRS), project stocks for specific contingency plans, or items designated as insurance or mission essential. Other items of materiel are pre-positioned in support of new weapons systems or items of equipment until the appropriate usage data can be developed based on operational experience.

b. The following discussion of Service stockage criteria is limited to demand supported items of materiel. Stockage of insurance and mission essential items of materiel are discussed as a part of paragraph c.

2. Army

a. Prior to November 1969 the Department of the Army criteria for overseas stockage of demand supported items of materiel were 3 demands in 360 days for addition to the stockage list at the theater depot and Direct Support Unit level. Deletions from stockage lists were based on a criteria of zero demands in 48 months at the theater depot level and zero demands in 12 consecutive months at the direct support unit level. Major Commanders had the authority to modify the stockage criteria to achieve reasonable demand accommodation.

b. These criteria were changed in November 1969 as a result of a worldwide Army program to reduce the size of authorized stockage lists at all echelons of supply. The new criteria are 6 demands in 360 days for addition to the stockage list at the theater depot level and direct support unit level. Items are deleted from the theater depot stockage list if there are less than three demands in 12 months. Items will be deleted from the direct support units stockage lists if there are 2 or less demands in a 360-day period. Those items with 3 to 5 demands that fail to reach an average of 6 demands in 360 days in the ensuing 12 months will be removed from the stockage lists.

c. Major commanders continue to have the authority to vary the demand frequency criteria in order to achieve a reasonable demand accommodation. Major commanders are also authorized to use a variable-demand criteria based on the materiel category and the economics of stockage in lieu of the prescribed stockage criteria to accomplish the directed reduction in stockage lists.

3. Navy

a. The range and depth of items authorized for stockage for individual ships is computed to provide a basic combat endurance of 90 days in the case of large ships and 45 days in the case of small ones. For demand based items, allowance lists are based on combat consumption rates whenever such rates can be determined or predicted usage of at least 90 days and 90 percent supply effectiveness for 90 days. The requirements for stockage for the mobile logistic support ships are based on the demands of the deployed fleets (Sixth and Seventh) adjusted to reflect a total fleet support factor and wartime consumption rates. The range of items is computed to satisfy 85 percent of the predicted fleet demands with a depth to provide 90 percent supply effectiveness for a 90-day period.

b. In the case of Navy overseas bases, the criteria for adding demand-based items to stock lists are at least four recurring demands in 6 months for integrated-manager items and at least two recurring demands in 6 months for all other items. At overseas bases integrated manager items are not replenished if they experience a frequency of demand of less than three in 6 months. These items are manually reviewed and unless special circumstances justify their replenishment they are issued until exhausted and deleted from the stockage list. Items that have received no demands in 12 months are either returned to CONUS system stocks or disposed of in accordance with Navy procedures for disposal of excess and deleted from the stockage list. Items not under integrated management were deleted from the stockage list when there are no demands in 12 months.

4. Marine Corps. Fleet Marine Force consuming units may stock demand supported items of materiel when there are six or more replenishment issues in 6 months. Service support units may stock this category of materiel when there are two issues in 6 months. When an item no longer meets this criterion it is considered excess to the unit and is disposed of in accordance with normal procedures.

5. Air Force. A uniform worldwide Air Force policy provides for establishing a demand level for an item of materiel when the number of demands is three or more for repair cycle items and four or more for economic order quantity (EOQ) items based on 365 days of demand experience. A zero demand level is established on an item record when the number of demands is less than three for repair cycle items and less than four demands for EOQ items, whenever the date of first demand is greater than 365 days.

(f) Effectiveness of Stockage Lists

1. The stockage criteria currently prescribed by the Services generally results in the stockage in overseas areas of many thousands of items of materiel for which there are few if any demands. In addition current criteria create a high degree of turbulence in the composition of stockage lists. A very small percentage of the line item stocked will satisfy a high percentage of the total customer demands. The migration of items on and off the stockage lists results in the accumulation of substantial numbers of items and quantities of materiel that are either retained for several years as more economical to retain than to dispose of, or for several months awaiting disposal instructions. In either instance, it involves requirements for logistical resources that do not contribute to the effectiveness or efficiency of overseas supply management.

2. As previously indicated, in the discussion of range and depth criteria, determining the optimum stockage criteria is difficult but important for efficient supply management. There are ample indications that the Services recognize the necessity for improving the effectiveness and efficiency of supply management in overseas areas. This includes studies to improve stockage criteria. Some of the more significant actions that have been taken or are planned by the Services to improve the effectiveness and efficiency of overseas supply management are commented on in subsequent portions of this chapter under the titles, Trends That Affect Supply Support Concepts, Variable Demand Frequency Criteria, and Supply Management Improvements.

3. There have been studies conducted by or for the Services using a mathematical model approach to computing the optimum stockage criteria. Such an approach is discussed in a report sponsored by the department of the Army and conducted by the Research Analysis Corporation (RAC) titled, An Analysis of Alternative Procedures for Developing Prescribed Load Lists.

4. Using the referenced RAC model and data base from the United States Army, Europe, the JLRB developed a range of stockage criteria that could be used to establish any one or a combination of, size of stockage list, demand accommodation rate, turnover rates, and increased requirements for air transportation. These are discussed in Paragraph 2g, Mathematical Model approach to Computing Stockage Criteria and Mode of Shipment.

(g) Supply Management Data

1. Tables 28 through 32 provide data by service for representative logistic activities that indicate the number of line items stocked, stockage list changes, and the frequency of demand for the line items stocked in FY 69.

2. In Vietnam approximately 50 percent of the requisitions submitted by Army forces in-theater for Class II, IV, and IX material are being satisfied by less than 7 percent of the items included in the theater's authorized stockage list. Cumulative demand data for the three Army depots in Vietnam for the year ending August 1968 are displayed at Figures 36, 37, and 38.

3. By comparing the cumulative line items demand with the percent of line items of materiel demanded on these same tables it can be seen that 8,700 line items at Saigon depot, 5,100 line items at the Cam Ranh Bay depot, and 7,000 line items at the Qui Nhon depot accounted for approximately 50 percent of the total line items demanded.

4. Table 33 is a tabulation reflecting the frequency of demands for the same depots and time period. This indicated that approximately the same number of line items that accounted for 50 percent of the total demands are demanded 20 times or more during the period. Items demanded 12 or more times during the period accounted for approximately 65 percent of the total demands.

5. Cumulative demand data and percentage of the line items that were demanded during the year ending 31 October 1969 are shown for United States Army, Europe, in Table 34. From the table it can be seen that 7,686 line items of materiel accounted for 50 percent of the total demands although these same line items represented only 4.5 percent of the total line items demanded during the same period. Similarly it can be noted that only 12.1 percent of the total line items demanded accounted for 70 percent of the total demands. The theater stockage list during the same period contained approximately 167,000 active and 185,000 fringe items. This emphasizes the relative importance that a very few line items can have in filling the total demands of an overseas theater.

6. Tables 35 and 36 provide data showing the frequency of demands for materiel at an Air Force base and for the support of a single weapons system (F-4C). In both instances these data highlight the high percentage of items of materiel which are infrequently demanded.

(h) Simplified Supply Procedures

1. The Army self service supply stores, the Navy SERVMARTS, and the Air Force base service stores provide central retail distribution outlets for the issue of consumable general supplies for housekeeping and troop support. The range of items carried by the individual outlets varies; however, two major categories, office supplies (stationery, pens, pencils, typewriter ribbons and similar items) and houskeeping supplies (soaps, brooms, mops, toilet paper, paper napkins), are normally carried in all outlets. These categories are frequently supplemented by hand tools, paints, kitchen utensils, and a few hardware items such as nails, screws, and sandpaper. The actual number of items carried ranges from a few hundred in the Army to 2,500 in some Navy and Air Force installations.

2. Army Regulation 711-16, Stock Control and Supply Procedures, dated April 1966, provides procedures for summary accounting for low-dollar turnover items (SALTI), such as minor secondary items and repair parts. These procedures eliminate detailed accounting requirements and reduce administrative costs relative to issuing and accounting. SALTI items are normally issued through retail distribution outlets such as country stores operated by maintenance units or self service supply stores operated by unit or area supply activities. The other Services also use summary accounting procedures in managing supplies handled by their retail distribution outlets.

3. The use of retail distribution outlets provides consumers with ready access to available materiel, reduces the range and depth of stocks which must be carried by the individual users, and facilitates bulk requisitioning on the wholesale system. It also permits the use of informal multiple line items ordering/shopping by the customer as opposed to the formal single line item MILSTRIP procedures.

TABLE 28

SUPPLY DATA, UNITED STATES ARMY, EUROPE

(FY 69)

	Materiel Command	122nd Maintenance Battalion	708th Maintenance Battalion	703rd Maintenance Battalion
Number Line Items Stocked				
1 July 1968	167,000	7,335	19,285	10,394
30 June 1969	167,400	8,260	10,402	7,809
Stockage List Changes				
Accessions	*	2,178	1,083	*
Deletions	*	1,237	9,970	*
Total	*	3,415	11,053	*
Frequency of Demand for Line Items Stocked				
Total Demands	100,400	*	*	5.661
0-Demand	67,000	3,331	*	3,106
1-Demand	9,000	*	*	1,094
2 or more Demands	91,400 (47,0[illegible] line items demanded 6 or more times)	*	*	4,567

*Data not available.

Source: Supply management data furnished to JLRB by indicated installations and activities.

4. Many of the consumable general supplies used for housekeeping and troop support are low-cost or high-frequency demand items susceptible to economic order quantity (EOQ), bulk ordering, shipping and issue procedures. The ability to take advantage of these characteristics in distributing this materiel is enhanced by using retail distribution outlets rather than individual customer formal requisitioning and stockage procedures. Due to the large number of authorized individual requisitioners in the Army and the problems which have been encountered in providing effective and efficient supply support, any procedures or techniques that will simplify supply procedures should be vigorously pursued.

TABLE 29

SUPPLY DATA, UNITED STATES AIR FORCE, EUROPE

(FY 69)

Installations	26th Tactical Reconnaissance Wing Ramstein, Germany	81st Tactical Fighter Wing Bentwater, England
Number of Line Items Stocked		
1 July 1968	100,409	44,298
30 June 1969	83,077	43,151
Stockage List Changes		
Accessions	43,911	*
Deletions	67,676	*
TOTAL	111,587	*
Frequency of Demand for Line Items Stocked		
Total Demands	42,100	28,128
0-Demands	40,977	15,023
1-Demand	16,170	7,656
2-Demands	4,196	20,472 (3 or more demands)
3 to 6 Demands	6,082	
11 to 12 Demands	4,870	
22 or more Demands	4,485	
	6,297	

*Data not available.

Notes:

Number Line Items Stocked — These statistics reflect total line item records on each base supply computer and includes equipment. However, under computer programming logic, line item records are activated when a customer places a demand on supply for a new item even though levels and warehouse stocks are not established at this time.

Stockage List Changes — These statistics reflect the line item records added and deleted. These additions and deletions can be caused by numerous reasons and do not necessarily reflect usage factors. For example, when a master item is requisitioned by base supply from ICP, and a substitute is shipped, an item record must be activated for the substitute stock number if one is not already recorded. However, this transaction does not reflect increased item usage. Stock number changes will add and delete item records and these transactions do not reflect usage data. Changing force structures, input of new weapons systems, and deactivation of old systems will generate large numbers of item record additions and deletions and will naturally distort stock usage data in this segment of the computer records.

TABLE 29 (Cont)

Notes: (Cont)

Frequency of Demand for Line Items Stocked	These statistics reflect line item records with zero demands and line items records with one demand. Adding these figures and subtracting from total item records will will show the number of item records with two or more demands. Any further stratification of demand segments was accomplished by base level programs and is not provided by any standard base supply system data source document.

Sources: Supply management data furnished to the JLRB by indicated installations. Headquarters, United States Air Force, comments on supply data furnished to the JLRB by field activities.

TABLE 30

SUPPLY DATA, UNITED STATES ARMY, VIETNAM AND THAILAND

(FY 69)

	Inventory Control Center, Vietnam	7th Maintenance Battalion, Thailand
Number Line Items Stocked		
1 July 1968	217,188	12,899
30 June 1969	187,194	17,405
Stockage List Changes		
Accessions	*	8,422
Deletions	*	3,916
Total	*	12,338
Frequency of Demand for Line Items Stocked		
Total Demands	190,080	14,208
0-Demand	20,000	3,197
1-Demand	70,111	8,808
2-Demands	27,749	5,400
3-Demands	15,577	
4-Demands	10,726	
5-Demands	7,782	
6-10 Demands	20,982	
11-20 Demands	14,883	
21 or more Demands	22,270	

*Information not available for entire period. However, there were 23,052 additions and 18,189 deletions to the theater stockage list (TASL) during the second quarter of the fiscal year.

Source: Supply management data furnished to the JLRB by indicated installations and activities.

TABLE 31

SUPPLY DATA, UNITED STATES NAVAL FORCES, PACIFIC

(FY 69)

	Guam	Subic	Yokosuka	Da Nang	Saigon
Number Line Items Stocked					
1 July 1968	66,566	187,918	188,413	103,048	55,534
30 June 1969	61,248	187,666	169,27[illegible]	96,317	61,149
Stock List Changes					
Accessions	*	*	9,036	10,905	*
Deletions	*	*	36,134	8,706	*
Total	*	*	45,170	19,611	*
Frequency of Demand for Line Items Stocked					
Total Demands	*	*	*	*	20,168
0-Demand	*	*	*	*	37,721
1-Demand	*	102,696**	85,000	*	5,394
2 or more Demands	*	*	*	*	14,774

*Data not available.

**One or more demands.

Source: Supply management data furnished to the JLRB on 29 September 1969 by Naval Forces, Pacific.

TABLE 32

SUPPLY DATA, UNITED STATES AIR FORCE, PACIFIC (FY 69)

	Clark	Tan Son Nhut	Da Nang	Naha	Osan	Tachikawa
Number Line Items Stocked*						
1 July 1968	189,241	118,508	115,889	92,309	86,861	88,746
30 June 1969	137,825	123,910	101,168	66,715	75,591	82,243
Stockage List Changes*						
Accessions	117,093	103,617	59,281	29,583	56,330	50,745
Deletions	174,492	93,373	92,336	54,548	70,730	67,784
Total	291,585	196,990	151,617	84,131	127,060	118,529
Frequency of Demand for Line Items Stocked*						
Total Demands	96,245	68,307	62,166	42,756	41,922	52,656
0-Demand	44,580	55,603	39,002	23,959	33,669	29,587
1-Demand	23,250	22,018	12,065	10,762	10,929	13,740
2 or more Demands	68,995	46,289	50,101	31,994	30,993	36,916

Source: Supply Management data furnished the JLRB on 24 September 1969 by United States Air Force, Pacific.

*See notes to Table 29.

TABLE 33

FREQUENCY OF DEMAND DATA, UNITED STATES ARMY, 1ST LOGISTICAL COMMAND, VIETNAM

(Year ending August 1968)

Siagon		Qui Nhon		Cam Ranh Bay	
No. Demands	Line Items	No. Demands	Line Items	No. Demands.	Line Items
1	42,060 (36.8%)	1	39,573 (41.2%)	1	35,692 (41.9%)
2	22,648 (19.8%)	2	15,825 (16.2%)	2	15,074 (17.7%)
3	9,998	3	8,[illegible]	3	8,049
4	6,761	4	5,496	4	5,153
5	4,520	5	3,773	5	3,538
6	3,569	6	2,929	6	2,569
7	2,733	7	2,217	7	2,041
8	2,150	8	1,767	8	1,499
9	1,837	9	1,430	9	1,284
10	1,580	10	1,222	10	996
11	1,318	11	1,043	11	837
12	1,182	12	846	12	713
13	970	13	735	13	564
14	1,033	14	684	14	526
15	781	15	625	15	458
16	695	16	498	16	384
17	635	17	487	17	330
18	541	18	417	18	331
19	522	19	416	19	266
20	471	20	353	20	264
Over 20	8,229 (7.2%)	over 20	6,995 (7.2%)		4,528 (5.3%)
Total Line Items Demanded	114,233		95,989	over 20	85,096

Source: 1st Logistic Command, Supply management data.

5. Within the U. S. Seventh Army in Europe many Direct Supply Support Activities (DSSAs) stock and issue items on a "country-stores" basis. Under this concept low-dollar value, common-hardware-type items are provided to user-unit personnel without formal paperwork in response to a personal request of authorized customers. The full potential of the country store concept has not been realized, however, since in most cases the quantities authorized for DSSA stockage are low, and many of the items are frequently at zero balance.[11]

[11] Research Analysis Corporation, An Analysis of User-Unit and Direct Support Unit Repair Part Supply Operations in Seventh Army. (RAC-R-27) contractual study prepared for the U.S. Department of the Army.

TABLE 34

CUMULATIVE DEMAND DATA FOR REPAIR PARTS, UNITED STATES ARMY, EUROPE

(1 November 1968 - 31 October 1969)

Cumulative Percent of Demands	Number of Line Items	Cumulative Number of Line Items	Percent of Total Line Items	Cumulative Percent Total Line Items
10	336	336	.2	.2
20	806	1,142	.5	.7
30	1,342	2,484	.8	1.5
40	2,045	4,529	1.2	2.7
50	3,157	7,686	1.8	4.5
60	5,070	12,756	2.9	7.4
70	8,436	21,192	4.7	12.1
80	14,992	36,184	8.4	20.5
90	31,179	67,363	17.5	38.0
100	110,405	177,768	62.0	100.0

Source: Research Analysis Corporation

6. In March 1969 retail consumers of four Army divisions in Germany used formal requisitioning procedures to request 89.7 percent of required maintenance related repair parts and consumables. The balance of their requests were processed through country stores and direct exchange facilities which involved only informal requisitioning procedures.[12]

7. Twelve percent of the requests using formal requisitioning procedures were for items costing 10 cents or less and over 50 percent of items costing $2 or less. Five percent of the requests were for extended prices of 10 cents or less and 58 percent were for $5 or less.[13]

8. Various estimates of the cost of processing a requisition are available—all exceed $5. This would indicate that the cost of the processing (paperwork) exceeded the cost of the items requested in approximately 60 percent of the cases. This observation suggests that the use of procedures for providing low-dollar-value items without requiring a formal request should be expanded based on simple economic considerations.[14]

9. In August 1969 the Army, at the direction of the Deputy Chief of Staff for Logistics (DCSLOG), completed a study report of secondary items and repair parts supply. This study was conducted to recommend alternatives to existing supply techniques with a view toward simplifying supply procedures, particularly at the user level. The study focused attention on procedures that could be used to apply intensified management and formal accounting for the items representing 85 percent of the consumer funds expended in Europe. The remaining items were to be issued through self service supply or country stores using informal requisitioning and summary accounting procedures.

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[12] Research Analysis Corporation, An Analysis of User-Unit Repair Parts Supply Operations in Seventh United States Army, Europe, 1968.

[13] Ibid.

[14] Ibid.

TABLE 35

DISTRIBUTION OF ITEMS BY DEMAND, OXNARD AIR FORCE BASE

Frequency of Demands	Line Items
0	10,436
1-10	5,465
11-20	784
21-30	391
31-40	221
41-50	168
51-60	97
61-70	57
71-80	57
81-90	44
91-100	81
101-150	131
151-200	57
201 or more	221
Total	18,210

Note: Data obtained from Oxnard Air Force Base for the last half of 1965. The base's principal weapon system at that time was the F-101 interceptor.

Source: Rand Corporation, An Aggregate Stockage Policy for EOQ Items at Base Level, June 1968.

TABLE 36

DISTRIBUTION OF ITEMS BY DEMAND FOR AIR FORCE F-4C AIRCRAFT*

Frequency of Demands	Line Items with Demands	Relative Frequency (%)
0-10	8,164	73.6
11-20	1,083	9.8
21-30	572	5.2
31-40	348	3.1
41-50	244	2.2
51-60	191	1.7
61-70	160	1.4
71 + over	328	3.0
Total	11,090	100.0

*Data based on 1-year demand history on over 11,000 items applicable to the F-4 C aircraft obtained from AFLC Project PACER SORT.

Sorce: Rand Corporation, An Aggregate Stockage Policy for EOQ Items at Base Level, June 1968.

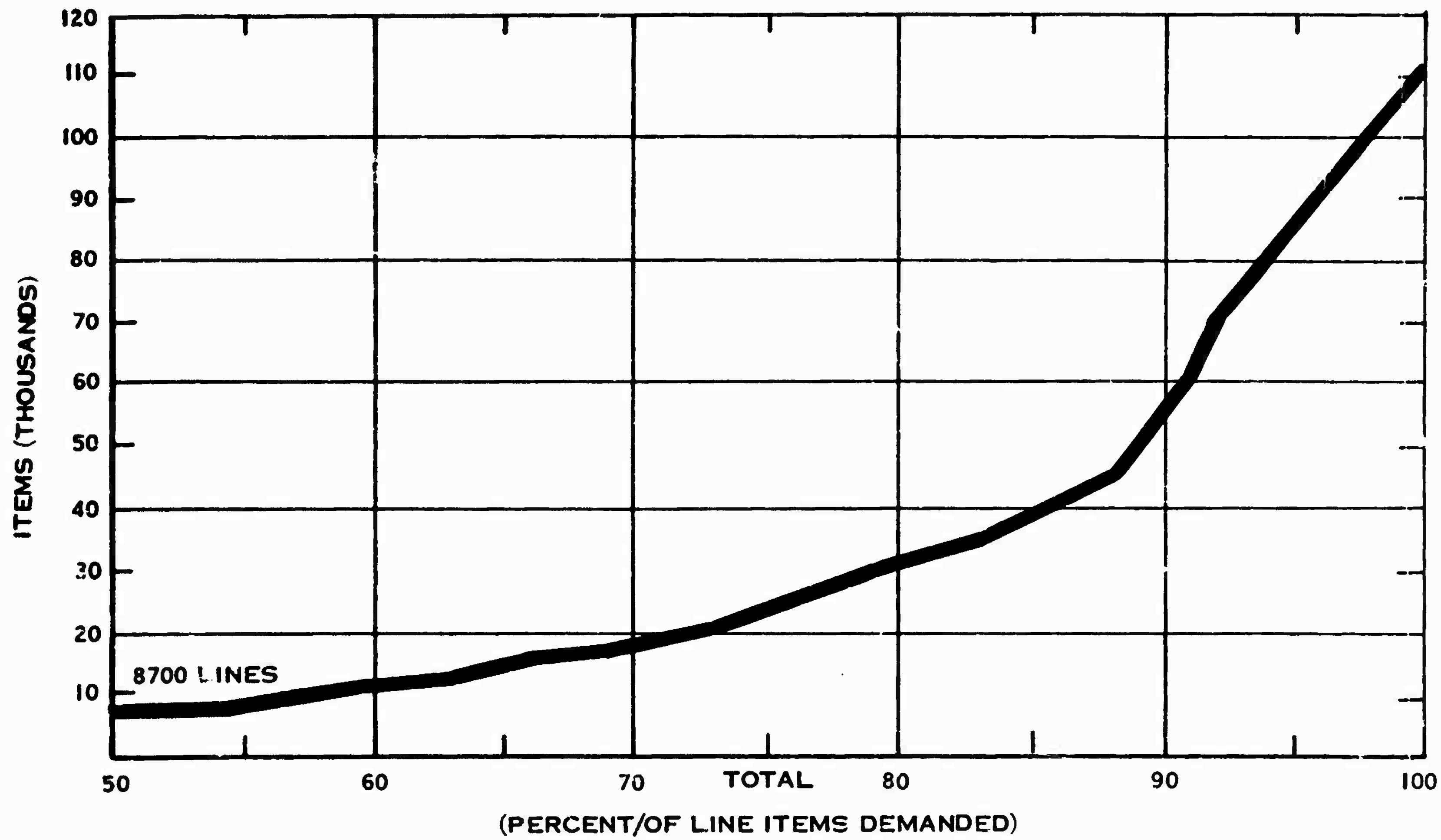

FIGURE 36. CUMULATIVE LINE ITEMS DEMANDED, YEAR ENDING 31 AUGUST 1968, SAIGON DEPOT, 1ST LOGISTICAL COMMAND, USA. VIETNAM,

FIGURE 36. CUMULATIVE LINE ITEMS DEMANDED, YEAR ENDING 31 AUGUST 1968, SAIGON DEPOT, 1ST LOGISTICAL COMMAND, USA, VIETNAM

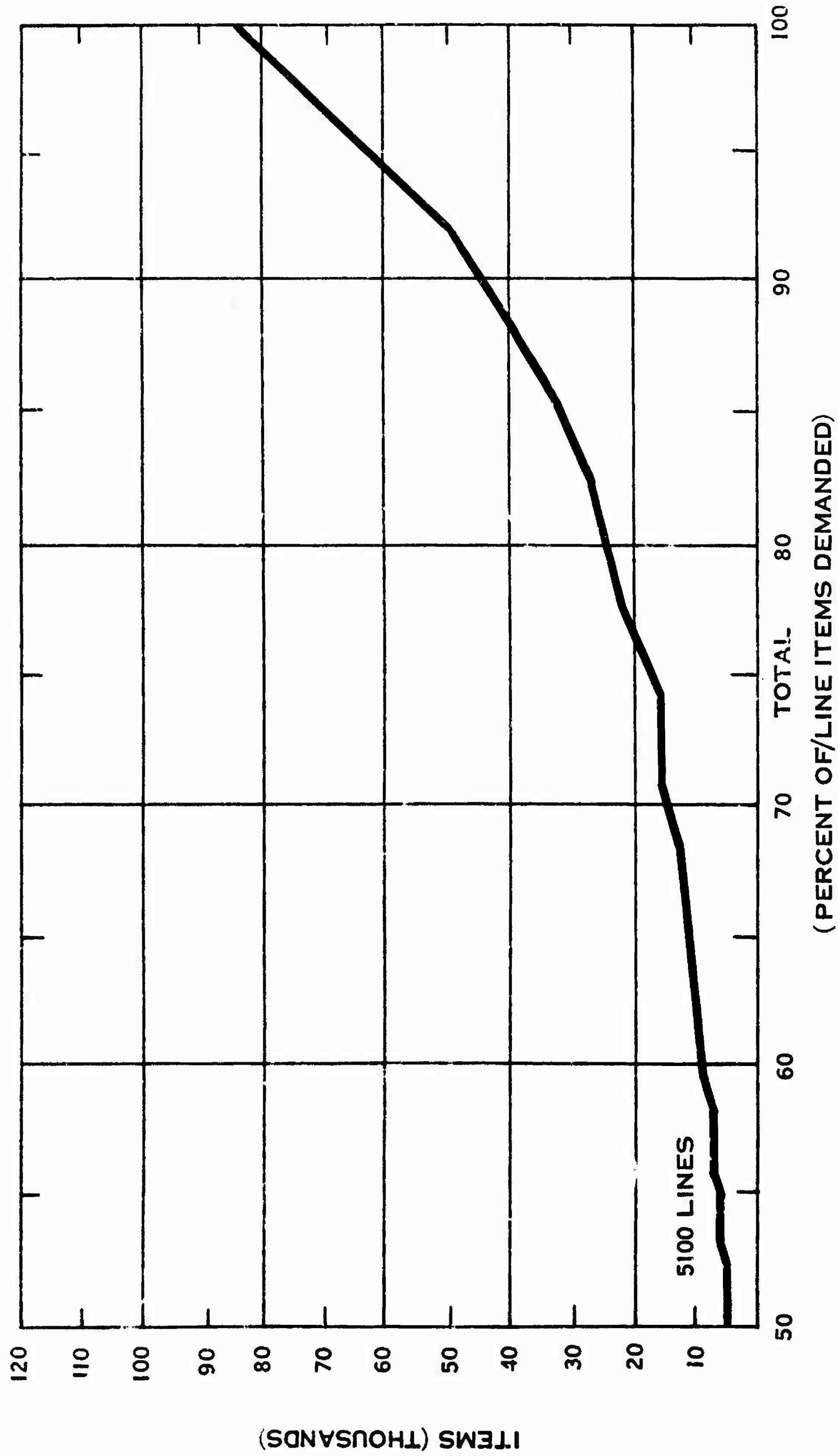

FIGURE 37. CUMULATIVE LINE ITEMS DEMANDED, YEAR ENDING 31 AUGUST 1968. CAM RANH BAY DEPOT, 1ST LOGISTICAL COMMAND, USA, VIETNAM

FIGURE 37. CUMULATIVE LINE ITEMS DEMANDED, YEAR ENDING 31 AUGUST 1968, CAM RANH BAY DEPOT, 1ST LOGISTICAL COMMAND, USA, VIETNAM

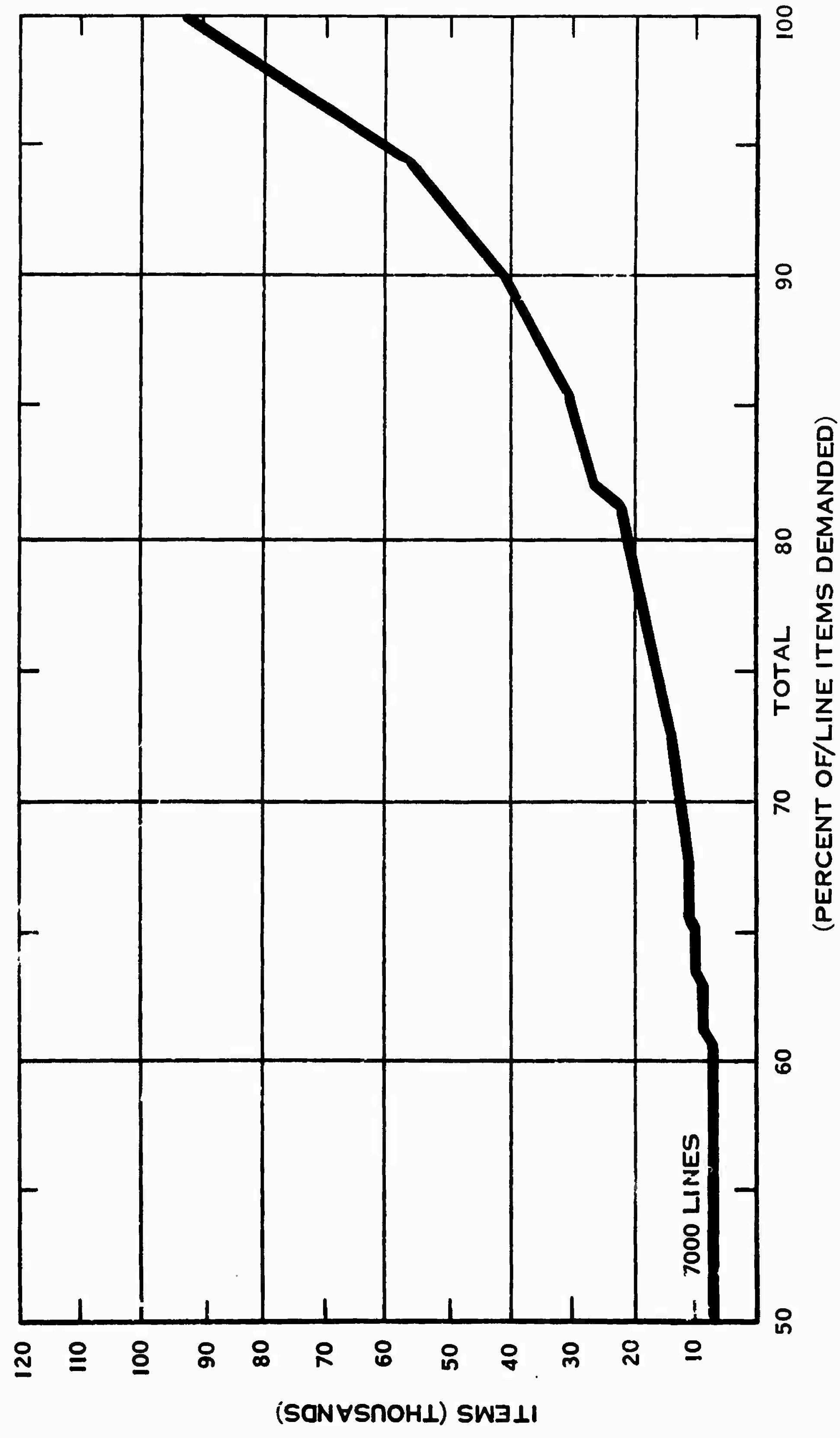

FIGURE 38. CUMULATIVE LINE ITEMS DEMANDED, YEAR ENDING 31 AUGUST 1968, QUI NHON DEPOT, 1ST LOGISTICAL COMMAND, USA. VIETNAM

FIGURE 38. CUMULATIVE LINE ITEMS DEMANDED, YEAR ENDING 31 AUGUST 1968, QUI NHON DEPOT, 1ST LOGISTICAL COMMAND, USA, VIETNAM

10. The study that was based on data collected in Seventh Army, Europe, in 1967 and 1968 disclosed that intensive management on only 8,130 items out of 106,629 items demanded would have covered 85 percent of the total dollar-value of sales during the period. Other studies reflect that this same range of items would also provide approximately 85 percent accommodation of consumer demands.[15]

11. Other benefits of simplified supply procedures are:

a. The removal of the paper workload from the unit which does not have the capability of doing it properly.

b. The elimination of approximately 20 of the 30 steps involved in processing a single formal requisition.

c. The improvement of requisition accuracy for passing (non-stocked) items because the reference files for requisitioning preparation are available at the direct support unit and its personnel are more experienced.

d. Expedited service to customers.

(i) Management of Repairables

1. Timely and adequate knowledge of repairables and the prompt return of these items to designated maintenance facilities can contribute to substantial reductions in requirements for new procurement and, to the extent repairs are accomplished in-theater, savings in transportation. Repaired items can in turn provide a responsive source of supply to meet user-unit requirements.

2. Repairable items comprise 75 percent of Department of Defense inventory investment in secondary items, 70 percent of investment in provisioning programs, and 30 percent of replenishment investment programs.[16]

3. An appreciation for the funds involved in the replenishment of spares and repair parts is reflected in the following data contained in an OSD Audit report.[17]

> "Fiscal Year 1968 apportionment request for procurement of aircraft spares and repair parts was $917 million, of which about $433.4 million or 47.4 percent was applicable to the procurement of spares and $483.6 million or 52.6 percent to repair parts. FY 1969 - $908.0 million, $442.8 spares and $465.2 million repair parts."

4. It is of primary importance in the management of recoverable items that users return unserviceable items to the supply system promptly so that they may be repaired and become available for reuse. If the system is functioning properly, there should be an unserviceable turn-in for every replacement issue of repair part coded for repair. Exceptions occur when replaced items are lost or are considered uneconomically repairable and are to be scrapped, based on Service cost to repair criteria.

5. The Army currently exercises less control over repairables, except for aviation and missiles systems, than the other Services. In addition, the scope of operations conducted by the Army over large land masses, with limited use of fixed facilities, increases the problems in managing assets.

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[15]Research Analysis Corporation, An Analysis of User-Unit and Direct Support Unit Repair Part Supply Operations in Seventh Army, (RAC-R-27) contractual study prepared for the U.S. Department of the Army.

[16]Secretary of Defense (I&L), Supply Management Review Program, Planning Report, October 1965.

[17]Deputy Comptroller for Internal Audit, Directorate for Defense Audits, OSD, Report on the Audit of Order and Shipping Time (OST) Factors used in Computing U. S. Pacific Air Force (PACAF) Base Level Stock Requirements, 15 October 1968.

6. The General Accounting Office (GAO) contends that although the Army has established procedures for the return of unserviceable recoverable repair parts to the supply system for repair and reuse, that substantial quantities of these parts were not being returned by using installations. A review of some 12,000 replacement parts issued at seven troop installations showed that about 70 percent of these parts were not returned to the supply system for repair. Further, some of the unserviceable parts that were not recovered were, at various times, critical items in short supply Army-wide. The principal reasons these parts were not returned were incorrect and inconsistent recoverability codings in publications issued by the national inventory control points (NICPs) and lack of action by supply activities to obtain the return of repairable items. The Army concurred with the GAO finding. In its reply the Army stated:

> "The Army has for some time recognized the problem of the failure of using installations to promptly return unserviceable recoverable repair parts to the system for repair and re-use. In this connection, AR 710-50 presently entitled Return of Critical and Intensively Managed Secondary Items has been revised and will be reissued under the title "Intensive Management of Secondary Items." This revision expands the scope of existing regulation by providing for application of intensive management principles and practices to critical secondary items and establishing the CONUS ICPs as the central controlling authority on these items, and provides a mandatory provision for CONUS ICPs to publish complete new Supply Letters each Quarter listing the items selected for intensive management. The regulation also prescribes policies and outlines procedures for the automatic and timely return to the designated sources of secondary items specified in the ICP Supply Letters. In addition, it advises major field commanders that continued support of field forces by the ICPs is contingent upon aggressive participation by field forces in the return programs.
>
> "To further assure expedited and balanced return of reparables with serviceable issues, a DA program has been established which places stringent control throughout the entire system, from unit to repair facility, and in supply, maintenance and transportation channels. This program, known as the Closed Loop Support (CLS) program is applicable to a very selective group of items and is now only operational for SE Asia. A new regulation is being developed which will expand the program worldwide and provide greater clarification and control. The CLS program is established to control the flow of critical serviceable and unserviceable end items, components, or assemblies to and from respective commands to maintain prescribed levels of readiness. It requires special management attention and the total integration of supply and maintenance activities within the Army's logistics system. The functions of supply, retrograde, overhaul, and resupply are arrayed and closely supervised to provide the visibility for insuring that critical items are expeditiously retrograded to a designated overhaul/rebuild facility and returned to the command through the supply system. Necessary controls and reports will be established for each DA approved program to assure immediate response to planning, programming, funding and other management requirements. Entry of specific end items, components and assemblies is directed by DA or recommended by a major commander."[18]

7. GAO review of Navy and Air Force control of repairables indicated that, as a general rule, their controls are adequate. It was observed, however, that management action was needed to obtain more timely processing of the repairables. Excessive delays in turn-ins increased the repair cycle time which, in turn, increased the number of components required.[19]

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[18] General Accounting Office, Need for Improvement in the Army's Supply System to Ensure the Recovery of Reparable Spare Parts, GAO Report to the Congress of the U.S., 23 January 1968.

[19] General Accounting Office, Need for Improvement in the Supply Systems Supporting Military Forces in the Far East, Draft Report to the Congress of the U.S., June 1969.

(j) Trends That Affect Supply Support Concepts

1. A trend toward greater mechanization has added more vehicle (both ground and air), as well as other types of equipment to combat units and has added to the maintenance workload. Also equipment is generally becoming more complex requiring more sophisticated maintenance support.

2. Restrictions must exist on the amount and type of maintenance that may be performed on equipment at organizational and field maintenance levels. However, as long as the number of supported items continues to grow, any restrictions on allocated skills, parts, and tools must be subject to continual review. Conflicting requirements make this a difficult problem. Care must be exercised to avoid overloading the unit's maintenance activities with parts and tools to the point that the unit's mobility is impaired. On the other hand, without a capability to handle the majority of equipment failure, unit effectiveness would rapidly deteriorate. This raises the fundamental issue of what are the most effective and efficient supply and maintenance concepts and procedures for providing this required capability.

3. Capitalizing on the potential of technological advances in transportation, communication, containerization, and automatic data processing systems could provide improved supply and maintenance support to forces deployed in overseas areas while reducing requirements for logistic resources. However, several studies pertaining to the exploitation of these technological advances reveal a tendency to take an all or nothing approach, e. g. , an all air line of communication, maximum use of container on the basis of what will physically go into a container with primary consideration to transportation efficiency, or all repair parts regardless of frequency of demand or urgency of need moving via air transportation. A total integrated logistic concept approach which includes the functional elements of supply, maintenance, and transportation should be provided greater effectiveness and efficiency.[20]

4. The replacement of assemblies and subassemblies has become one of the chief means of restoring end items to serviceability at organizational and field levels. Defective components, although often repairable, may be replaced immediately in order to reduce the total down time of the item it supports, the range and depth of lines that must be stocked, requirements for diagnostic capabilities, and demands for special repair skills.

5. Much electronic repair equipment is built of modules. Quick component replacement is one objective of electronic modularization, although other motives, including overall size and weight reduction, may at times be the prime concern. Many new electronic modules are less expensive than programs for their repair would be; many of these have been classed as throwaways, and as long as replacements remain available, defective ones are to be replaced but not repaired.

6. Tanks are designed so that their power packs (engine plus transmission) can be removed and installed in a relatively short time; in effect, power packs themselves are modules. In turn, an engine or a transmission may also be considered modular. The sheer weight and bulk of such "mechanical modules" present evacuation, repair, and supply problems differing from those of electronic assemblies. The choice between repair and replacement involves many factors, Because of high initial cost, tank engines, and transmissions are not likely to be viewed as readily expendable. These and other complex, expensive assemblies normally are repaired for reissue or stock. A decision to effect these repairs in the

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[20]Research Analysis Corporation, Economic Use of Military Airlift and Sealift of Overseas Shipment in Peacetime, contractural study for the U.S. Dept. of the Army, (RAC-R-64), January 1969; Weapons Systems Evaluation Group, Resupply in Peace and War by C-5 Airlift and by Containership, Institute for Defense Analyses Study WSEG Report #141, July 1969: Planning Research Corporation, Army Logistic Support Concepts, Contractual study prepared for the U.S. Dept of the Army, March 1969: American Power Jet, Containerization, contractual study for the JLRB, OSD, (APJ589-5), January 1970.

CONUS or outside of the immediate theater of operation could substantially reduce in-theater logistic support requirements. The tactical situation and considerations of distances between supported units and supporting activities, repair costs, and urgency of need also influence the decision to repair or replace assemblies at the lower echelons. Whatever the case, an unserviceable assembly cannot be replaced unless a serviceable one is available, and it cannot be repaired unless labor, tools, and parts are available. Here again effectiveness and efficiency should be viewed in terms of overall materiel readiness requirements and costs rather than supply, transportation or maintenance in isolation.

(k) Variable Demand Frequency Criteria[21]

1. The United States Army, Pacific (USARPAC), has been studying a variable demand frequency stockage and retention criteria concept for the past year. These studies are unique in that they are based on variable demand frequency by supply materiel category for each of the several USARPAC commands, including United States Army, Vietnam (USARV).

2. The objective of the variable demand frequency concept is to utilize the optimum demand frequency stockage and retention criteria for the stockage of fast-moving (frequently demanded) items at the field depot level in each major subordinate command and slow-moving (infrequently demanded) items at a base depot in Okinawa. The range, quantity, and cost of operating stocks will be reduced to the minimum level that will provide satisfactory support.

3. The concept is applicable to secondary items in ground support, general supplies, clothing and textiles, electronics, aircraft, tactical vehicles, missiles, weapons, packaged petroleum and industrial commodities.

4. USARPAC has conducted a test of this concept for United States Army Forces in Japan (USARJ) since 1 July 1969. The concept has proved to be highly sound and acceptable. Table 37 reflects the variable demand frequency criteria currently utilized by USARJ.

5 USARPAC's target is to achieve an 80 percent demand accomodation rate for each subordinate command.

a. The demand accommodation rate portion for field depot stockage is 60 to 65 percent.[22]

b. The combined demand accommodation rate for field and base depot stockage is 80 percent.

c. Aircraft and missile support items will, however, be stocked only at the field depot level.

6. The variable demand frequency stockage and retention criteria apply to all items in a materiel category, regardless of whether economic order quantity (EOQ) or non-EOQ qualified.

7. Available assets for items of materiel that fail to meet the variable demand retention criteria will be attrited for 6 months or until no demands are recorded in 1 year, whichever is sooner.

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[21] USARPAC Logistic Support System 1971, Appendix 3.

[22] Demand accommodation rate is the percentage of items requested by supported activities that are included on the supporting activity's stockage list.

TABLE 37

VARIABLE FREQUENCY DEMAND STOCKAGE CRITERIA,
UNITED STATES ARMY, JAPAN
(demands in 1 year)

Materiel Category	Stockage	Retention
Ground Support	5	3
General Supplies	12	9
Clothing and Textiles	3	1
Electronics	12	9
Aviation	3	1
Tank-Automotive	12	9
Missiles	N/A	N/A
Weapons	12	9
Munitions (CBR)	12	9
Packaged Petroleum	12	9
Industrial	12	9

8. The United States Army in Vietnam is currently employing a stockage criteria of 10 demands in 360 days for an item of materiel to qualify for stockage and 5 demands in 360 days for retention on the stockage list. This compares with a stockage criteria of 3 demands in 360 days to qualify for initial stockage and 1 demand in 360 days for retention used prior to April 1969. The command has reported that the change in stockage criteria has reduced the theater authorized stockage list from 135,000 to 79,000 line items of materiel, has not adversely affected customer satisfaction, and has enhanced the command's capability for managing the remaining items on its TASL.

9. USARPAC has instructed USARV to conduct a variable demand frequency study to determine the optimum stockage criteria by materiel category. The objective is to stock only fast-moving items in Vietnam. Demand accommodation rate target for each USARV depot has been established as 65 percent for each materiel category.[23]

10. Table 38 reflects USARPAC's proposed variable frequency of demand stockage criteria for the Eighth Army field depot in Korea. Proposed stockage criteria are based on an in-depth analysis of demand data, accommodation rates, and cost of inventories. This table indicates the current proposed stockage criteria and its impact on the number of line items of materiel stocked, demand accommodation rates and the depot's requisitioning objective (inventory).

(1) Supply Management Improvements. All of the Services have been engaged in recent years in programs to improve the effectiveness and efficiency of supply support for their forces deployed in overseas areas. In some instances these programs represent an integrated part of an overall logistic system. Other programs are addressed to a particular functional area within the system, or a specific activity or procedure. Some are based on prior field testing and are permanent in nature, while others are intended to temporarily resolve weaknesses or constraints that arise during the course of conducting supply support

[23] United States Army, Pacific, USARPAC Logistic Support System 1971 (Short Title: LSS-71), USARPAC System Study, 22 December 1969.

TABLE 38

VARIABLE FREQUENCY DEMAND STOCKAGE CRITERIA, EIGHTH UNITED STATES ARMY FIELD DEPOT, KOREA

Materiel Category	Demand Criteria			Authorized Stockage Lines			Demand Accommodation		Requisitioning Objective (millions of dollars)		
	Current	Proposed Stock	Proposed Retain	Current	Proposed	Decrease	Current	Proposed	Current	Proposed	Savings
Ground Support	3	10	6	17,914	10,186	7,728	86%	65%	8.0	4.9	3.1
General Supplies	3	12	3	5,975	2,951	3,024	93%	80%	5.0	4.3	.7
Clothing & Textiles	3	12	1	1,665	753	912	97%	81%	5.0	4.5	.5
Electronics	3	8	5	11,463	6,108	5,355	81%	63%	2.7	1.7	1.0
Aviation	3	3	1	1,046	1,046	0	68%	68%	.4	.4	0
Tank-Automotive	3	12	6	5,610	3,150	2,460	94%	82%	2.5	2.1	.4
Missiles	3	3	1	756	756	0	45%	45%	.7	.7	0
Weapons	3	12	8	2,657	1,061	1,596	91%	66%	.7	.4	.3
Munitions (CBR)	3	12	5	157	59	98	86%	66%	.1	0.04	.06
Packaged POL	3	12	9	418	176	242	92%	75%	6.2	5.9	.3
Industrial	3	8	5	8,523	4,206	4,317	83%	63%	1.2	.8	.4
Total				56,184	30,452	25,732			32.5	25.7	6.8

operations. The following are current programs or actions that are pertinent to the issue of improving the effectiveness and efficiency of supply support for forces in overseas areas, while minimizing requirements for logistic resources.

1. Army

a. A Department of the Army letter, AGSC-C DCSLOG, 7 April 1969, instructed the United States Army Materiel Command (USAMC) to develop a required control program that would impose controls over the varieties of similar items entering the Army supply system with particular emphasis on DSA/GSA type items, and to present to DA, DCSLOG, implementing plans and time schedules.

b. USAMC initial review was concerned specifically with General Services Administration (GSA) items which have been designated as DOD nonstandard as a result of actions taken in the Defense Standardization Program. The review indicated that 27 percent of the items in the GSA supply system have been designated as DOD nonstandard. Presumably, GSA retains many DOD nonstandard items in its supply system to satisfy non-DOD requirements and authorizations. Control over the introduction of GSA items designated as DOD nonstandard is complicated by the fact that requisitions for GSA items now flow directly from the Army in the field to GSA stock points.

c. On 30 April 1969, USAMC provided DSCLOG, DA, with the results of its initial review and indicated techniques that could be used to properly identify all (Army-used) DOD nonstandard items in the Army Master Data File (AMDF) and in the Army column of Defense Automatic Addressor in lieu of the GSA routing identifiers, thus diverting any requisitions to appropriate Army materiel managers for pre-edit and/or challenge.[24]

d. A Headquarters United States Army Materiel Command message, R19200512, June 1969, to all major commands outlines the first of a series of actions taken by the Department of the Army to restrict the variety of items authorized to be requisitioned and stocked by the Army. These actions include prohibiting the use of Federal supply catalogs and General Services Administration stock catalog and guides for selecting items to be requisitioned, or for determining source of supply. The message stated: "It is the intent of the Department of the Army that the Master Data File (AMDF), AR 700-1, will comprise the Electrical Accounting Machine (EAM) card, tape and/or microfilm equivalent of the hard copy identification lists of the Federal Manual for Supply Cataloging, for use by the Army pursuant to the provisions of Chapter 7, AR 708-17."

e. Department of the Army (DA), circular 700-18,[25] dated 28 November 1969, represents a reappraisal by the Army of the actions required to achieve the desired logistic improvements. In view of the importance of the actions contemplated in relation to the issues identified in this chapter, pertinent portions of the circular are quoted below.

> "The range of items stocked at each supply echelon must be greatly reduced. This includes a far more restrictive criteria for stockage of materiel at all echelons of supply; and changes the concept of and authorization for stockage of slower moving items in the category of mission essential, initial provisioning and other nondemand supported items; initially provisioned items to overseas areas will not normally be positioned forward of the theater depot. Likewise mission essential reserve stockage and other nondemand supported items normally will be positioned only in a theater depot. Controls will be established and appropriate techniques used to provide an authorization review of requisitions at all requisitioning provisioning points.

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[24] USAMC, Letter, Restrictions to Size, Types and Grades of Items/Authorized For Use by the Army in the Field, 18 August 1969.

[25] Department of the Army (DA), circular 700-18, Logistics Improvements, 28 November 1969.

"Inventory in Motion" principles will be used to the maximum extent feasible. Inventory in Motion is an integrated supply and transportation management concept which has as its ultimate goal nonstop (throughput) supply support direct from CONUS to the overseas direct support (DSU) level. It is intended to provide better support at less expense by reducing stocks of supplies on the ground and related storage costs through greater asset visibility and control. The concept of Inventory in Motion encompasses the following principles:

"Increased vertical management, i. e., commodity orientation and weapons systems management.

"Reduction in the number of intermediate supply echelons. Minimal shelf and reserve stocks with reliance placed on intransit materiel to directly satisfy the requirements of the direct support units and consumers.

"Integration of a modern air line of communications (ALOC) and coordinated surface transport system with a streamlined supply system.

"Increased/improved asset visibility which reduces requirements for supplies and improves the distribution to an overseas command and the lateral distributions of materiel within a theater.

"Improved packaging containerization and sub-containerization which permits faster deliveries to direct support units and consumer levels and reduces stockage requirements.

"Simplicity and austerity in procedures, replacing manual-oriented systems with machine-oriented systems wherever possible. These automated systems would provide complete visibility through integration and quick accessibility to supply and transportation data.

"Employment of Logistics Control Offices (LCOs) to assist in providing the visibility and flexibility for control of the flow of materiel in the pipeline.

"Reduced order and ship times to conserve resources, including data handling and transportation processes."

f. Improved reconciliation and validation of records at all echelons of supply has received particular attention by the Army. The Army's objective in this area is toward monthly reconciliation and validation of requirements. Early detection of changing requirements and prompt cancellation of unneeded items can release funds for other urgent Army requirements.

g. Coupled with efforts to improve supply management overseas the Army has a three-phased U.S. Army Materiel Command Logistic Support Plan.

h. USAMC will continue to develop depot complexes in the CONUS, oriented to the support of overseas areas, and the logistic intelligence and asset knowledge needed to reduce supplies in storage overseas. During phase I, USAMC will institute procedures and take actions to containerize and palletize periodic shipments for convenience of overseas receiving activities, and minimize overseas theater depot retail activities. Shipments will be consolidated insofar as possible to eliminate repetitive documentation, handling, and packing costs and to reduce transportation costs.

i. Assembly of shipments for containerization and palletizing will include Defense Supply and General Supply Agency (DSA/GSA) items as appropriate. As overseas theater authorized stock lists are reduced, USAMC will ensure responsive support to compensate for reductions in range or depths of stocks.

j. USAMC will complete the establishment of a logistics information file (LIF) at the LCOs to eliminate unnecessary delays in supply processing or the movement part of the order and shipping cycle. The LIF will allow USAMC and the theater to know where unnecessary delays exist, whether they be in a CONUS national inventory control point (NICP) processing, depot shipping, or the transportation movement part of the cycle. Specifically, when the overseas theater submits a requisition to CONUS an image copy of the requisition will be placed in the LIF. This technique is already being used for South Vietnam and Europe to a small degree in monitoring and controlling "Fast Fix." The technique will be expanded to cover all overseas requisitions for USAMC, DSA, and GSA items.

k. As approved by Department of the Army, USAMC, during phase II, will expand operations at the CONUS overseas theater-oriented depot complexes; DSA/GSA items will be positioned in these CONUS depots as appropriate. The program to containerize to meet the overseas theater's needs will continue. In addition, DA and USAMC in coordination with the overseas theaters will review initial materiel provisioning policy and procedures to determine what range of provisioning items can be stored in CONUS in lieu of the overseas theater depot.

l. During phase III assessment of effectiveness of phases I and II will be made in order to determine further expansion of concepts wherein CONUS sources will provide maximum overseas theater-oriented services. As a result of this assessment, a coordinated plan will be prepared to achieve additional efficiencies.

m. Department of the Army message, 1116362, September 1969, to all overseas and CONUS major commanders requested comments on a DA proposal to revise stockage criteria from 3 to 6 demands in 360 or 3 in 180 days as appropriate. The same message emphasized the necessity for reducing order and ship time at the direct support level, more frequent reconciliations and validation of requirements between the requisitioners and supporting supply echelons, and a review of procedures used in the computation of requisitioning objectives to ensure that levels of supply are in line with future deployments of troops and a realistic consumption base.

n. In a memorandum to the Chairman of the JLRB on 13 November 1969, the Deputy Chief of Staff for Logistics stated:

> "Overall command reaction was generally in accord with the proposed more stringent stockage criteria, with an indication that stockage lists can be drastically reduced at all levels. In fact, United States Army in Europe (USAREUR) implemented a stockage criteria of 6 demands in 360 days for Authorized Stockage Lists (ASLs), and 6 in 180 days for Prescribed Load Lists, (PLLs) in February 1969, which has resulted in significant reductions of authorized stockage lists with no degradation of demand accommodations, satisfactions or materiel readiness."

o. USARPAC has been studying the application of a variable demand frequency criteria for the stockage of items at direct support, general support and depot levels in USARPAC as previously discussed.

p. Results of initial studies indicated that substantial reductions in the range of stockage could be made without impairing support to supported forces.

q. The 1st Logistical Command in Vietnam increased the stockage criteria for its theater stockage list from 3 demands in 360 days to add and 1 demand in 360 days to retain starting in April 1969. In September 1969 the stockage criteria were changed to 10 demands in 360 days to add and 5 demands in 360 days to retain. This has reduced the TASL from 135,000 to 81,500 line items. The command states that the rapid drawdown of of its authorized stockage list had not adversely affected customer satisfactions and it had enhanced the commands capability for managing the remaining items.

r. General support level supply echelons have been eliminated; direct support units now requisition directly on the theater level supply and maintenance activities.

s. Demand criteria for stockage have been increased to reduce the range of items stocked at the unit and direct support levels. It is estimated that this could reduce the range of items for direct support unit stockage by approximately 25 percent and unit level prescribed load lists by as much as 60 percent.

t. Procedures for editing requisitions have been strengthened at all supply echelons to reduce both the range and variety of items ordered and priorities of requisitions.

u. The scope of country store operations has been expended to eliminate detailed accounting and in-theater formal requisitioning procedures for an additional 1,600 items of materiel. It is estimated that this will reduce, by 58 percent, formal requisitioning and accounting procedures.

2. Navy

a. The Navy has been actively pursuing several programs in recent years to improve the effectiveness of fleet support for secondary items while concurrently reducing the range and depth of material aboard fleet combat units and the mobile logistic support forces. Administered by Commander, Naval Supply Systems Command, the programs have been based on Navy fleet support policies promulgated by CNO in OPNAVINST 4441.12.[26] Such programs include fleet issue load lists, tender load lists, and coordinated shipboard allowance lists.

b. Fleet issue load lists (FILL) are computed by the Fleet Material Support Office (FMSO). The FILLS are demand based loads and are designed to provide resupply ships of the mobile logistic support force with tailored loads of fast moving, critical, and selected insurance items for resupply of fleet combat units. The load computation receives continual evaluation and updating by FMSO and the Naval Supply System Command to ensure responsiveness to fleet requirements. Composed of Peacetime War Reserve Stocks (PWRS), the FILL is backed up by additional PWRS maintained at the Naval Supply Centers, Norfolk, and Oakland. Total value of the 11 FILLs and backup stocks is approximately $31.5 million. Effectiveness of the backup stocks at NSCs, Oakland, and Norfolk, is evaluated monthly by FMSO.

c. Tender Load Lists (TLL) are computed and tailored by FMSO to support the industrial mission, and in the case of submarine tenders, the resupply mission, of fleet tenders. The TLL consists of both a demand based portion and an insurance item portion. TLL are computed by FMSO every year for each tender or upon request of the type commanders. TLL criteria and computation have been modified extensively in recent years to decrease the investment value while achieving optimum TLL effectiveness. These improvements are reflected in a comparison of the 1967 and 1969 TLLs prepared for destroyer tenders of the Atlantic Fleet: the improved 1969 TLL showed a 28-percent reduction in line items with a 31-percent reduction in dollar investment while achieving a 9-percent increase in range coverage effectiveness. Similar programs have been implemented for all type TLLs in both fleets.

d. Coordinated shipboard allowance lists (COSALS) are allowance lists tailored to an individual ship's configuration which specify the range and depth of materiel required to achieve the basic combat endurance prescribed by CNO (OPNAVINST 4441.12).[27] Prepared by Navy inventory control points, the COSALS are revised periodically based on parts usage data provided by the Navy ship's casualty reporting system and the

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[26] Department of the Navy, OPNAVINST 4441.12, Supply Support of the Operating Forces, 27 August 1964.
[27] Ibid.

maintenance data collection system, and due to changes in range and depth criteria and computation methodology. Significant improvements have been achieved since 1964 by the Navy's Fleet Logistic Support Improvement Program (FLSIP) administered by Commander, Naval Supply System Command. Typical of the improvements in COSAL range and depth coverage afforded by the FLSIP program are the COSAL reductions that were achieved for the destroyer escort DE-1050 without any degradation of COSAL effectiveness. Using the "prior to 1965" COSAL as a base, the following reductions were achieved in the 1965 and 1968 COSALS:

DE1050	1965 COSAL	1968 COSAL
Percent reduction in range	24.2	31.5
Percent reduction in depth	27.4	29.6
Percent reduction in cost	27.8	33.3

e. In addition to reducing range and depth of stocks aboard fleet units, special requisition monitoring and reporting techniques and, in some cases, organizations, have been established for special CNO approved programs and weapon systems. The primary objectives of such techniques are to give deployed units a means of identifying their critical requirements to the CONUS supply system to permit their special handling and expediting (management by exception), or to identify requisitioning data to CONUS activities to permit compiling for analysis and reporting to interested support and command activities. The means of identification is usually a code in the body of the requisition. Some of the techniques used during the period 1965-69 included the 711 program, Tiger Tom/Bobcat, NORSAIR, CASREPT, and SCIP.

f. The 711 program provides for rapid processing and continual monitoring of requisitions for Seventh Fleet CASREPT materiel. The project code 711 is assigned by the requisitioning activity to all requisitions required to correct Seventh Fleet aircraft carrier CASREPTS and CASREPTS for all other Seventh Fleet ships which reduce the ship's operating capacity to a serious degree. The 711 project code is recognized by all Navy and DSA Supply activities and priority processing as well as shipping is provided to the 711 requisition. Weekly status reports of outstanding 711 requisitions are provided to CINCPACFLT and type commanders.

g. Tiger Tom and Bobcat are special expediting programs for the processing of high priority requisitions and shipment of materiel required to satisfy Seventh Fleet, Sixth Fleet, and Fleet Marine Force Air Wing aircraft NORS (not operationally ready for reasons of supply) and NFE (not fully equipped) conditions. Tiger Tom is applicable to Seventh Fleet and Western Pacific aviation units. Bobcat is applicable to Sixth Fleet and Eastern Atlantic aviation units. Status of outstanding Tiger Tom and Bobcat requisitions is provided to the fleet and type commanders. These programs are recognized and afforded priority attention by all Navy and DSA supply activities and transportation activities.

h. To enable the Navy to participate in the Defense-wide system of aircraft accounting, particularly in the area of aircraft NORS, a NORSAIR Reporting Program was instituted. This program is designed to enable naval aviation units to identify requisitions for materiel that are causing aircraft NORS and NFE conditions. The data generated by these NORSAIR requisitions are reported to the Aviation Supply Office (ASO). ASO compiles monthly NORSAIR reports and provides analyses to NAVSUP, NAVAIR, CNM and CNO. The NORSAIR provides the supply data that enables management to effect a continual review for corrective actions on problem items generating NORS and NFE conditions.

i. The consolidated CASREPT reporting system provided for the collection of data from all ship's casualty reports at a central point, the Navy Fleet Material Support Office, Mechanicsburg, Pennsylvania, and the processing and issuance of various summary and information reports to interested user commands throughout the Navy. The casualty reporting (CASREPT) system prescribed by Naval War Information Publication (NWIP) 10-1B provides a timely method of reporting equipment failures, and the effect of these failures on the combat capability of the reporting ships. The CASREPT material condition and readiness reports generated by the casualty reporting system are designed to recognize problem equipments, supply support deficiencies, maintenance difficulties, and other situations that are reducing the combat readiness of active fleet ships.

j. The Ship Capability Impaired for Lack of Parts Program (SCIP) is a reporting program to identify and report deficiencies in support of CNO approved special weapon systems and equipments. SCIP is designed to provide current, cumulative intelligence to management activities for review, analysis and the initiation of corrective action, and to facilitate the expeditious processing of ship's requisitions for materiel to support the approved special weapon systems and equipments. SCIP is a "closed loop" requisition monitoring program that has a rather narrow equipment application. The equipments included in the program are predominantly surface missile systems. A small number of special equipments and ASW equipments are also included and are defined in NAVSUPINST 4408. 1A.[28]

3. Air Force

a. The evolution of the Air Force's standard supply system has facilitated the capability for identification of problem areas. One of the areas considered a problem of long standing is stock control. An influencing factor that causes stock control to be a very difficult area of management is the extreme randomness of demands and the inability to precisely forecast requirements.

b. The Air Force approach to this problem was the establishment in 1964 of a working group composed of technical representatives from Hq., USAF, Hq., AFLC, and nine of the major commands. It is structured with the expertise of not only supply technicians from each organization, but also technical representation from the systems design center (retail) and logistics systems center (wholesale). The group meets quarterly and is known as Chapter 11 and 17 working group. Its main purpose is to compare USAF stock control policy with the "real world environment," determine if changes to AF policy are required and develop recommendations to HQ., USAF. Prime considerations are inventory manager (IM) versus base requirements philosophy, requirements versus distribution policies (total logistics), types of items stocked and future logistics plans.

c. The most important feature of this group is that proposed changes to policies can be simulated by using "live" data rather than by implementing changes and waiting to determine favorable or adverse impact on the supply systems. This is made possible through use of data available through the USAF standard supply UNIVAC 1050-II computer system. The data are provided from 21 selected Air Force bases by semiannual file dumps (tape.) The file dump provides a complete record of the supply stockage list that includes transaction history of each item stocked. Examples of studies made by the group are:

Stock criteria in relationship to demands
Order and shipping time
Requirements versus assets
Interchangeable and substitution relationships
Excess position reports.

d. Some of the findings of the group were the randomness of demands, releveling was too frequent, levels were established too early, inactive items existed, and limits on low-cost items were having an insignificant impact. Based on findings of the

[28]Department of the Navy, NAVSUPINST 4408. 1A, Ship Essentiality Equipment Requirements, 18 December 1969.

working group, improvements of the supply system have been made through factual evaluation of policies before implementation. [29]

(2) Conclusions

(a) Review of the supply support problems in Vietnam leads to several conclusions that have application to both worldwide overseas supply operations and to similar future conting cy operations.

1. The capabilities of log stic facilities initially available ranged from marginal, at best, in some areas, to inadequate or totally lacking in other areas, to support the desired plan of buildup of forces in Vietnam.

2. In many instances the quantities of materiel shipped into Vietnam were far in excess of those required for effective and efficient supply support of deployed forces. The excess quantities of materiel congested the supply distribution systems and generated long-range problems inhibiting effective and efficient supply support.

3. During the early stages of a contingency, when facilities and personnel are at best marginal, the stockage criteria should be particularly stringent. As the capacity to handle materiel and the logistical data base are improved, the early stringent criteria can be relaxed if warranted by other logistic considerations.

4. In most instances the supply stockage criteria employed by the Services in support of operations in Vietnam even after the initial buildup period, from 1965 through 1967, developed a wider range of stocks than was required for an optimum balance in effectiveness and efficiency.

5. Each Service should establish for demand-supported items of materiel outside of the CONUS wholesale systems more stringent stockage criteria for both initial stockage and retention of stocks. The criteria may vary by Service, by activity or overseas geographical area, and by category of materiel.

6. A stratification of the typical supply inventory of secondary items by frequency of demands at any segment of the DOD supply system will indicate that a relatively small number of items support the majority of total demands and that resources are required to manage many thousands of items for which there has been no demand over significant periods of time.

7. The initial supply support problems experienced by the Army in Vietnam were accentuated by delays in providing an adequate top-level logistic management capability (paragraph 1b(1)).

(b) Requirements for logistical resources in overseas areas can be substantially reduced by using the capabilities of currently available transportation, communications, and data processing equipment to provide responsive supply support in lieu of stockage of materiel in overseas (paragraph 1b(1)).

(c) Service maintenance policies have a decided impact on the range and depth of in-theater stockage. Peorientation of maintenance towards a module replacement concept would substantially reduce the requirements for stockage of a wide range of repair parts in forward areas (paragraph 1b(1)).

(d) The value of a particular item of supply is not indicative of its importance to the ultimate user in terms of materiel readiness of combat capability (paragraph 1b(1)).

[29] Headquarters, AFLC, Chapter 11/17 Work Group Meeting Minutes, Minutes of AFLC Work Group Meeting, 25-29 March 1968: 12-16 August 1969: 14-18 Octover 1968: 27-31 January 1969: 13-16 May 1969.

(e) It is both feasible and desirable to consider logistic support of overseas forces on a selected commodity basis for certain categories of supply, such as subsistence and ammunition, while, at the same time, providing support on the basis of an entire weapons system or individual item of equipment. The Services should retain flexibility in selecting supply support procedures that best meet Service requirements (paragraph 1b(1)).

(f) The majority of Class II general supplies, Class VIII medical and Class IX repair parts required by forces in an overseas area can be satisfied by stocking in depth relatively few items in-theater and moving low-frequency demand items in by the use of responsive supply and transportation procedures (paragraph 1b(1)).

(g) Current overseas replenishment stockage policies for most secondary items, including repair shops, are primarily oriented to the frequency of past demands. A high percentage of the maintenance related consumables at the user level display erratic demand patterns. This is manifested by turbulence in the composition of stockage list (paragraph 1b(1)).

(h) Reduction could have been made in the range and quantities of housekeeping and administrative items, such as paper products, paints, office and quarters furniture, which are generally requisitioned from the General Services Administration, and which were introducted by the Services into Vietnam. This would have contributed to improving the overall effectiveness and efficiency of supply support operation (paragraph 1b)1)).

(i) The Army could make greater use of country store and self service supply center techniques to make available repair parts and other consumables to the user units in overseas areas. This would facilitate the obtaining of supplies by user units and eliminate much of the expense and time required to process requests and account for these items according to formal requisitioning and accounting procedures (paragraph 1b(1)).

(j) Intermediate echelons of supply management between the overseas retail consumers and the CONUS inventory control points can contribute to increased document processing and order and ship times. Each echelon also adds to the depth of materiel stocked in overseas areas and creates requirements for additional logistic resources (paragraph 1b(1)).

(3) Recommendations. The Board recommends that:

(a) All Services reduce the stockage of demand-supported, consumable items of materiel including repair parts in forward operating locations to a range of items in accordance with the following:[30]

1. Each Service should establish stringent targets of a specific number of frequencies of demand for an item to qualify for initial stockage and retention. The targets will vary by Service, activity, type of materiel, and combat environment.

2. During the early stages of a contingency when facilities and personnel are at best marginal, the criteria for stockage should be particularly stringent and could then be relaxed to the extent that economy and capacity to handle materiel and data warrant.

3. Special stockage criteria will be required for special categories of materiel, such as, shelf-life items, high-value items, seasonal items, planned program items, and items with special storage requirements.

4. Initial stockage of items newly introduced into the Service's supply system should be added to the overseas supply point's stock list only if their anticipated usage meets the criterion for initial stockage as specified above.

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[30] See Section C, Exploration of Air Transportation, for discussion on overseas stockage of insurance and mission-essential items of materiel.

5. Items not meeting the prescribed retention criterion will be reported promptly to the applicable inventory manager in accordance with Service procedures (conclusion (2)(a) through (2)(g)).

(b) The Services establish policies and procedures to limit the range and quantity of nonessential housekeeping and administrative materiel, such as paints, furniture, and certain paper products, authorized to be requisitioned by units in overseas areas to the minimum required for essential administration and troop support. Special justification should be required for unauthorized items. Service procedures could be in the form of catalogues tailored for a specific oversea area(s), allowance lists related to assigned logistic support missions, or the use of item identifiers in Service master item data files (conclusion (2)(h)).

(c) The Army make greater use of country store and self service supply center techniques to make available selected repair parts and other consumables to the user units in overseas areas (conclusion (2)(i)).

(d) All Services limit intermediate echelons of supply with a normal goal of not more than one intermediate echelon between the overseas support elements supporting operating units and the CONUS wholesale system (conclusion (2)(j)).

(e) Army plans provide that when a contingency operation appears imminent an experienced logistic commander with rank appropriate to the anticipated scope of operations will be designated. He should be provided a nucleus staff and both should be located with the headquarters of the prospective operation or as near as possible (conclusion (2)(a).

c. Exploitation of Air Transportation

(1) Discussion. The use of air transportation in support of military supply operations has received increased attention of the DOD in recent years. A number of significant reports have evaluated the impact and potential of substantially increased air transportation capability in support of military logistics. Some of these are the Department of the Air Force AIRLOG-70 series of reports and the related study by the Douglas Aircraft Company, Post 1971 Materials Handlings, March 1967; Department of the Army LOC-ALOC II and studies prepared for the Army Board of Inquiry on the Army Logistics System (Brown Board); and the Department of the Navy Rapid Delivery Logistics Study (NARDELOG) published in 1969.

(a) The Military Airlift Command (MAC) is an integral part of the strategic concept for meeting national defense commitments. MAC provides a very substantial, rapid reaction capability to respond to either planned or emergency requirements.

(b) Air transportation is an essential element of a modern supply distribution system. The importance of air transportation is emphasized in the support of contingency operations such as in Vietnam where U. S. Force operations escalated rapidly. The capability of air transportation to deploy rapidly personnel and materiel in response to combat operational requirements has been of paramount importance in accomplishing national military objectives in Vietnam.

(c) The peacetime employment of MAC at a reasonable level of its potential capability is essential in maintaining the necessary training base and operating posture to quickly respond to contingency or emergency operational missions.

(d) The key to realization of the advantages of strategic air transportation in the initial logistical support for contingency operations lies in the timely provision of the military units with the necessary handling equipment, the communications and ADP equipment necessary for establishment of orderly supply management control over materiel shipped to the theater. The potential benefits of strategic air transportation for logistic support of sustained military operations in terms of resupply efficiency and supply availability cannot be realized unless overseas retail supply echelons can closely interact on a continuing basis with the CONUS level wholesalers. This requires an effective logistic management information system.

(e) In considering the possibility for increased use of airlift for resupply with reductions in overseas stockage such factors as the differences in the Service's overseas supply distribution systems, and the operating environment of deployed forces should be taken into account. Naval forces at sea are normally provided a maximum independence of shore bases with resupply being accomplished by the mobile logistic force ships. Navy combatant ships normally rotate periodically through CONUS ports and are thereby afforded an opportunity of replenishing their stocks before departing for overseas again. Similarly, the Service Force resupply ships normally draw their replenishment directly from the CONUS. Overseas Naval bases are more comparable to Air Force bases.[31]

(f) With the exception of aircraft carriers and their limited support by carrier onboard delivery (COD) aircraft, Navy ships, when deployed, do not have the capability to receive aerial resupply by fixed-wing aircraft. Although some ships have the capability to receive helicopter delivery, the range of the helicopter is such that except for limited cases this would prove impractical as a primary means of providing fleet support from overseas land bases.

(g) Overseas Navy shore facilities are normally located convenient to airfields and can make extensive use of air transportation. Current Navy land-based facilities in the western Pacific are well adapted to receive increased air deliveries if this is indicated in terms of economy or supply efficiency. In the Atlantic/European area, increased use of strategic air transportation for resupply would necessarily involve increased dependence on foreign land facilities and, hence, could potentially reduce freedom of action.

(h) The Air Force's exploitation of airlift that facilitated overseas depot closings does not extend to ammunition or to the low-value consumables that continue to normally be transported by surface means, and which are programmed by the Air Force for surface delivery in the foreseeable future.[32]

(i) The use of air transportation will premit a given stock level to be sustained with a reduced pipeline inventory. This is particularly desirable for high-dollar value items of materiel or for other items which are also intensely managed for other reasons. With reasonable allowance for emergency demands, air transportation also provides a means of increasing stockage availability to meet future unprogrammed requirements, i.e., substituting responsive transportation for stockage in-theater.

(j) Air transportation offers definite advantages in responding to less predictable demands for materiel by overseas consumers and for the movement of high-dollar and intensively managed items of materiel.

(k) All of the studies previously referenced in this paragraph recognize that even with the introduction of six squadron (96 aircraft) of C-5A aircraft the Military Airlift Command (MAC) will still only have a capacity to lift a relatively small percentage of the total military dry cargo requirements in support of major overseas operation in the 1970-1975 timeframe. MAC aircraft utilization to meet peacetime training requirements in the 1970s will

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[31] Weapons Systems Evaluation Group, Resupply in Peace and War by C-5 Airlift and by Containership, Institute for Defense Analysis study WSEG Report #141, July 1969.

[32] Ibid.

generate more than enough airlift capacity to satisfy military requirements for air transportation of materiel that can be moved economically by air.[33]

(l) The routine use of air transportation for nondemand supported items of materiel, except for those items obviously not suited for air transportation because of bulk weight, or nonessentiality, would permit substantial reductions in the range of items stocked overseas. Air transportation for the movement of materiel, particularly secondary items, must be on a predictable and timely basis if the range of items of materiel are decreased, or a degree of risk could be introduced that would be unacceptable to the commanders concerned.

(m) Once a Service has developed the system and procedures to use air transportation as the normal method of responding to demands for infrequently demanded items, a reduction in requirements for logistics resources in overseas should be possible.

(n) All of the Services have used superpriority air transportation supply procedures extensively such as 999, Red Ball, and Tiger Tom to support their forces in Vietnam. During the period May 1967 to April 1968 superpriority tonnage as a percentage of total tons airlifted increased from 15.8 percent to 27.4 percent (Tables 39 and 40). In some instances air transportation was used for replenishment stocks of materiel. This was necessary to build up initial stock level or to circumvent surface shipping delays.

(o) The Army's Red Ball operations have demonstrated the potential for substituting responsive supply and transportation procedures for overseas stockage. The initial effectiveness of Red Ball can be attributed in large part to reserved and predictable air transportation and the use of a single Army agency, the Logistic Control Office, Pacific (LCOP) to exercise central control and coordination for Red Ball operations. The use of a single CONUS air terminal has facilitated the LCOPs capability for maintaining the status of in-transit shipments.

(p) Red Ball requisitions have increased in relation to increased enemy activity in Vietnam. With each significant combat action the requisition flow exceeded the average Red Ball in-put and normal materiel operational readiness rates were reestablished within a short period of the action. Since many items needed due to combat damage are low-mortality, low-usage items that are not normally stocked below the CONUS depot level, the capability of rapidly regaining a high materiel operational readiness posture again exemplifies the effectiveness of the Red Ball supply procedures.

(q) Red Ball demands accounted for only 7.7 percent of the total daily airlift of materiel from the CONUS to Vietnam during the period 1 January 1968 to 30 June 1969. This represented approximately 1,000 tons of airlift monthly and only 12.7 percent of the total airlift allocated for the Army during the period. Approximately 65 percent of the items requisitioned through Red Ball procedures were ordered only once during the period April 1968 through June 1969.[34]

(r) The average value of materiel shipped overseas for the Air force in 1965 was considerably higher than that for the other Services. Aircraft engines and expendable depot repair (XD) and expendable reparable base repair items (XF) were valued at $15.50 a pound while the average value for all Air Force managed materiel shipped overseas was slightly over $7.00 a pound. Value of all materiel received by Air Force units overseas including DSA and GSA materiel was approximately $3.00 a pound. By contrast the average value for all military shipments including the Air Force shipments was only 82 cents a pound. Tables 41 and 42 provide additi[illegible] data on the cost and physical characteristics of military materiel.

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[33] Ibid.

[34] Department of the Army, Study of Red Ball Express Systems, Report of Army Study, 26 August 1969.

TABLE 39

TOTAL AIRLIFT AND SUPERPRIORITY TONNAGE
(Short Tons)

Period	Total*	Superpriority	Percent of Total
May 1967	31,312	4,940	15.8
Jun 1967	26,070	4,117	15.8
Jul 1967	26,591	5,006	18.8
Aug 1967	26,611	6,343	23.8
Sep 1967	25,244	6,664	26.4
Oct 1967	27,006	6,608	24.5
Nov 1967	27,716	5,970	21.5
Dec 1967	27,718	7,334	26.5
Jan 1968	25,119	7,553	30.1
Feb 1968	30,545	8,575	28.1
Mar 1968	34,367	11,206	32.6
Apr 1968	32,010	8,775	27.4

*Does not include Special Assignment Mission Movements.

TABLE 40

PROJECT 999 AND RED BALL SHIPMENTS.
PERCENTAGE OF SUPERPRIORITY TONNAGE

Period	Project 999*	Red Ball
May 1967	8.6	5.0
Jun 1967	9.1	5.7
Jul 1967	10.8	6.9
Aug 1967	15.5	7.2
Sep 1967	18.0	7.1
Oct 1967	15.8	7.8
Nov 1967	14.5	6.7
Dec 1967	19.5	5.9
Jan 1968	21.7	7.1
Feb 1968	20.0	6.2
Mar 1968	23.4	6.4
Apr 1968	21.9	4.4

* Does not include Red Ball.

TABLE 41

SUPPLY CLASS PERCENTAGE OF ESTIMATED OUTBOUND TONNAGE IN PEACE AND WAR—WEIGHT, VOLUME, AND COST CHARACTERISTICS

Military Supply Class	FY 65[1]	Scenario[2] A	B	C	MT/ST	lb/cu ft	$/lb
I	4.9	11.3	15.0	12.9	1.4	35.9	0.24
II	43.1	9.9	11.3	10.1	1.7	29.0	0.43
III (packaged)	3.4	5.6	5.6	5.0	2.1	24.4	0.13
IV	31.9	5.4	8.7	7.6	1.5	33.3	0.16
V	0.8	43.2	32.6	39.2	2.3	21.3	3.28
VI	1.5	6.4	9.2	7.8	3.8	13.4	0.30
VII	7.1	4.4	5.8	5.3	2.5	19.2	2.99
VIII	0.7	0.6	0.6	0.6	2.1	23.6	4.39
IX	6.1	5.3	6.4	5.6	2.7	18.5	4.15
X	0.3	7.9	5.0	5.9	3.1	16.2	1.07
Overall					1.8	27.6	0.82

[1]These data do not include perishables (reefer). Class V excludes conventional ammunition and is therefore considered unrepresentative of the class as a whole. Relatively low density and high value are more nearly representative of missile-connected materiel. Therefore, these 1965 percentages are not strictly comparable with percentages for the postulated contingencies.

[2]Scenario represents possible contingency operations of varying force compositions.

Source: WSEG REPORT 141, Resupply in Peace and War by C-5 Airlift and by Containership (U), July 1969.

TABLE 42

1965-SUPPLY COST AND PHYSICAL CHARACTERISTICS OF MATERIEL SHIPPED OVERSEAS, BY SERVICE

Shipper	Thousands of Short Tons	lb/cu ft	$/lb
Army	475	28.6	1.24
Navy	446	25.6	0.65
Marine Corps	7*	27.7	0.59
Air Force	66*	15.0	7.[illegible]7
DSA	1069	29.3	0.32
GSA	134	14.1	1.23
Total	2197	27.6	0.82

*Low Marine Corps and Air Force totals reflect support by other agencies.

Source: WSEG REPORT 141, Resupply in Peace and War by C-5 Airlift and by Containership (U), July 1969.

(s) Because of the high tonnage requirements and relatively low-dollar value per ton, items in the POL/munitions categories are not attractive candidates for use of high-priority modes of transportation. Items needed for personnel support have a high-value-to-weight ratio, but generally do not have adequate military essentiality to qualify for air transportation. Class VIII, medical supplies, and Class IX, repair parts, provide the most promising area in which to make savings both in inventory and pipeline investment on the basis of representing relatively low percentages of total movement requirements and a higher cost per pound. Future demands for repair parts are also the most unpredictable and a high percentage of demands can be expected to qualify for air transportation due to urgency of need at the time the consumers demand a particular part.

(t) At present high-priority requisitions qualifying for air transportation are limited by the Uniform Materiel Movement Issue and Priority System (UMMIPS) to demands for items urgently required for immediate use or to meet other specified operational requirements of the force/activity concerned. UMMIPS also provides for the use of issue priority designators (IPD) 03 to be used regardless of force/activity designator in requisitioning high-value items required for immediate use; i.e., where Urgency of Need Designators A or B are indicated. A priority designator of 06 will be used by all activities, regardless of force/activity designator, for the replenishment of high-value items. Both priority designators 03 and 06 will normally require air transportation to meet prescribed overseas delivery dates.[35]

(u) All of the Services have secondary items of materiel designated as insurance items. Some of these designations are predicated on essentiality or criticality of an item in relation to its application to an essential item of equipment. Other insurance items are based on engineering evaluations and judgements associated with the support of new items introduced into the military inventory prior to the time that sufficient operational experience has been accumulated to adequately establish future potential replenishment rates. There are also other insurance items retained in inventories to support nonstandard, or very low-density equipment where procurement would entail unusual effort in the preparation of specifications, lead time, or both. Although many of these items may be relatively inexpensive, they may very well be most essential or even critical when required to repair an essential item in support of a weapons systems or an item of combat equipment.

(v) The policies and procedures for stockage of insurance items varies among the Services. In some instances these items are distributed through the supply distribution system from the ultimate consumer unit/activity up through each successive echelon of supply to and including the CONUS wholesale level. In other cases insurance items are selected for centralized CONUS inventory management or consolidated for issue at the overseas depots, bases, or on board ships of the mobile logistic support force. From the limited information available and actions that have or are being taken by certain of the Services it would appear that the stockage of insurance items in overseas areas has not historically made a significant contribution to materiel readiness. Some stockage of insurance items may be necessary to meet the requirements of certain operating environmental conditions. However, in general, it appears that substantial reductions could be made in the current stockage of insurance items overseas.

(w) The practice of stocking concurrent spares at user unit level burdens these units with large quantities of dormant stocks that individual units do not require. In the Seventh Army, Europe, in 1968, concurrent spares and other items designated as mission essential (insurance items) accounted for approximately 35 percent of the lines stocked at the user unit and direct support units yet they provided for only 2 percent of the demand accomodation.

(x) In summary, many of the benefits attributed to an all-air line of communication (ALOC) for overseas supply can also be achieved with judicious combinations of air and surface transportation, containerization with throughput of supplies to consumers, effective supply discipline, and an effective and efficient logistic information system. The primary

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[35] Secretary of Defense (I&L), Uniform Materiel Movement and Issue Priority System (UMMIPS), 24 August 1966.

advantage of air transportation lies in its high degree of responsiveness (represented in a shorter order and ship time), and flexibility which facilitates meeting surge demands. The routine use of air transportation permits in-theater stock levels to be maintained with less on-hand stock, or an availability increase for future requirements, to be achieved with little or no addition to stockage objectives. The overseas supply manager's problem is frequently the shortage of an item of materiel because of erratic demands and random requirements. For most items of materiel that are used at any appreciable rate, there is a reasonably predictable basis for anticipating demands. This ability to predict requirements represents a very high percentage of demands in the case of subsistence, and a significantly lower percentage of demands in the case of maintenance related secondary items for which demand variance is very high. Airlift should be used in cases of urgent military need irrespective of the value or nature of an item of materiel. Class VIII, medical supplies, and Class IX, repair parts, represent relatively low percentages of total overseas movement requirements and conversely high cost per pound. These factors, together with a great variance in demand associated with these classes of supplies make them particularly favorable for air transportation.

(y) Additional information on the considerations involved in, and the impact of, the exploitation of air transportation are discussed as a part of reducing the range and depth of stocks overseas. This is included under the issue, requirements for in-theater logistic resources.

(2) Conclusions

(a) All Services should be authorized to code routinely for air transportation, in accordance with criteria which they establish, and without challenge, except for apparent excess quantities, those requisitions for selected items of Class VIII medical supplies and Class IX repair parts not normally stocked overseas. Priorities currently authorized in UMMIPS for high-value replenishment items adequately provide for their transport by air (paragraph 1C(1)).

(b) The cost, essentiality, or criticality of materiel may require the use of air transportation. Overall economic advantages may also accrue from using air transportation for other categories of less expensive materiel when total systems' costs including logistic resources are considered (paragraph 1C(1)).

(c) Special supply and transportation procedures, such as 999, Red Ball, and Tiger Tom, using allocated or predictable airlift between the CONUS and overseas, have proved effective in maintaining a very high state of materiel readiness for all of the Services in Vietnam (paragraph 1C(1)).

(d) Substantial reductions in the range and depth of maintenance-related, consumable supplies stocked by forces deployed ashore in overseas areas could be achieved by all of the Services if increased dependence is placed on airlift for the movement of infrequently demanded items. This is predicated on maintaining adequate stocks of a minimum range of items which demonstrate a sustained higher frequency of demands and with bulk replenishment normally accomplished by surface transportation (paragraph 1C(1)).

(e) In response to the infrequent requests for nondemand supported insurance and combat essential items, all Services should place greater reliance on air transportation in lieu of overseas stockage (paragraph 1C(1)).

(f) A substantial increase in the use of air transportation for overseas supply support, on a routine basis, should reduce pipeline inventory investment, requirements for depot facilities, and possibly some reduction in requirements for computer capability (paragraph 1C(1)).

(3) Recommendations. The Board recommends that:

(a) The Office, Secretary of Defense, revise the Uniform Materiel Movement and Issue Priority System (UMMIPS) to extend the criteria for air transportation to permit the Services, in accordance with criteria which they establish, to code for air transportation those requisitions for selected items of Class VIII medical supplies and Class IX repair parts not normally stocked overseas. Such coding should be permitted on a routine basis without being subject to challenge except for apparent excess quantities (conclusions (2)(a), (2)(b), and (2)(c)).

(b) All Services restrict the stockage of nondemand supported, insurance, and mission-essential items of materiel in forward operating locations with reliance on air transportation to respond to overseas requirements for these types of materiel (conclusion (2)(d)).

(c) The Services, with due regard for the total costs involved, place increased dependence on air transportation for the movement of infrequently demanded items of materiel in addition to considering air as the normal means of transporting selected commodities such as high-dollar and reparable items of materiel (conclusion (2)(d) and (2)(e)).

(d) Increased dependence on air transportation for the movement of materiel be accompanied by concurrent reductions in the requirements for logistic resources in overseas areas (conclusion (2)(f)).

d. Containerization

(1) One of the key issues identified by the JLRB in the Supply Management portion of its review was to determine ways and means to minimize requirements for logistical resources in overseas areas. Containerization offers the potential to make a substantial contribution toward achieving this objective.

(2) Containerization is the subject of a separate monograph. However, in view of its importance to improving the effectiveness and efficiency of overseas supply operations a brief discussion of some of the more salient points in considering containerization in support of overseas supply operations are provided below. These discussion should be considered as complementing the in-depth discussions, conclusions, and recommendations contained in the Containerization Monograph.

(3) The case for improved overseas supply distribution by the use of containers has been proven during the Vietnam conflict. This improvement has been effected primarily in the CONUS depot to overseas depot link. The full potential of containers to increase the effectiveness and efficiency of supply operations by by-passing the overseas depot level supply activities has not yet been achieved. This was due generally to the difficulty encountered by the stuffers of containers in CONUS in identifying and filling a container with compatible cargo, within UMMIPS time frames, for supply activities below the overseas depot level.

(4) The limited use of containers to ship and to subsequently store, temporarily, the materiel for special projects, initial issues or initial provisioning of new items of equipment to units in Vietnam was an improvement over break-bulk shipments. Containerized shipments could be stored in open storage without the normal loss, pilferage, damage, or deterioration.

(5) The advantages of containerization could be more fully realized if integrated supply and transportation procedures were established to identify the classes of supply or commodities that are to be routinely unitized and/or containerized. These procedures would permit more effective and efficient overseas inventory, stock control and storage operations and ensure that adequate facilities and equipment were available to handle containerized materiel at the overseas receiving activities. Timely and adequate supply status information must be available to all concerned from the initiation of a requisition until the receipt of the materiel by the final overseas consignee. A real time logistics intelligence system is a mandatory element in providing a meaningful supply and transportation interface.

(6) Current containerized operations do not generally provide for the use of inserts to maintain cargo integrity and to facilitate break bulk operations of the throughput of less than container loads of materiel to the retail consumers. A family of DOD standard all weather containers with modular inserts, would provide this capability. Such container inserts must also be suitable for temporary storage and for transfer and shipment by all modes of intra-or inter-theater transportation.

(7) Containers, particularly those that are used for throughput using surface transportation, provide an effective and economical means of retrograding materiel. Transportation tariffs for surface transportation normally are based on the cube of cargo. Therefore, in the case of a container the outside dimensions will determine the shipping cost rather than the contents. The availability of a container in close proximity to where the bulk of retrograde cargo generates, i.e., the using activities, should encourage the prompt return of retrograde materiel. This should in turn reduce the workload on the activities concerned in accounting for and safeguarding Government property and improve the potential for applying serviceable or unserviceable assets which are excess in one segment of the supply distribution systems to meet other valid requirements with an overall savings to the Government.

e. Physical Handling of Supplies

(1) The intent of the following discussions is to provide an appreciation for the scope of the problems, particularly during the buildup in Vietnam, which had to be overcome by personnel involved in handling materiel at supply activities to provide effective supply support. That effective support was provided despite the existing environment conditions and a lack of adequate logistical resources, attests to the ingenuity, motivation, and resourcefulness of the personnel engaged in these operations.

(2) A major factor in the effecitveness and efficiency of overseas supply support is the capability of overseas supply activities to physically handle supplies and to furnish timely and accurate data to the responsible inventory/stock control activity. The effective and efficient physical handling of materiel is interdependent on the availability of qualified personnel, adequate facilities, materials handling equipment and other essential logistic resources. Each of these is the subject of in-depth discussions, conclusions, and recommendations in other sections of this chapter. Accordingly, the physical handling of materiel will be addressed only within the context of its relation to inventory and stock control functions.

(3) The introduction of binned containers, improved packaging, marking and labeling of materiel, establishment of adequate supporting automatic data processing systems, acquisition of warehouses, and adequate types and quantities of materials handling equipment were among the factors that eventually facilitated drastic improvements in storage operations to support in-country inventory and stock control operations. However, in many instances these improved capabilities could not be fully realized for a considerable period of time due to the impact of the problems created during the early stages of the buildup.

(4) The identification of incorrectly labeled materiel in storage cannot be determined except by actual inspection. Historical reports describing inventory accomplishments and audit reports indicate that the quantity of stock in storage that is mis-labeled is sufficient to warrant greater attention to this problem. The basic reasons given for mislabeled supplies in overseas inventories are stock number changes, and erroneous markings on direct deliveries from commercial sources.

(5) The more significant of these causes is stock number changes. When a stock number change is directed, three basic actions must occur to ensure inventory accuracy. The inventory stock control balance record must be corrected. The locator record must be corrected and the stock must be physically remarked with the new stock number. Failure to complete any one of these three actions can result in the item losing its identity in today's FSN supply system.

(6) Much discussion has taken place over the years as to the desirability of being able to identify the contents of a shipment without opening the container or inspecting every packing list. At the present time MILSTD 129D requires either the FSN of the packed item or the term "Consolidate Pack" to be marked on the exterior of the pack.[36] The experience in Vietnam has shown that such markings can be extremely beneficial when placed on shipments to one addressee which contain a single FSN. Such shipments, if properly packed (level A), need not be opened but can be taken directly to a storage location without l[illegible] of its protective packing.

(7) However, if it is necessary to open the pack to confirm/identify the FSN or quantity, the protective packing is usally compromised. In many cases this accelerated the effects of the adverse weather conditions experienced in Vietnam by trapping water within the container. This was particularly true of materiel located in open storage. The advantages of level "A" pack for shipment and subsequent storage in Vietnam were frequently negated as a result of the requirement to find out what was in the pack.

(8) Multipack shipments that consolidate numerous individual shipments for a single overseas consignee facilitate handling by both the transportation and supply elements of the supply distribution system. However, multipack shipments by CONUS depots or consolidation points for multiple consignees can increase the workload imposed on the overseas breakbulk point. The depot or other designated breakbulk point has to unpack the multipack, segregate shipments, and in many instances prepare additional documentation incident to forwarding shipments to their final destination. During the early stages of the buildup, the magnitude of these multipack shipments far exceeded the capabilities of the depots which were the principal breakbulk activities. One of the major handicaps encountered by the CONUS consolidation points was the difficulty in acquiring timely information on the destination for numerous shipments identified by project codes and the overseas location of the many hundreds of units. Without this information it was inevitable that multipack could not be used to best advantage in many instances.

(9) The rapid selection of stock for shipment, efficient handling of receipts, and the maximum use of storage space depends upon the effective use of an adequate stock-locator system in conjunction with a workable storage plan. The basic element of a good locator system is an accurate record for each individual item of materiel in storage. The record may be a manual system, a manually operated punch card system, or a computer system. There is a DOD prescribed method for laying out storage areas and marking rows, stacks and levels, to facilitate the receipt and issue of materiel. Maximum utilization of storage space (especially covered storage which is always at a premium), however, usually takes precedence over minimizing the number of locations for items. Generally, it is a better practice to focus on making maximum use of a storage space and depending on the locator record for efficient selection of needed items for issue. In preparing the storage plan for a particular supply activity, due consideration has to be given to: grouping materiel to accommodate the operation of the materials handling equipment within the storage areas; similarity of items to be stored; frequency of movement; quantity of items to be stored; size of the items; capacity of the storage facilities; and special considerations; e.g, hazardous, sensitive, and perishable materiel. The dynamic nature of the Vietnam conflict and the difficulty in acquiring the necessary supply data made it extremely difficult in many instances to prepare and follow an effective and efficient storage plan.

(10) A source of numerous changes to locator records in Vietnam was the intra-depot movement of supplies within the storage area. There were many causes for this internal migration, e.g., renovation and maintenance of stock, represervation of stock, consolidation of locations, and rewarehousing. Again, the ability to maintain control during such operations depended upon the ability to rigidly control the documentation flow. In Vietnam, the control was not adequate. Inadequate organization for quality control of the ADP stock locator record and the frequency of the record updates by overloaded computer systems were the major difficulties experienced.

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[36] The Air Force is exempt from this requirement for packs containing clothing and textile items.

(11) The resources necessary to effectively and efficiently handle supplies overseas are influenced by the quality of the personnel performing this function, the policies followed by the Services in the range and depth of supplies stocked overseas, criteria for air movement, utilization of containers, and the adequacy of facilities and equipment. Improvements in these areas, as recommedned in other parts of this monograph should provide the capability necessary to achieve improvement in the physical handling of materiel overseas.

f. Supply Discipline

(1) Discussion

(a) The term "supply discipline" has many meanings and definitions; however, as used in the context of this section of the report, supply discipline will be described as compliance by combat units and supply activities in Vietnam with those regulations and instructions pertaining to supply procedures. Particular attention will be addressed to compliance with instructions on the use of requisition priorities, and the control of the range and depth of materiel requisitioned.

(b) Supply discipline as practiced by the Services in Vietnam has been subjected to criticism by both Service and General Accounting Office (GAO) on-site audit teams, particularly in 1968-69 audits. Because of its major logistic support role in Vietnam, the Army was singled out for a particularly close audit of supply discipline by GAO. In most of these audit reports, supply discipline problems were directly related to other supply management problems and conditions experienced during the early buildup of forces in 1965-66. The audit teams reported that these problems and conditions prevented or discouraged faithful compliance with prescribed supply procedures and regulations.

(c) Some of the more immediate complex problems were further defined by GAO in its Report to the Congress, dated 21 June 1968.[37] This report was the primary audit report submitted to the Holifield Subcommittee on Government Operations during hearings in June and July 1968: "We believe that the supply problems being encountered were due, in large measure, to the fact that the Army did not have a trained logistical organization capable of assuming inventory management responsibilities in Vietnam when the buildup of forces was initiated. In our opinion, this was particularly demonstrated by (1) lack of sufficient computer capability, (2) the shortage of trained inventory managers, and (3) the lack of military personnel to operate the depot activities. Some of the problems faced by the Army were also due to inadequate physical facilities for the storage and control of inventory." Each of these problems has been addressed in other sections of this monograph and will not be developed in this section.

(d) The Services were effective in providing adequate supply support in Vietnam to meet all combat commitments as admitted in all audit reports, but for reasons including those cited above, such support was not always as efficient as the Service's would have desired.

(e) Audit reports, "lessons learned" reports, and consultation with various supply personnel from all Services highlight that shortcomings in supply discipline by in-country units were reflected in several different ways. Some of the ways reviewed in this section are:

1. There were excessive numbers of high-priority requisitions submitted for items that were not combat-essential.

2. Excessive quantities were ordered.

3. Unauthorized and nonessential items of materiel were requisitioned.

4. Duplicate requisitions were submitted for the same requirement.

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[37] General Accounting Office, Need To Improve Management of Army Supplies in Vietnam, Report To The Congress of the U.S., 21 June 1968.

(f) Accumulation of excess stocks, inaccurate inventory records, and erroneous demand history data are other characteristics of poor supply discipline that are reviewed in other sections of this monograph.

(g) The military priority system prescribes designators ranging from a high of 01 to a low of 20, based on the criticality of the item being requisitioned and the mission of the unit submitting the requistion. Priority 01 through 08 are considered "high", as used in the context of this report, and are used to justify expedited handling throughout the supply system, possible emergency procurement, and utilization of air transportation. High-priority requisitions are normally reserved for critical items that are not stocked, or for stocked items that are temporarily in short supply, the absence of which could adversely affect the capability of a user unit to accomplish its mission.

(h) Repeatedly, through various audits, inspections, and statistical studies, the Services received criticism for their use of apparently excessive numbers of high priority requisitions. This area, more than any other, was portrayed as an example of inadequate supply discipline in Vietnam.

1. Audit agencies are prone to draw conclusions on the relative management effectiveness of a particular command, activity, or Service on the basis of the percentage of requisitions that are designated as high priority and that are normally moved by air. The JLRB recognizes that adherence to the principles and criteria of the Uniform Materiel Movement Issue Priority System (UMMIPS) is essential. However, the UMMIPS criteria should not be permitted to distort the actual economics of the total supply distribution system. An important fact, frequently overlooked, in assessing the discipline exercised over UMMIPS is that although the percentage of high priority requisitions that were moved by air transportation may appear high these shipments actually represented a very small percentage of the total tonnage moved. For example, in 1969 high-priority requisitions from Vietnam resulted in approximately 30 percent of the total shipments moving by air transportation. However, these shipments represented less than 5 percent of the total dry cargo moved during this same period. Recent studies concerned with the future availability of air transportation generally agree that there will be adequate air transportation capability to lift a minimum of 20 percent of the total dry cargo required by all the Services in support of a major contingency. This would indicate that the use of air transportation for the movement of 5 percent of the total overseas requirements was not unreasonable. This approximates 50 percent of the total requirements of all the Services for Class IX, repair parts, and consumable secondary items of maintenance related materiels.

2. GAO reviews at NSA, Da Nang Supply Depot, reported that for the period March 1968-January 1969 most requisitions submitted to CONUS were high-priority requistions. The report pointed out that NSA, Da Nang used high priorities because CONUS supply activities were not supplying the materiel within UMMIP's time frames; Order and Shipping Times (OST) measured monthly on all items were exceeding 122 days.[38] A study by NSA, Da Nang, showed that the highest priority authorized 02, was effective in expediting the processing of requisitions by CONUS activities, but there was little apparent difference when using the next highest priority 05, and the routine priorities, except in obtaining air shipment. Since most items ordered were in bulk quantities over 1,000 lbs, air shipment often could not be justified. Priority 02 obtained emergency buy action by the ICO s while priority 05 requisitions, in most cases, were obligated against stock replenishment "dues in" the same as requisitions citing routine priorities.

3. At the 3rd FSR in Okinawa, Marine Corps officials were utilizing priority 05 for routine stock replenishment requisitions because of the significant percentage of high-priority requisitions received from its major customer, the FLC at Da Nang. This practice

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[38] J. L. Husk, GAO Site Supervision, GAO Interim Memorandum to Capt. N. H. Kuhlman Assistant Chief of Staff for Supply and Fiscal, NSA, Da Nang, 26 March 1969.

was also apparently in recognition of the fact that about one-third of the items that the 3rd FSR was authorized to stock were in out-of-stock positions, and that the Marine Corps Supply Activity in Philadelphia was not providing an adequate level of support.[39]

4. The difficulty in obtaining agreement on the definition of mission-essential and its application between military personnel, who were closely and sometimes emotionally involved in obtaining materiel for their unit, and the auditors and CONUS activities with their less knowledgeable but more abstract judgement, permeates the records and experiences of the Vietnamese conflict. GAO audits would pick out isolated examples of seemingly obvious nonessential items, such as liquor glasses and refrigerators ordered on high priority requisitions, and report them in their reviews. General Heiser, USA, in testimony before Congressional hearings pointed out that even these two obvious examples could be mission related if ordered for use in hospital operations.[40]

5. General Heiser pointed out that determining what is combat-essential can only be made by the unit commander in his judgment. Army inspectors and auditors, reporting to the unit commanders' chains of command, must evaluate and report how this judgment was exercised in complying with Army regulations on supply discipline.[41] Second guessing, even of apparently obvious violations, by auditors and CONUS supply activities can be misleading and may not present the complete picture of the circumstances surrounding the judgement decisions made by the unit commander. Nor does it portray the frustrations with the supply system experienced by the unit commander.

6. NSA Da Nang, was often challenged by CONUS supply activities for requisitioning large quantities of "picnic" paper plates and plastic dinnerware on high priority requisitions. NSA, Da Nang, explained that troops in I Corps on field operations or at advance bases ate three meals a day off of the "picnic" dinnerware; hence, support of operations was dependent upon adequate supply of these items.

7. Such frustration is reflected in these comments by an Army logistician in Vietnam: "In addition, another factor which contributed to the problem support (sic) was the customers' lack of confidence in the supply system. This lack of confidence developed because the customer could never be sure that he'd get what he wanted, when he wanted it. The condition of our DSUs and depots contributed to this, but the CONUS supply agencies have also been rather sluggish. For example, we have examined ship manifests in which every item on board was past the required delivery date (RDD) even before the ships sailed from San Francisco. As a consequence, customers submit multiple high priority requisitions hoping they'd get what they wanted."[42]

8. Excessive use of high-priority requisitions decreased in the 1967-1969 era apparently for the following reasons. The effectiveness of the supply system, particularly the fill rate of in-country depots, improved. Facilities, procedures and the level of personnel training and experience in Vietnam improved in comparison with that experienced in the 1965-1966 era. These improvements are described in other sections of this monograph. Unit and higher level commanders increased emphasis on monitoring and evaluating the use of high-priority requisitions.

(i) In addition to controlling the use of high-priority requisitions, another essential element in maintaining desired standards of supply discipline is the prevention of the requisitioning of unauthorized items of materiel.

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[39] op. cit. General Accounting Office, June 1969

[40] Subcommittee of the Committee on Government Operations, House of Representatives, Military Supply Systems, Hearing before the Subcommittee, June-July 1968.

[41] Ibid.

[42] Tasko, Colonel, USA Commander, 26th General Support Group, Quang Tri, Letter, to the JLRB, 1968.

1. Unauthorized items often were requisitioned by units in Vietnam without challenge by the local reviewing authorities or the supply system. Unauthorized items, used in this context, are defined as those materiel not essential or related to mission of the requesting unit or not desired by the Service or area commander to be provided to their units. Pocket knives, drafting instruments, air conditioners, refrigerators, furniture, plywood, acoustical tile, electric drinking fountains, and hot plates are examples of such items. Ration sundry packs ordered by activities which had access to PX outlets are also examples. They were described as "goodie items" and generally ordered for personal or unauthorized uses.

2. The following comment by the Commanding Officer, Supply Battalion, 1st FSR, FLC, pertaining to Marine Forces in Vietnam is representative of a condition that existed in most U.S. Forces deployed ashore during the buildup of forces in Vietnam.

> "Because of the semi-garrison type existence (with the exception of MAG-36 of Marine Aircraft Groups), many man hours and much money were expended in requisitioning, stocking, and issuing non-combat essential material. Government furnished materials that add to the health, welfare, and morale of Marines are welcome in the combat environment. However, if the items are required to maintain efficiency in a specific geographical location, appropriate allowances should be established, increased storage area provided, and additional personnel included in Tables of Organization. We should review requirements and authorized allowances and align 'wants and needs'."[43]

(j) Duplicate requisitions were submitted on occasion for the same requirements by in-country units. Such duplications were caused, in general, by poor requisition records at the requestor level and/or supply activity level. The situation in 1965-66 was described in a study report to the DCSLOG, DA, by AMC.

> "Unfortunately, operational requirements could not await the orderly development of an organization and facilities to permit the normal requisitioning and flow of supplies. Essential supplies were backlogged for as long as 100 days, recordkeeping was performed manually (until October 1966). Shipping documents were lost, records of receipts and inventories under such conditions were inaccurate, and locator records were meager or non-existent. Duplicate quantities of materiel were requisitioned because items on hand were not recorded or could not be found."[44]

1. Procedures for maintaining requisition records at the unit and DSU levels did not provide for the complete recording and reporting of status information until the requisition was filled, rejected, or cancelled. Units were unable to perform an audit trail on their outstanding requirements. Requisition processing times were excessive due to receipts not being recorded promptly, duplicate requisttions from DSUs, inaccurate due-ins, and invalid stock numbers.[45]

2. The situation improved in 1968-69 as more normal supply routines were improved, but the problem still persisted. Air Force logistic personnel at Cam Ranh Bay reported that follow-ups on their requisitions for common support items to the Army supply depot often would receive the response "no record." The item would be ordered again, and often both shipments would be received. This inability to provide responsive status on supposedly outstanding requisitions in the supply system was applicable to most supply activities in varying degrees and was a major contributing cause of duplicate requisitions. Reconciliations, when accomplished, between the records of the requisitioners and supply activity were effective in identifying duplicate requisitions.

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[43] Senior Marine Corps Representative of the Joint Logistics Review Board, Letter, to JLRB Chairman, Improvements of Worldwide Logistic Support Systems; Recommendations for, 1 August 1969.

[44] USAMC, Critique of SE Asia Logistic Support, USAMC Study, undated.

[45] 1st Logistical Command, Operational Report for the Quarter 1 November 1967 - 31 January 1968, February 1968.

(2) Summary

(a) Lack of supply discipline was directly related to the other supply management problems and environmental conditions experienced in Vietnam as described in other sections of this monograph. Problems and conditions which led to some breakdown in normal supply discipline were particularly acute in 1965-66 and included lack of facilities, inadequate computer capability, shortage of trained personnel, and the need for an immediate and effective supply distribution network in an underdeveloped country. As a result of these other problems, efficiency in supply management, and supply discipline suffered.

(b) Excessive numbers of high priority requisitions were submitted by units of all Services in Vietnam. In many cases, the large numbers were justified; they were for combat essential items and high priorities were assigned to obtain emergency procurement action by CONUS inventory managers, to obtain premimum transportation, or to circumvent bottlenecks in the supply distribution system. Many requisitions, however, were for noncombat essential items.

(c) Excessive use of high-priority requisitions in Vietnam decreased during the 1967-69 era. The decrease was attributed to the following improvements by the military services:

1. The effectiveness of the supply system, i.e., fill rate of depots in-country, improved.

2. Facilities, procedures, and level of pe› ›nnel training and experience improved.

3. Increased emphasis and monitoring of high-priority requisitions by command, including commanders.

(d) In many instances, excessive quantities were ordered by units in Vietnam due in part to poor local supply records, lack of confidence in the supply system, and inadequate local control and review of requisitions. When materiel was in critical supply or designated a controlled issue item,. supply depot personnel were effective in detecting and correcting excess quantities requested. Quantity challenges by CONUS inventory managers were effective when aggressive follow-on action was taken by the in-country supply activity and submitting unit. Supply depots in-country did not employ an automated quantity challenge similar to that used by NICPs. All Services did have procedures for manual review of high dollar value replenishment requisitions submitted to CONUS.

(e) Duplicate requisitions were frequently submitted for the same requirement by in-country units. Such duplication was caused, in general, by poor requisition records at the requestor level and/or the supply activity level. Aggressive unit supply officers concerned about providing the best possible support to their command and/or in response to poor information feedback on outstanding requisitions by their supply supporting activity, would repeatedly reorder a requirement until one was received. Duplicate requisitioning, from whatever cause, was detected and corrected during "dues-out" reconciliations when, and if accomplished by in-country supply activities.

(f) The assignment or evaluation of realistic priorities to Service requisitions requires a judgement on what items are essential to combat operations. Determination of what items are MISSION-ESSENTIAL or INSURANCE is not an exact science and is subject to many interpretations by each level with the command structure, the supply system, and audit administration. Each of these levels differs in the amount of information available, and the degree of direct personal involvement and responsibility for answering the support requirements of the combat units which have an effect on their interpretation of "combat-essential."

2. CAPABILITY FOR IN-THEATER SUPPLY MANAGEMENT

a. Background

(1) Interrelated with minimizing requirements for in-country logistics resources is the formidable task of providing in a timely fashion the assets or capacity required to manage the resources introduced in-country in an effective and efficient manner. Such assets include, but are not limited to, the four major topics selected for development within this section. These topics are overseas inventory control and supporting ADPS, supply storage facilities, materials handling equipment, and logistics communications. Presentations on other assets such as transportation, construction, personnel, and funding are in other parts of this report; however, because of their particular importance to supply management and control of materiel in an oversea area, the four subject areas above have been singled out for emphasis in this section.

(2) Although discussed individually within this section, each of the four are related and interdependent. For example, ADPE computations, output, and input, either in-theater or in CONUS, are dependent upon adequate and rapid transmission of supply data by the available communications network. The accuracy of data within the computer and communication system are directly related to the accuracy of input data from the receiving, storage, and issuing operations which, in turn, are dependent upon adequate storage facilities and materials handling equipment. All were of prime importance to the logisticians in Vietnam and significantly influenced the efficiency and effectiveness of supply management in-country.

(3) Automatic data processing systems (ADPS) are examined in the context of their adequacy in overseas areas. Adequate ADPS requires the proper proportion of equipment, personnel, and software at the time it is needed. The state of readiness of the Services in providing the factors that made up an adequate ADPS capability are examined and in organization of the Services for providing ADPS are also examined to the extent necessary to develop the reason why there were differences. It is noteworthy that the amount and degree of ADPS required, as pointed out in the preceding section on minimizing requirements for in-theater logistics resources, is dependent on the amount and degree of activity performed within the overseas theater.

(4) Logistic facilities, particularly during the initial buildup phase in Vietnam, were inadequate to meet the tremendous surge of materiel sent forward from CONUS to support US combat forces. Construction priority had been directed toward construction projects more obvious in direct support of combat operations. The backup of ships in Vietnamese ports awaiting space for unloading finally emphasized the need for more port facilities and a higher priority for such construction was granted. Construction of supply storage facilities still lagged behind, and the backlog of supplies in the port area was passed on to the inadequate supply depot areas for processing, storage and issue. Each Service eventually obtained adequate storage facilities, but supply management suffered in the interim.

(5) Materials handling equipments are among the most essential assets needed to sustain logistic support for combat forces in a contingency operation. The unloading and distribution of supplies and equipment on a timely basis are largely dependent upon an adequate supply of materials handling equipment.

(6) During the initial stages of the Vietnam buildup there were shortages of suitable cranes, forklifts, and similar materials handling equipment. The huge tonnage of supplies received and issued by the depots in Vietnam created the requirement for 24-hour operations. Equipment, therefore, could be deadlined for only the briefest periods of mandatory maintenance, and preventative maintenance schedules were often ignored or not enforced. Maintenance was further complicated by the Vietnam environment and the shortage of trained operators and maintenance personnel. Equipment had a high percentage of downtime. Repair parts supply was insufficient to sustain the high-usage rates encountered since replacement spare parts had been procured on the basis of wearout rates, which did not reflect the peculiar environmental and rugged operational conditions experienced in Vietnam. The supply problem was further

complicated by a conglomeration of makes and models for which available spare parts were frequently not interchangeable. Local manufacture of parts and excessive cannibalization were interim actions taken until additional equipment and spare parts could be obtained.[46]

(7) Initially, the communications support required by the logisticisns in Vietnam tended to exceed the capabilities of available communications facilities since operations had been extended beyond the established Defense communications system. The in-country communication system was upgraded eventually by the construction of fixed-plant facilities, engineering improvements within the mobile/transportable installations, and installation of undersea cables. However, it was 3 years after the beginning of the large-scale troop buildup that a fully automated data transmission system was functioning.

(8) A common thread throughout each part of this section is the emphasis placed on timing. Acute supply management problems were encountered during the early buildup because adequate capacity in the areas discussed was not available. Most of the inadequacies were eventually resolved; however, they were overcome at considerable expense in dollars and man-hours, and with serious losses in efficiency and effective supply management. It is for this reason that most of the recommendations in this section address themselves to what must be done now to prepare for adequate capabilities for the initial stages of future contingency operations.

(9) Conclusions and recommendations pertaining to adequate capacity for in-theater supply management were based upon experiences in an underdeveloped, tropical country and must be qualified as such. Providing similar capacity in an area with a highly developed economy or with different climatic or environmental conditions could generate different requirements.

(10) The five areas reviewed within this section will be presented in the following sequence:

Overseas Inventory Control and Supporting ADPS
Supply Storage Facilities
Materials Handling Equipments
Logistics Communications
Mathematical Model Approach to Computing Stockage Criteria and Mode of Shipment

b. Overseas Inventory Control and Supporting ADPS

(1) Discussion

(a) Requirements

1. Inventory control is that phase of military logistics which includes managing cataloging, requirements determination, procurement, distribution, overhaul, and disposal of materiel.[47]

2. The practice of inventory control overseas varies by Service. The Navy and Air Force do not establish inventory control centers, as such, overseas; although both practice some of the functions in their overseas stock control activities. Stock control, the accounting for stocks on-hand, due-in, and due-out is accomplished by both the Air Force standard base supply system and the Navy supply activities in Vietnam, Japan, and the Philippines.[48]

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[46] Headquarters, U.S. Military Assistance Command, Vietnam, Command History 1966.
[47] op. cit., Joint Chiefs of Staff, 1 August 1968.
[48] Department of Defense, DSAM 5105.1, DA PAM 700-1, NAVSUP 441, AF PAM 67-2, NAVMC 2624, Supply Management, Initial Draft Manuscript, May 1969.

3. The Army, as a result of its organization and mission, establishes and operates extensive inventory control activities in overseas areas. The main organizational element for inventory control is the Inventory Control Center (ICC) which has the functions of computation of requirements, requisitioning and maintenance of related records, redistribution, stock status reports, supply control studies, stock control, cataloging, procurement direction, and excess identification.[49]

4. The Marine Corps system is based on its mission of rapid deployment and short duration in the combat zone. In Vietnam, where it has been engaged for years, changes have occurred and the Force Service Regiments are engaged in inventory control type functions.[50]

(b) Organization

1. The Army entered Vietnam while it was reorganizing its technical-service-oriented units to the functionally-oriented units of Combat Service Support to the Army (COSTAR). It was therefore in a state of transition and in order to accomplish its initial operations during the Vietnam buildup was forced to re-establish some, and to delay deactivation of other Technical Service units and to defer reorganization along COSTAR lines. Effectiveness was hampered initially by the difficulty in interfacing between different echelons without the framework of a standard worldwide Army system. To the extent that the Army was able to provide necessary supplies to its forces, it was effective; but, "only because good men can make any system work."[51] Too many resources were placed on the ground too far forward in the combat zone without the commensurate capability of effective control.[52] Asset control had not been perfected on critical items.[53] In April 1969, the Army established the Computer Systems Command giving it the same type of organization to accomplish central design and control of systems that the Air Force has.[54] A mobile Quick Reaction Inventory Control Center (QRICC) based on the support of a Corps sized force operating under decentralized inventory procedures is under testing and pilot operations at Fort Lewis, Washington. This is an ICC for the field army and does not provide for a theater ICC, as such. Army inventory control functions remain decentralized and are repeated at almost every level of command in the overseas area. The shore line of the CONUS ends asset knowledge for the inventory managers of the ICPs except for approximately 30,000 designated items that are reported periodically on a stock status basis and 1,800 line items under AMC control in the overseas area (project OASIS). In Vietnam the Army capability is based on multi-echeloned system that includes three major depots (Cam Rahn Bay, Long Binh, and Qui Nhon), supporting general support and direct support Units that service and accompany the 2,500 individual units in that country.

2. Under its worldwide system responsibilities the Naval Supply Systems Command has been implementing a real-time system since 1961 called Uniform Automated Data Processing System (UADPS). When completed the Navy expects a capability that will provide standard computer systems for stock points, ICPs, and shipboard. Responsibility for UADPS has been centralized in the Fleet Material Support Office (FMSO) since 1965.[55] The responsibilities of COMSERVPAC include mobile logistics support to the fleet, designation of supply points and stock levels, and redistribution of Navy materiel in

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[49] op. cit., Subcommittee, June-July 1968.

[50] Ibid.

[51] Ibid.

[52] Heiser, Joseph, Major General, USA, Debriefing Report, CG 1st Logistical Command, 2 August 1968--23 August 1969, 20 August 1969.

[53] Ibid.

[54] Shrader, N. R. and Reed, W. R. Brigadier Generals, Army Management Information System Briefing to Joint Logistics Review Board by the Office of the Vice Chief of Staff U.S. Army and the U.S. Army Computer Systems Command, 30 October 1969.

[55] op. cit., Subcommittee, June-July 1968.

the Pacific. By 1965 Service Force's capability included the operation of three depots.[56] The Navy, while it practices some of the factors of inventory control though the agency of Service Forces, has centralized under the Secretary of the Navy the establishment, disestablishment, or consolidation of inventory managers. Navy inventory managers are located in the CONUS and consist of system commands, project managers, bureaus, offices, and ICPs under the command of the Naval Supply Systems Command.[57]

3. The Air Force has completed installation of the UNIVAC 1050 II computer and the standard base supply system in 147 Air Bases worldwide during the period 1965 through 1968. All air bases that were too small for their own computer are satellited, via telecommunication links and remote terminals, on the computers at the larger air bases. The system is centrally designed and controlled and all computer programming is accomplished at Headquarters, USAF. There is, however, feedback from the field users to the central design agency that is incorporated in improving the system. All training on the systems is accomplished by a standard set of training courses for supply personnel of all grades and is conducted by the Air Training Command. The centralization of control of logistics ADPS at the Systems Design Center, Headquarters, Air Force, has kept the system standard and prevented its degradation by "local improvements." The Air Force has vested its inventory control functions in CONUS agencies. It feels it has the most responsive supply system in its history and has the capability of moving personnel trained in the system with complete flexibility, on a worldwide basis.[58]

4. The Marine Corps supply system is designed in echelon, similar to, but less extensive, than that of the Army. "Out-of-stores" organic assets are generally held at the battalion, air squadron, or separate company. In Vietnam, experience caused the creation of a central control point at Da Nang under the FLC. The Marines have only one ICP and it is located in the CONUS.

(c) Transportable Automatic Data Processing Equipment

1. As noted, the Army entered Vietnam during a time of transition and did not have mobile inventory control centers, trained personnel, necessary automatic data processing equipment (ADPE), and working procedures to deploy in support of its doctrinal concept. Today, mobility of the ICC is still problematical, even considering the pilot QRICC at Fort Lewis. When the 14th ICC deployed to Vietnam it was without a computer. A special system had to be developed to provide a method of using conventional punch card machines for inventory and stock control. Later a recommendation was made that an ICC not be deployed to a theater of operations until the logistics system was operational.[59]

2. A uniform shipboard data pr[illegible]essing system consisting of a UNIVAC 1500 computer and standard centrally designed [illegible]grams was implemented by the Navy in 1966 and is currently in use aboard 44 auxiliary [illegible]s and 25 aircraft carriers. A centrally designed and programmed uniform ADP system [illegible] CONUS stock points utilizing IBM 1410 random access equipment was implemented in 1964. [illegible]e uniform ADP system for stock points was extended overseas to NSD Subic in 1969. The shipboard and stock point systems are so designed that appropriate segments can be implemented at supply points and bases overseas.

3. Van mounted computers are already in the Air Force inventory with supply personnel trained in the standard system. They are mobile to the extent that the

[56] Commander, Service Force, U.S. Pacific Fleet, Operations of Service Force U.S. Pacific Fleet 1966, Report to Commander in Chief, U.S. Pacific Fleet, 1 September 1968.

[57] Department of the Navy, NAVSO P-1500, Navy Policy and Standards for Supply Management, 25 May 1968.

[58] Turner, Vernon E., Brigadier General, Functions of the Air Force Data Systems Design Center, Headquarters, USAF, Briefing, to the Joint Logistics Review Board, 23 May 1969; F. E. Morris, Jr., Major General, Advanced Logistics Systems Center, Headquarters, USAF, Briefing, to the Joint Logistics Review Board, 5 June 1969.

[59] Fourteenth (14th) Inventory Control Point, Lessons Learned, May-June 1966.

receiving site has facilities for the equipment and adequate communications are available. Successful mobility has already been demonstrated by flying in a standby UNIVAC 1050 II computer from Clark Air Force Base to replace one at Tan Son Nhut Air Base. Currently the Air Force is working on developing a more sophisticated automated system that will increase mobility by use of telecommunications, remote terminals, common data banks and provide a data network that will allow overseas bases access to a true real-time, on-line, time-sharing system. If successful, this would provide the option, if desired, to place overseas air bases on a push supply system since worldwide asset availability would always be retrievable by the central inventory manager. This will increase mobility by reducing the number of personnel required in supply management at the individual air bases.[60]

4. The Marine Corps had transportable van mounted IBM 1401 computers in their service support units. With the establishment of the central control point at the FLC in Vietnam the capacity of the 1401 was exceeded and the computer was upgraded through the IMB 360 series of computers to the present configuration (IBM 360/65) which is not mobile.[61]

(d) Stock Control Overseas

1. Stock control is the process of maintaining inventory data on the quantity, location, and condition of supplies and equipment due-in, on-hand, and due-out to determine quantities of materiel and equipment available and/or required for issue to facilitate distribution management of materiel.[62]

2. Each of the Services has the means of maintaining inventory data and using it in the overseas theaters. The functions performed in stock control vary among the Services. The Army with its extensive organization for inventory control in the overseas areas uses stock control as the accounting technique to maintain data required for management of its assets and supply of its customers. The Navy and the Air Force with the bulk of their inventory control functions performed in the CONUS have a slightly different application of stock control overseas. They have both included as part of the stock control activity two functions that are normally associated with inventory control—requirements determination and excess determination.

3. The major problems encountered in overseas stock control are similar to those found in the CONUS—difficulty in maintaining accurate and timely information. In the case of Vietnam this was compounded by several factors. The Army had to establish stock control from scratch for its Logistical Command. It rapidly evolved from a manual stock record system, to punched card equipment, and finally to a computer system that was absorbed by the inventory control center when it became operational. Most inaccuracies in the asset data occurred prior to the middle of 1967 when the entire supply distribution system in Vietnam was overloaded. This together with a lack of storage facilities, primitive manual systems of document processing and lack of a standard system all combined to degrade the accuracy of the data that entered the stock control system. All subsequent actions taken to improve locator and item accuracy in storage and to adjust the stock records by such means as inventories were mainly aimed at correcting the initial discrepancies. Current systems have safeguards built in to increase the accuracy and timeliness of data. The other Services went through the same type of evolutionary process. The Air Force initially installed manual stock control, then converted to punched cards, until such time as their newly developed standard computer system could be installed. Air Force opinion was that most of their difficulties in stock control were caused by this initial by-pass of the computer control. The Navy also went through the manual stock control, to the punched card, and then to the computer in Vietnam. In addition to the problems of the initial stock control activities in maintaining the accuracy of their inventory, difficulty was experienced in processing management data from the CONUS inventory control points. The flood

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[60] Department of the Air Force, Briefing, to the Joint Logistics Review Board, Subject: Air Force Advanced Logistics System Center, 5 June 1969.

[61] op. cit., Subcommittee, June-July 1968.

[62] op. cit., Joint Chiefs of Staff, 1 August 1968.

of data generated by MILSTRIP could not be handled manually, and the task of keeping up with the massive catalog changes being generated during that period was literally impossible.

4. The impact of initial discrepancies are still apparent in the current stock control operations in overseas. Despite quality control built into the current computerized stock controls and numerous projects to inventory and purify stocks, the residual effects of the errors made in the initial stages still plague the stock control data. Actions to improve concurrently inventory control, ADPS, and physical handling of supplies are intricately interwoven with stock control and are discussed elsewhere in this chapter.

(2) Summary

(a) The Army entered Vietnam without a central design organization charged with development and maintenance of ADPS for use in supply management overseas. Since transportable equipment and standard programs were not in existence, this situation created an inherent lack of trained personnel that could be moved into an overseas area.

(b) The Navy entered Vietnam during its transition to UADPS. When it went ashore in Vietnam, the development of the supply depot of the Naval Support Activity, Da Nang, was based upon the advanced base functional component (ABFC) concept. Since no ADP capability had been included in the Navy's ABFC planning, supply depot operations were first performed using manual procedures, then converted to electrical accounting machines. That equipment was then replaced with a computer in August 1968. At the Naval Support Activity, Saigon, manual procedures were converted to electrical accounting machines in July 1968.

(c) The Air Force entered Vietnam with its standard base supply system being implemented on a worldwide basis. It encountered problems at bases that had not been converted to the standard system. During the period January 1966 to January 1968 the 22 bases in SE Asia were placed on the worldwide system alleviating problems in equipment, personnel, and programs.

(d) The Marine Corps entered Vietnam with a van-mounted, medium-scale computer organic to the supply support units of the Fleet Marine Force. Actual use in-country greatly exceeded its capacity and it was necessary to upgrade it through several configurations of third-generation computers in a fixed site.

(e) The control of the development of standard worldwide systems for use overseas varies by Service. The Army did not have an agency responsible for multi-command systems until it created the Computer Systems Command in 1969. The Naval Supply Systems Command has developed the Navy's UADPS (Uniform Automated Data Processing System) for supply management. UADPS provides for central system management of secondary items by the Navy's three inventory control points. The Air Force has a standard worldwide system in being at its overseas and CONUS air bases. Central design and control is vested at Headquarters, USAF. The Marine Corps has centralized programming and policy control of its Class I programs at Headquarters, USMC. For its Class II programs output and input are prescribed, and the actual programming of the computers is decentralized.

(3) Conclusions

(a) Prerequisites for effective and efficient overseas supply management operations include:

1. Having in-being a trained logistical organization capable of assuming inventory and stock control management responsibilities in a place like Vietnam when a buildup of forces is required.

2. Having adequate automatic data processing systems capable of supporting the inventory and stock control systems. In areas such as Vietnam, where there is an

underdeveloped technology, such ADPS must, in fact, be transportable and practically self-contained.

3. Interface with the CONUS wholesale system in such a manner that supply information and requirements can be passed in both directions without undue delay for intermediate processing. This includes under today's conditions an adequate telecommunications system to transmit digital data from both the standpoint of timeliness and reliability.

4. Some method of item visibility that will provide the CONUS wholesale manager with timely, accurate, and pertinent data to allow correct requirements determination, redistribution actions, and central procurement (paragraph 2b(1)).

(b) Automatic data processing systems and communications have made it possible to design and develop management information systems that, in effect, are worldwide in scope and which provide for the retrieval of data in any format desired at any point of need throughout the entire management structure (paragraph 2b(1)).

(c) Each Service should have available transportable, self-sufficient data processing units complete with ADPE, adequate communications, functioning software, working procedures, and trained personnel ready for deployment to overseas theaters to support supply operations. The units should be designed so that minimal requirements are needed for site preparation. The design characteristics should also be compatible with and provide an interface with the automated systems of the CONUS ICPs (paragraph 2b(1)).

(4) Recommendation. The Board recommends that:

(a) For contingency operations each Service have available automatic data processing systems (ADPS) packages compatible with the CONUS system with which they must interface. These ADPS packages should include transportable ADPE, proven programs, data transmission equipment, and trained personnel, and must be so designed that they can be readily expanded to meet unforeseen requirements without major problems in translation to greater capacity. Contingency plans should provide for early deployment of an ADPS package adequate to meet forecasted in-country logistics management requirements, with a reasonable safety factor to meet unforseen demands (Conclusions (3)(a), (3)(b), (3)(c)) (Reference Automatic Data Processing Monograph, Chapter III, paragraph 3a (6)).

c. Supply Storage Facilities

(1) Discussion

(a) Support of military operations in Vietnam required port facilities, airfields, intransit storage, open and covered storage, maintenance facilities, and a supporting transportation network. All of these facilities were needed almost immediately as the Services responded in 1965-66 to the decision to accelerate the buildup of forces in Vietnam. However, time was required to accumulate and to deliver the materiel and heavy equipment necessary to prepare sites and to be used in construction. Additional time was needed to accomplish the necessary site surveys, negotiate with the Vietnamese Government for real estate, complete engineering designs, and construct the facilities. During these early stages, competition for manpower, materiel, and Service resources was acute. Thus, decisions concerning priorities for erection of facilities were very important and had to be made within the framework of the tactical and strategic situations existing at the time. In most instances, the acquisition of real estate and construction of facilities for supply and storage operations were afforded a lower priority of effort than more directly identifiable combat and combat-support requirements. For example, the MACV supporting plan specified the following construction priorities:

Airfields and related facilities
Main supply routes
Railroads

Port facilities
Logistics bases and support facilities.

(b) The relative timing of operational and logistical capabilities had a significant impact on supply management in Vietnam. Initially, operational requirements for supplies outpaced the construction of logistic facilities, including supply storage facilities, to such a degree that logisticians were, in many cases, unable to manage properly the supplies received. Review of the history of the buildup of U.S. forces in Vietnam, inspection and audits of logistic operations, and comments made to the Joint Logistic Review Board, some of which are referenced below, bear witness to this finding.

(c) Initially, warehouse, storage areas, and maintenance facilities were literally nonexistent except for limited facilities in the Saigon area consisting of a tent camp and several leased buildings of limited utility.[63] Despite this lack of adequate logistics facilities, operational requirements could not await the completion of ports, the construction and establishment of a depot system, and the orderly requisitioning and flow of supplies. Priority, both in CONUS and Vietnam, was given to ensuring that combat troops had equipment and supplies in sufficient quantity.

(d) During the initial buildup stages, facilities to receive supplies were grossly inadequate to meet the flood of materiel reaching Vietnam. The port of Saigon became clogged. For example, on 30 April 1965 the 1st Logistical Command was informed of the pending arrival between 21-31 May 1965 of six ships with 68,000 short tons of cargo. This represented a 2 month backlog.[64] There were also instances when ships loaded with essential supplies waited as long as 100 days before off-loading could commence. The height of the crisis came in November 1965 when port congestion reached a peak with 122 ships awaiting discharge in Vietnamese waters. MACV identified the basic problem as one of port construction and improvement, involving both seaports and aerial ports, and directed that construction priority go to port expansion.[65]

(e) Beacuse of this congested port situation, great stress was placed on quickly unloading ships rather than on how this additional tonnage was to be received and processed by the customer. As a result, the ships were discharged, and the cargo moved to any area available for storage. Materiel was unloaded without regard to condition or identity. Ships were discharge and port congestion reduced but at the expense of consignee capability to receive and further distribute the materiel.[66]

(f) At the time the 1st Logistical Command became operational, there was a significant construction backlog for troop facilities, and construction of logistics facilities was generally at the bottom of the priority list. Supplies were scattered in nine various locations throughout Saigon, all of which were substandard and overcrowded and some of which were only open storage areas.[67]

(g) Similar problems were experienced by other Services. In a briefing presented to the Joint Logistics Review Board on 9 September 1969, the Pacific Air Force stated the situation as follows: "Warehouse space has been a chronic problem since the buildup began. Next to the personnel problem the supply storage problem has been probably the most serious supply problem we have faced in Southeast Asia. At the beginning of the buildup, we were confronted with, and still are, a number of peacetime constraints on buildings using the standard military construction program laws and regulations as to amounts that can be spent and how buildings can be constructed. Nothing could have been more frustrating. In desperation and

[63] Headquarters, U.S. Military Assistance Command, Vietnam Command History, 1967.

[64] Commanding Officer 1st Logistical Command, History of the 1st Logistical Command from 1 April 1965 until January 1966, historical interview given to the 15th Military History Detachment, 20 May 1966

[65] op. cit., Headquarters, U.S. Military Assistance Command, 1966

[66] Ibid.

[67] op. cit., Commanding Officer, 1st Logistical Command, 20 May 1966.

through supply channels in late 1966, we procured 288 prefabricated buildings for use as supply and maintenance facilities. Had we not done so, many millions of dollars of supplies would have been lost or ruined because of the lack of facilities."

(h) These initial inadequacies in supply storage facilities had a direct and lasting impact on supply management effectiveness and efficiency throughout the period under study as documented by the various inspections of in-country supply activities, and Service "Lessons Learned" reports made available to this Board. Typical were the supply management problems of the 506th Field Depot in III & IV Corps as cited by the U.S. Army Audit Agency reports. One such report, dated 21 April 1967, stated "the major problem in controlling stock control at the 506th Field Depot was the inaccuracy of the stock records, the locator system, and the due-in records. ...It is understandable that difficulties were encountered in maintaining records. In an 18 month period, the 506th Field Depot grew from a small supply activity to one of the largest of Army depots. During this period of rapid expansion, receiving and storage facilities were not adequate to expeditiously process the large volume of incoming shipments...."[68] A "Lessons Learned" Report from the Cam Ranh Bay Depot for the period July-December 1966 stated: "The lack of adequate storage facilities in the past has caused a dissipation of approximately fifty percent of the troop effort during the reporting period in requirements for re-warehousing and movement of supplies from one location to another. ...Incoming cargo in many instances has been located initially in whatever open area was available, either in existing warehouses or in unimproved open storage areas. Much of this cargo has had to be relocated several times in order to make way for additional construction when construction effort became available. This has contributed to slow reaction time in locating supplies and equipment for shipments."[69]

(i) Improved, open, or horizontal storage was equally important with vertical construction. The relative importance of horizontal storage is indicated by the percentages breakdown within each of the major commodity groups requiring covered and open storage as shown in Table 43.[70]

TABLE 43

REQUIREMENTS FOR COVERED/OPEN STORAGE
(percent)

Commodity Group	Covered Storage	Open Storage
General supplies	54	46
Construction material	10	90
Heavy Material	10	90
Repair parts	53	47
Ammunition	10	90

(j) Refrigerated storage became increasingly important as base camps and mess halls were constructed and the demand for frozen and chilled rations increased. Refrigerated units were also needed to provide storage for batteries, chemicals, and medicines requiring refrigeration.

(k) The early development of the NSA supply facilities at Da Nang and Chu Lai were based on the Advanced Base Functional Component Concept (ABFC) described in detail in the monograph on construction in this report. Under this concept, the dry storage warehouses

[68] U.S. Army Audit Agency, Army's Supply System for Support of Vietnam (Class II and IV Materiel), Audit Report, 21 April 1967

[69] Headquarters, Cam Ranh Bay Depot (Provisional), Operational Report-Lessons Learned 1 May 1966 to 31 July 1966, Operational Report, August 1966.

[70] U.S. Army Combat Development Command, Army Logistics Support Concepts (U), March 1969 (SECRET).

consisting of prefabricated structures such as Butler buildings, portable reefer boxes, and various types of improved open storage were installed by Navy personnel. This proved to be an efficient and effective method of establishing an advance base supply depot requiring a minimum of additional construction capability to erect. However, shortages of warehouse and reefer space were nevertheless a problem for NSA, Da Nang, in the early years of the buildup. In 1965 NSA, Da Nang, was initially developed to provide logistical support in ICTZ for an estimated military population of 48,000, which proved to be far too conservative. By December 1969, ICTZ population was 102,000 and by early 1968 had jumped to slightly over 200,000. As a result of the above situation, depot facilities consistently lagged behind rapidly increasing support requirements and, during the early years of operation, incoming supplies exceeded the capability of the supply depot facilities to receive and to store materiel properly. Action to obtain additional open and covered storage was initiated by the command in early 1967 but it was almost a year before final funding approval was received for construction of additional warehouse facilities, and it was not until January 1969 that facilities were finally completed which provided the capability to receive, store, and issue materiel efficiently and effectively.[71]

(l) ADP capacity in the form of an IBM 1401 computer and peripheral equipment was obtained in July 1968 by the NSA Danang Supply Depot. Approval and procurement of the equipment were expedited but followed the same request and review procedures as required by any activity in CONUS. The ABFC did not include transportable ADP equipments, nor the air conditioned structures required for the ADP equipments.

(m) The Air Force developed the "Bare Base" concept in 1966 to provide mission-associated materiel packages for short range requirements. The packages are maintained in a fly-away status in order to minimize response time lags. The concept also recognizes the need for more permanent and sophisticated facilities for longer periods of deployment. The Air Force is developing and testing a modular relocatable facilities concept that envisions the use of pre-engineered and prefabricated structures and which offers an alternative between minimal "Bare Base" facilities, and major vertical construction. Modular relocatable facilities were successfully employed by the Air Force in Korea following the Pueblo crisis in 1968.[72] Further successful testing was recently accomplished in the Air Force's "Project Coronet Bare." Such projects include many type structures besides supply storage facilities; however, they appear to demonstrate that such facilities can be developed in a minimum of time utilizing improved construction fabrication techniques and containers.

(n) A depot storage experiment called Project YZJ, using improved shipping and storage methods, was tried by the Army at the Cam Ranh Bay Depot in early 1967 with encouraging results. The supply depot package was made up of 70 vans and 500 CONEX containers designed for 98,000 line items of repair parts. The vans were designed in CONUS to include internal storage bins, a stock of repair parts, and a locator card deck prior to shipment to the overseas port. The CONEX containers were filled with bulk back-up stock. The parts storage problem was eliminated, and the module was received in a ready-to-operate condition.[73]

(o) Advance Base Functional Components, vans, binned containers, landing matting, and reefer ships, when used, provided adequate initial facilities for supply support in Vietnam. When it became evident that our commitment in Vietnam would be prolonged, each Service sought more permanent supply storage facilities or expanded facilities. Major construction of warehouses was initiated at the major supply depots of all Services. Typical new construction included Butler buildings, CONUS type warehouses, and Japanese fabricated buildings. Air conditioned buildings for computer installations and for clerical processing of punched cards were constructed. More orderly layout of receiving, storing, and issuing facilities was achieved. Floating storage, i.e., reefer ships, were replaced by less costly and more accessible reefer warehouses or portable reefer boxes ashore.

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[71] NSA, Da Nang, Command History, 1968-69.

[72] James Clark, Headquarters, USAF, Briefing, to the Construction Board for Contingency Operations (JCS). Subject: The Air Force Modular Relocatable Facilities Program, 6 August 1969

[73] Army Materiel Command, Operational Readiness Office, Memorandum, to the Joint Logistics Review Board. Subject: Report on Project XZJ, 22 July 1969

(p) The Marine Corps Expeditionary Airfield concept was tested in a combat environment when it was installed at Chu Lai in 1965. The initial support provisions were satisfactory. However, support problems were encountered when the length of the deployment exceeded that for which the system was designed. Additional coordination with the Navys Advance Base Functional Component System is required to smooth the transition to extended operations.

(q) Requirements for supply storage facilities were reduced during the latter part of 1968 and 1969 as the Services decreased in-country excesses through disposal or retrograde action. PURA sales, disposal actions and retrograde processing disposed of approximately $17 million of NSA Depot's excess and generated 8 Butler buildings for other uses. In addition, planned construction on 10 additional Butler buildings was cancelled.

(r) The recommendations reducing range and depth of stocks in-theater presented in this section of the monograph should have the same impact on reducing the requirements for supply storage facilities as an aggressive disposal program as described above.

(2) Conclusions

(a) The timing of operational and logistic capabilities had significant impact on supply management in Vietnam. Initially, operational requirements for supplies outpaced the construction of logistic facilities, including supply storage facilities, to such a degree that logisticians were unable to manage properly the supplies received (paragraph 2c(1)).

(b) Historically, construction of logistics facilities has always lagged behind operational capabilities with adverse effects on supply management. Vietnam experience indicates that the Services must develop methods of creating minimum essential storage facilities during the initial buildup period in contingency areas that will minimize competition with and reliance on more conventional and time consuming construction methods and procedures (paragraph 2c(1)).

(c) Improved open or horizontal storage was equally important with vertical construction. Steel matting provided excellent horizontal storage in Vietnam and facilitated effective use of materials handling equipment (paragraph 2c(1)).

(d) The successful use of the Navy's Advance Base Functional Components, the Army's Project YZJ, the Marine Corps' Expeditionary Airfield, and the Air Force's Project Coronet Bare concept suggest possible methods of establishing minimum essential supply storage facilities capable of being erected in a minimum of time with basic skills. Possible methods include prepackaged mobile depots, vans, binned containers, semipermanent quick erect structures, landing matting, portable reefer boxes, floating storage, and rapid soil stabilization techniques (paragraph 2c(1)).

(e) Service control over the range and depth of supplies initially moved into the contingency area through push and pull actions, as discussed in other sections of this monograph, will significantly minimize the requirements for initial supply storage facilities (paragraph 2c(1)).

(f) After establishing initial supply storage facilities, planning for contingencies must include provisions for expansion or conversion to more semipermanent facilities as determined by environmental and operational requirements. Construction priorities must be assigned recognizing the importance of maintaining a balance among the capabilities of each link in the supply chain and between supply and operational capabilities (paragraph 2c(1)).

(g) The advance base functional component systems of each Service should provide for a transportable automatic data processing capability as a part of supply depot facility planning (paragraph 2c(1)).

(3) Recommendation. The Board recommends that:

(a) The Services develop methods of establishing initial-essential supply storage facilities capable of being erected and or fitted in minimum time without reliance on standard construction programs. The Army's Containerized Depot-Project YZJ, the Navy's Advance Base Functional Components, the Marine Corp's Expeditionary Airfield, and the Air Force's Project Coronet Bare concept suggest methods which should be exploited and developed. A possible means of providing initial minimum essential supply storage facilities include pre-packaged mobile depots, vans, binned containers, semipermanent quick-erect structures, landing matting, portable reefer units, floating storage, and rapid soil stabilization techniques. The Services should include such capabilities in planning for contingencies (conclusion (2)(a) through (2)(f)).

d. Materials Handling Equipment

(1) Discussion

(a) It became evident very early in the Vietnam conflict that one of the most critical requirements in logistic operations was materials handling equipment. All Services were plagued by shortages of such equipment. Particularly critical were short-mast forklifts and those rough-terrain forklifts not normally employed in CONUS depot operations: 6,000-lb, 10,000-lb and larger capacity forklifts, and the 4,000-lb capacity electric powered forklifts required for handling ammunition. For example, the Commander of the Force Logistic Command (FLC) in ICTZ during the 1966-67 time frame, stated in comments to the Joint Logistics Review Board: "The 6,000 lb Rough Terrain Forklift was a most effective item but it was not available for at least a year after initial landing in sufficient quantities to do the logistics job... either American military forces are going to have to become much more austere or allowances must be substantially increased."[74] The Commanding Officer of the Supply Battalion of the First Force Service Regiment of FLC during the same timeframe was more specific: "Allowances for the 6,000 Rough Terrain Forklift currently are about 35 percent of actual need. Float balances were constantly depleted because of the parts situation. Because of the inadequacies of end item allowances, especially when measured against round-the-clock operational requirements, preventive maintenance schedules were not always adhered to."...[75]

(b) This same officer also commented on the durability of materials handling equipment: "The 3000 pound forklift intended for use in helo support operations was a disappointment when operated under less than optimum conditions. It is classified as a rough terrain lift but doesn't do well where no hardstand pad is available."... The 4,000 pound commercial lift currently in the service unit Table of Equipments is intended for use in a static, indoor storage environment. It deteriorates rapdily under field conditions and presents a continuing maintenance problem. ...We should examine the development of a 4,000 pound forklift in rough terrain configuration and with a short turning radius to supplant the 3,000 and 4,000 pound lifts now in use. Prime consideration should be given to durability, helo support capability and ease of maintenance. Initial provisioning parts packages should be heavy."[76]

(c) As late as 1968, the Army Audit Agency in its audit of materials handling equipment at the 1st Logistical Command found: "The supply of new or rebuilt MHE during the 7-month period ending 30 September 1968 was well below that programmed under the Closed Loop Support Program. Therefore, there was a short supply of most types of MHE in Vietnam. In addition, MHE has been subjected to excessive wear and tear due to the increased logistical support requirements generated soon after the Tet and May 1968 offensives. Much of the equipment used in Vietnam was commercially designed and not suited for either the environment of,

[74] op. cit., Senior Marine Corps Representative, 1 August 1969.
[75] Ibid.
[76] Ibid.

or the workload in, Vietnam. The 4,000 lb electric forklifts were frequently deadlined largely because they were lifted on and off cargo vessels and operated on a 24-hour basis."[77]

(d) Initial shortages may have been caused, in part, by the lack of materials handling equipment in the war reserve stocks of the Services. Definitive data on Service contingency plans for the period prior to the study period were not obtained by the JLRB; however, informal discussions with Service Planners indicated that those types of rough terrain equipments in short supply were (1) not included in Service contingency plans (2) planned in insufficient quantities, or (3) unfunded and not procured in sufficient time to meet the Vietnamese requirements.

(e) Funding apparently continues to be a problem. The Navy includes materials handling equipment in its contingency planning as part of its Advanced Base Functional Components and reports informally that a funding shortfall of approximately 100 pieces of equipment exists today. The Air Force's attempt to establish a PACAF Vehicle Contingency Pool, including 74 pieces of materials handling equipment, at Clark Air Force Base is progressing; but vehicles for the pool have not been funded to date. Competition with funding for Vietnam and anticipation of the return of vehicles and materials handling equipment from Vietnam appear to have thwarted current funding for future contingencies.

(f) In addition to the initial shortage of materials handling equipment, the problem was further complicated in many instances by deployment of old equipment in-country. For example, many of the Baker 4,000-lb. capacity forklifts first sent to Da Nang were built in 1953 through 1955, and these equipments broke down frequently.[78]

(g) High deadline rates were experienced in materials handling equipment with the rates running as high as 50 percent during 1965. As late as January 1966, 47 percent of the Army's materials handling equipment were deadlined.[79] Difficulties were experienced by the Services in the identification and procurement of repair parts. Delivery dates quoted by manufacturers were often unsatisfactory. For example, the manufacturers of axel assemblies for Baker forklifts quoted an 11-month lead time.[80]

(h) The shortage of repair parts initially can be attributed in part to the provisioning policy for materials handling equipment at the start of the Vietnam conflict. In a letter to the Ships Parts Control Center dated 14 June 1965 from the Chief, Bureau of Supplies and Accounts, the provisioning policy for such equipment was stated: "Provisioning for repair parts for materials handling equipment is normally accomplished by the Ships Parts Control Center (SPCC) utilizing various types of technical documentation obtained from contractors. We have concluded that MHE is of such standard and commercial character that we can normally rely solely upon local action by the users for both initial and replenishment support. We will not, therefore, normally require provisioning action by SPCC. In those exceptional cases where reliance on the user is not possible, initial parts requirement will be determined by the Bureau of Supplies and Accounts and purchased as a part of the end item contract. Effective for Fiscal Year 1966 MHE procurements, there will be no requirement for provisioning documentation or for provisioning action by the SPCC."[81] As a consequence of this policy, the Navy initially placed the Pettibone rough terrain 6,000-lb. capacity forklifts in theater without adequate provisioning of spare parts.

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[77] U.S. Army Audit Agency, Audit of Materials Handling Equipment, 1st Logistical Command, U.S. Army, Vietnam, Audit Report PA 69-27, 10 February 1969.

[78] Naval Supply Center, Oakland, Message DTG 280301Z, July 1966 to Ships Parts Control Center, Mechanicsburg, Pennsylvania.

[79] U.S. Army Pacific, Annual Historical Summary 1965.

[80] U.S. Army Maintenance Board, Red Ball Express, Briefings to the Honorable Robert A. Brooks, Assistant Secretary of the Army (I&L), 24 May 1966.

[81] Chief, Bureau of Supplies and Accounts, Letter, S19.23, 14 June 1965, to Command Officer, Ships Parts Control Center.

(i) After the start of the buildup in Southeast Asia this policy was changed. NAVSUP instruction 4423.2E, subject: Policies for Provisioning of Materials Handling Equipment, states that interim repair parts will be procured on end item contracts for delivery with end items being deployed to designated overseas bases, fleet and mobile units, and Pre-positioned War Reserve Stock locations. These repair parts will be procured in sufficient depth to ensure parts availability until materiel is available in the supply system or to allow for local procurement lead time. The Air Force policy, like the Navy, did not call for the provisioning of commercial equipment and almost total reliance was placed on local procurement.

(j) The Services' actions were consistent with DOD Instruction 3232.4, dated 2 April 1956, subject: Policy and Principles Governing Provisioning of End Items of Materiel. This instruction quoted in part states: "Initial spares and repair parts (including special tools, test equipment, and support equipment) may be procured for commercial type end items of materiel only when it is determined by a Military Service that such procurement is required to assure adequate mobilization requirements or overseas support and that adequate, economical and timely support of items cannot be accomplished by other methods such as 'open-end' and 'call-type' contracts, or local procurement." The Navy had not anticipated its sudden involvement in providing logistic support to land forces in a contingency area for a sustained period. For the Air Force, contractor-operated repair parts stores for Air Force commercial equipments had worked so well that an adequate concept of supply support for commercial equipment, such as materials handling equipment in a remote area, had not been developed.

(k) The importance of realistic provisioning policies was well stated by LTG Nickerson, CG 1st Marine Division and later Deputy Commander III MAF during 1967-68: "If repair parts supply cannot otherwise be assured, the Marine Corps must be willing to accept the basic premise that the initial provisioning of repair parts in sufficient range and depth while a costly undertaking, is essential and should not as in the past be sacrificed to gain a few more end items in the inventory. There should be strict adherence to combat usage factors in computing provisioning requirements even at the risk of occurring a considerable financial loss through obsolescence. Unless the Marine Corps adheres to this principle, the end result will be an inability to support equipment in combat."[82]

(l) Besides inadequate provisioning, the supply problem was made even more difficult by the many makes and models for which interchangeability of repair parts could not be accomplished. An indication of the make and model proliferation existing in materials handling equipment in Vietnam is shown in Table 44 and 45. These data are just an example and are based on detailed research by the Services concerned for a few specifically selected item names.[83]

TABLE 44

ARMY MATERIALS HANDLING EQUIPMENT PROLIFERATION

Commodity	Line Items	Models	Density
MHE	21	144	16,772

[82] op. cit., Senior Marine Corps Representative, 1 August 1969.
[83] DOD Entry Control Office, Directorate for Technical Data, Standardization Policy and Quality Assurance (DASD), Commodity Project Managers, January 1969.

TABLE 45

NAVY FORKLIFT PROLIFERATION

Commodity	Line Items	Models	Density
Forklifts, Solid Tire	22	89	1,963
Forklifts, Pneumatic Tire	37	84	3,145

(m) The problems with materials handling equipment during the Vietnam buildup are in many ways similar to those experienced with generators—shortages of equipment, poor quality, and the proliferation of variety, with attendant parts support and maintenance problems. In the case of generators, the Deputy Assistant Secretary of Defense in 1966 established a joint ad hoc working group to conduct an immediate study and to recommend measures to prevent problem recurrence. It was concluded that the study revealed the need for a Department of Defense management structure empowered with decision authority over all the functional facets of engine generators. A DOD project manager for the Mobile Electric Power was established in 1967 to establish, maintain, and provide for maximum use of a DOD standard family of electric power generator sets. By early November 1968, the project manager reported encouraging progress in solving logistic support problems associated with generators. In view of the progress that had been made and the many similarities in characteristics of the two commodity groups, generators and materials handling equipments, recommendations were made that DOD - wide authority, similar to that given to the project manager for mobile generators, be assigned to a single activity for materials handling equipment management.[84] The current status of the these recommendations could not be ascertained.

(n) All Services, particularly during the initial buildup stages, experienced problems in obtaining qualified operators and maintenance personnel from among their enlisted ranks. Contributing to the shortages of such personnel were the following:

(1) Operation and maintenance of materials handling equipment within CONUS depots were generally administered as a "pool" of equipment and manned by civilian personnel.

(2) Operational and environmental problems of the magnitude experienced in Vietnam were not envisioned by the Services. Training of operators was not considered a problem; operation of materials handling equipment in CONUS depots with their relative short hours, hardstand, etc. was considered a simple function similar to driving a truck. Maintenance problems with materials handling equipments in CONUS were relatively minor and encouraged a false image of maintenance problems that might be experienced in a contingency operation.

(o) Actions were taken by the Services to minimize materials handling equipment problems in Vietnam. Basically, the actions were six fold: introduction of new equipment, survey of wornout equipments, standardization of equipment procured and shipped in-country, more repair parts, intensive training of operators, and obtaining a satisfactory repair capability. These actions involved procurement with long lead times and movement of the equipments and parts through an already clogged pipeline which, ironically, the equipments in question were needed to improve. These actions required time. In the interim, special maintenance efforts and programs discussed in other sections of this report, and extensive cannibalization, were implemented.

(p) Action was also taken to standardize equipment for use in Vietnam. For example, the approval of the Secretary of the Army was obtained on determinations and findings authorizing sole source negotiations for selected items of materials handling equipment for the

[84] Ibid.

purpose of obtaining specific makes and models of equipment for use in Vietnam and of limiting the variety and quantity of parts to be carried in stock. Similar action was taken by the Navy in the procurement of the 6,000 lb. Rough Terrain Pettibone forklift.

(q) In addition to the standardization actions of the Services, the Defense Supply Agency, inventory manager for the majority of the repair parts for materials handling equipment, took concerted action to improve supply responsiveness by initiating priority procurement action for stock and maintaining personal contact with contractors/vendors to expedite procurement action.

(r) Special procurement action also was taken by the Services for required repair parts, particularly nonstandard parts. Special monitoring and air-shipment arrangements were employed by all Services. For example, the Red Ball Express was used by the Army to expedite delivery of the parts. Special arrangements including expediting and weekly reporting were established between NSA, Da Nang, and NSC, Oakland, for materials handling equipment parts.

(s) Operators received training on the operation and preventive maintenance of forklifts at Service schools established throughout Vietnam. Training of selected personnel scheduled for transfer to Vietnam was accomplished in CONUS by some of the Services. For example, the Navy established a school to train operators at San Diego

(t) The above efforts took considerable time but eventually paid off. The Army reported that by 1968 the operational readiness of rough-terrain forklifts in Vietnam was approximately 11 percent above the DA standard and the worldwide Army average in spite of the fact that it included a combat environment, and experienced a 124 percent increase in density of equipment in a 2-year period.

(u) Similar favorable results were achieved by the Navy and Marines in Da Nang during 1968-1969. On several occasions during this period, deadline rates for Navy Pettibone 6000-lb. capacity forklifts dropped to zero. Deadline rates on 4,000-lb. capacity forklifts fluctuated between 4-15 percent during 1969. Through cross servicing agreements between FLC, Da Nang, and NSA, Da Nang, the Navy maintenance shops performed extensive in-country maintenance on Marine forklifts which improved their availability.

(v) The Army Mobility Equipment Command, St. Louis, currently is developing specifications for forklifts, both commercial and rough terrain, whose design and capacities are being coordinated with current planning on containerization. Rough terrain forklifts under development include those with 15,000 and 20,000-lb. capacities. A 10,000-lb. electric forklift is also being developed. Forklifts with a 4,000-6,000-lb. capacity are being standardized with two resulting sizes planned for future use. Configuration of the equipments is being designed emphasizing the size and potential lift requirements for containers. This project has been funded through FY 74.

(2) Conclusions

(a) Shortages of operational materials handling equipment during the early buildup period in Vietnam contributed significantly to the inability of Service supply personnel to process and to maintain control of materiel as discussed in other sections of this monograph (paragraph 2d(1)).

(b) Initial shortages may have been caused in part by the omission of adequate materials handling equipment in planning for contingencies by the Services or lack of adequate funding for those that were included. Data obtained on pre-1965 contingency planning were inconclusive. Because of the long procurement lead times involved and the urgency of need during contingency operations, materials handling equipment, particularly short-mast and selected electric powered forklifts and the large rough-terrain forklifts not normally used in

CONUS depots should be included in planning for contingencies and adequately funded. "Paper stocks" will not suffice. Quantities would depend upon the logistic requirements of the plans (paragraph 2d(1)).

(c) Provisioning documentation should be processed at the initial procurement of materials handling equipment. Repair parts lists based on wartime failure rates should be prepared and sufficient repair parts should be laid down in war reserve stocks at least to support those equipments specified in planning for contingencies. Reliance on local purchase action for CONUS depot commercial equipments should be continued (paragraph 2d(1)).

(d) Trained operators and maintenance personnel for materials handling equipment should be available for contingency operations and, along with the equipment and repair parts, should be included as an integral part of planning for contingencies (paragraph 2d(1)).

(e) Supply and maintenance support of materials handling equipment would be facilitated by reducing the number of makes and models employed to the maximum extent possible (paragraph 2d(1)).

(f) The Army should continue efforts to develop standard specifications for forklifts which are coordinated with current planning on the design and lift requirements of containers. Successful specifications should be used by all Services (paragraph 2d(1)).

(g) Efforts to achieve standardization should also attempt to achieve interface with the containers, pallets, aircraft configurations, ship configurations, and loading and unloading facilities used by each Service (paragraph 2d(1)).

(h) The granting by Service Secretaries of Determinations and Findings for sole source procurement, multi-year contracts, and limited-bidder competition are ways of minimizing the proliferation of makes and models of materials handling equipment (paragraph 2d(1)).

(3) Recommendations. The Board recommends that:

(a) The Services specifically provide for selected materials handling equipment and supporting repair parts in planning for contingencies. This equipment should include short-mast and electric powered forklifts and the 6,000-lb., 10,000-lb., and 15,000-lb. capacity rough terrain forklifts (conclusions (2)(a), (2)(b), (2)(c), and (2)(d)).

(b) The Joint Logistic Commanders recommend a joint program to standardize among the Services and to reduce, to the maximum extent practicable, the number of makes and models of construction and materials handling equipment as well as other jointly-used items of major commercial equipment. In the development of this program the substantial progress achieved in the Mobile Electric Power Project should be noted. Two complementary courses of actions should be considered:

1. Increase use of multi-year contracts; authorize limited-bidder competition; and expand criteria for the granting of Determinations and Findings for sole source procurement.

2. Commonality of equipment within designated geographical areas (Conclusions 2(e), (f), (g), and (h)).

e. Logistic Communications

(1) Supply management operations in support of operations in Vietnam have again emphasized the requirement for timely, flexible and mobile communications with adequate

capacity to handle peak workloads. The ever increasing emphasis on providing improved capabilities for supply management, involving automatic data processing equipment, make reliable communications indispensable.

(2) The reader is invited to review the Communications Monograph for an in-depth discussion of communications as related to logistic support of contingencies. This monograph also contains pertinent conclusions and recommendations, a number of which are of particular importance to providing the requisite capability for effective and efficient management and control of materiel in overseas areas.

f. Army Logistic Intelligence

(1) General

(a) Introduction. During the Vietnam conflict the necessity for, and value of, a CONUS central logistic data bank containing current, valid, pertinent, and accessible information on the status of supply and transportation actions were fully demonstrated to the Army. The central Army data bank known as the Logistics Intelligence File (LIF) evolved at the Logistics Control Office, Pacific, (LCOP).

(b) Background

1. Overseas Supply Agencies. The Army's Overseas Supply Agencies (OSAs), had served since 1942 as central activities in CONUS where requisitions from overseas commands were received, processed under established control criteria and placed on CONUS supply sources. The principal objective for organizing the As was to minimize the number of contacts required in CONUS for overseas commands engaged in the conduct of large scale logistic operations and to provide essential logistic intelligence, e.g., movement and supply status to overseas requisitioners.

a. The requirements for the OSAs were originally recognized very early in World War II and reaffirmed during the Korean conflict. Each OSA served a specific geographic are, i.e., Overseas Supply Agency, New Orleans (OSANO)--Caribbean, South America, and Africa; Overseas Supply Agency, New York (OSANY)--North Atlantic, European, and Middle East; Overseas Supply Agency, San Francisco (OSASF)--Alaska, Pacific, and the Far East.

b. The OSAS were under the staff supervision and direction of the Deputy Chief of Staff for Logistics, Department of the Army. They were collocated with the U.S. Army Terminal Commands (USATCs) which were activities within the Army's Transportation Corps until the reorganization of the Army and the activation of the U.S. Army Materiel Command (USAMC) in 1962. At that time the terminal commands became an element of USAMC. Collocation with the USATCs permitted the OSAs to have ready access to movement data in USTCAs records.

(c) Discussion

1. In February 1961 the Secretary of Defense directed that a study, known as OSD Project 80, be made of the functions, organization, and procedures of the Department of the Army in the light of the then current defense environment and projected trends. The final report was forwarded to the Secretary of the Army in October 1961. The reorganization plan as a concept became effective 17 February 1962, and resulted in the activation of the Army Materiel Command (USAMC) in May 1962.

2. In November 1961 the office of the Secretary of Defense, (OSD) based on the project 80 findings decided to close the Army's Overseas Supply Agencies (OSAs). The original schedule proposed by OSD I&L would have closed the OSAs by 30 June 1962. However, the Army reprogrammed $6 million to sustain the operations of the OSAs to the end

of FY 63 based on its desire to review the mission in connection with the implementation of the changes resulting from Project 80. OSD noted upon receipt of the FY 64 budget that the Army had not complied with the decision to close OSAs. OSD by Subject/Issue 69, on the FY 64 budget, removed all funds for the OSAs. The Army was directed to submit detailed plans showing the ultimate phase out of the Agencies prior to obtaining approval from OSD on the Army plan to continue operations past 30 June 1963. OSD also decreed that even if approved, the operation of the Agencies past 30 June 1963 would be funded by the Army absorbing the cost from other Army Operation and Maintenance funds.

3. In response to Project 80 USAMC initiated in 1963 a study of the Army Supply and Maintenance System (TASAMS).

a. Based on the TASAMS concept, the three Overseas Supply Agencies were scheduled to be gradually phased out during 1964 and the requisitioning channel was established from overseas requisitions (other than MAP (Military Assistance Program) recipients) directly to the appropriate Army NICP, DSA center, or General Services Administration (GSA) region. MAP requisitions were to be submitted to a central point at the U.S. Army Terminal Command, Atlantic.

b. As previously indicated based on the TASAMS concept the Commanding General USAMC had recommended the gradual phase-out of the OSAs during FY 64. This was to have been an integral step in the implementation of a broader plan which involved adoption of a new supply management system and a contraction of the CONUS depot system. However, as a result of OSD denying funds to operate the OSAs the Army was forced into an accelerated closing schedule.

4. Disestablishment of the OSAs, effective 1 July 1964, represented a substantial departure from traditional Army supply management philosophy. It immediately became obvious that the Army had lost the capability to accomplish certain of the former OSA functions for which there were continuing requirements, e.g. maintaining supply and movement data, on a current basis, at a central point. This is necessary to provide the overseas commands or other agencies concerned with the timely status of items of materiel in the pipeline, to assure effective supply management and a single agency to accomplish the Armys responsibility for forecasting requirements to, and coordinating movements with, the Single Manager Transportation Commands and Services.

5. The Army's solution was the establishment of Logistic Control Offices. The evolution of these offices and the eventual emergence of a logistic intelligence file, which has been so outstandingly effective during the Vietnam era in filling the void in the availability of timely and pertinent supply and movement data created by the disestablishment of the OSAs, are discussed in Appendix A. These discussions support the following conclusions and recommendations.

(2) Conclusions

(a) Disestablishment of the Armys Overseas Supply Activities (OSAs), effective 1 July 1964, resulted in the Army losing the capability for performing certain of the OSA supply management functions for which there were continuing requirements, e.g., maintaining supply and movement data, on a current basis, at a central point. This is essential to provide the overseas commands or other agencies concerned with the timely status of items of materiel in the pipeline, to ensure effective supply management, and to accomplish the Armys responsibility for forecasting requirements to, and coordinating movements with, the Single Manager Transportation Commands and Services (paragraph 2f(1)).

(b) The initial impact on supply management from the closing of the OSAs was minimized when selected supply movement and transportation coordinating functions, which had formely been the responsibility of the OSAs, were transferred to the Army terminal commands (paragraph 2f(1)).

(c) The creation of the Military Traffic Management and Terminal Service (MTMTS) in February 1965 with a concurrent transfer of the Army terminal commands from USAMC to MTMTS virtually eliminated the Army's remaining capabilities for monitoring and coordinating the movement of materiel to the overseas areas (Appendix A).

(d) The Logistic Control Offices were activated to reestablish the minimum essential capability required by the Army to accomplish its assigned supply management and movement responsibilities in connection with the overseas deployment of Army forces and the movement of Army responsibility/sponsored materiel (paragraph 2f(1)).

(e) The potential value of a Logistic Control Office for providing essential logistics intelligence was initially demonstrated during the support of operations in the Dominican Republic (Appendix A).

(f) A substantial portion of the excesses generated by the Army in Vietnam can be attributed to a lack of timely and usable logistic intelligence. The military standard systems flooded the overseas requisitioners and inventory managers with vast quantities of data which could not be assimilated on the limited automatic data processing equipment available or data which were of little if any value to management (Appendix A).

(g) Most of the supply management problems associated with a lack of knowledge of what materiel was in-transit and in controlling the input of materiel into the theater in accordance with the command's requirements and capabilities could have been alleviated if the LCO-P, with its intelligence file, had been operational in the same degree in 1965 as it is currently (Appendix A).

(h) The LCO-P has been an outstanding success in improving the effectiveness and efficiency of supply management over materiel moved to Vietnam. It has not infringed on the mission or responsibilities of any other Army or DOD agency. The LCOs and the Logistic Intelligence File (LIF) complement the military standard systems (Appendix A).

(i) The soundness of the concept of Logistic Control Offices and a Logistic Intelligence File have been well established. Both are integral parts of the Army's current and future overseas supply distribution systems (Appendix A).

(3) Recommendation. The Board recommends that:

(a) The Army continue to maintain Logistic Control Offices and a central logistic data bank with the capability to provide timely and pertinent logistic intelligence for worldwide overseas Army responsibility materiel movements (conclusions (2)(a) through (2)(f)).

g. Mathematical Model Approach to Computing Stockage Criteria and Mode of Shipment

(1) Introduction

(a) The JLRB was impressed with a statement in a Logistical Summary of the Army's 1st Logistical Command in South Vietnam. The report noted that 5,000 lines on the theater authorized stockage list (TASL) accommodated 50 percent of the annual demands. Since most theater stockage lists (TASLs) range from 150,000 to 200,000 lines, these figures seemed to give a clue to an opportunity for an important change in concepts for theater stockage.

(b) Experience of the Army in Vietnam indicated that management of the TASL posed significant in-theater problems. The sheer size of the TASL (200,000 lines in November, 1966) raised insurmountable data processing difficulties. Constant flux in the composition of the TASL compounded the problem of size. Also, the inability of the depot system to identify supplies and keep locator systems accurate rendered the data base in the computers invalid. In short, the supply system was saturated with materiel and data, and the ability to manage effectively even high demand items was lost.

(c) One obvious answer to improving management of theater stockage is to reduce the range of stocks in the theater depot and to rely on airlift to supply those lower demand items not stocked in-theater. Some of the major elements involved in reaching a decision on what items of materiel should be stocked overseas are:

1. Demand accommodation desired from theater stocks

2. Turbulence that is acceptable in stockage list

3. Impact on requirements for the availability of air transportation

4. Size of stock list that can be efficiently managed

5. Selection of stockage criteria that will provide acceptable balance between (1), (2), (3), and (4).

(d) Although it would have been desirable to analyze operations of a depot in Vietnam, the required data base was not available. The next largest Army overseas operation was in Europe. One year's demand history at the theater level depot was available. The period was 1 November 1968 through 31 October 1969. The study was based on repair parts. Almost 178,000 FSNs were demanded during the one year period. The derivation of the repair parts data, used in the calculations described below. from the data base obtained from USAREUR is described in paragraph 6, The Statistical Description.

(2) Stockage List Criteria

(a) Figure 39 plots the size of the United States Army Europe, Communications Zone (USAREUR COMZ) TASL, for various recurring demand addition and retention criteria.

(b) Shown by dashed lines in Figure 40 are the demand accommodations for each size TASL. The dashed lines show that a selected demand accommodation fixes the size of the TASL in a very flat range, irrespective of the criteria for addition and deletion. For example, selection of a demand accommodation target for 75 percent establishes the TASL at about 32,000 FSNs. Among the many demand criteria that will result in a 32,000 FSN size TASL are:

	Demands in a 360 Day Base Period	
Criteria	To Add	To Retain
A	16	11
B	20	8
C	23	6
D	28	3

(c) The numerous possiblities for stockage list criteria raises the question of which criterion should be selected.

(3) Stockage List Turbulence

(a) An important factor in selection of stockage list criteria to support a specified demand accommodation is stockage list turnover. A stable stockage list is not only easier to manage, but it should be less costly. An unstable stockage list requires continual additions and deletions. A minimum pipeline for supply overseas of each item is about a half year. (In-theater stockage plus order and ship time equals 180 days). A 10 percent turbulence in the stockage list involving average items means then that 5 percent of the total annual tonnage issued by the depot would be involved in being either expedited or frustrated and subsequently retrograded or disposed of during the year.

(b) It is clear that the simplest way to keep a stockage list stable is to establish a very stringent criteria to qualify an item for initial stockage, and a very liberal criteria for retention on the stockage list. However, this rationale if carried to extreme, would result in many items experiencing a reasonably high frequency of demand not being stocked and an ever increasing number of lower demand items being retained on the list indefinitely. Some degree of turbulence is necessary to keep stockage lists within an acceptable range of items of materiel while achieving the desired demand accommodation.

(c) Figure 41 shows the turnover rates associated with stockage list criteria. Carrying further the example given above, the turnover associated with the criteria A through D for a 75 percent demand accommodation target (32,000 lines for the TASL) are:

Criteria	Demands in a 360 Day Base Period: To Add	To Retain	Percent Turnover
A	16	11	9.9
B	20	8	1.4
C	23	6	0.2
D	28	3	0.0

(e) The adoption of one of these four criteria is pretty much a matter of obligation. A 10 percent turnover in the list per year involving "stop" and "go" on 5 percent of the annual tonnage is obviously too high. 0 percent and 0.2 percent are too low. Something on the order of criteria B (20 demands to add and 8 to retain) with a 1.4 percent turnover would appear reasonable.

(4) Mode of Shipment to Theater

(a) The selection of a given sized TASL can have a corollary decision, i.e., to use airlift to supply those items not stocked. Figure 42 shows the size COMZ TASL associated with each demand accommodation rate. Figure 43 shows the residual tonnage of materiel which is not provided by a desired combination of a Theater Authorized Stockage List of a particular size and a demand accommodation rate. For example, a 75 percent demand accommodation rate means there is a residual requirement for about 13 percent of the total tonnage involved in meeting 100 percent of the total demands. Since the annual tonnage issued in the COMZ model was 35,454 tons, that means that selection of a 75 percent demand accommodation rate could entail a commitment to provide for airlift of about 4,800 tons of less frequently demanded items per year. This assumes that a decision has been made to use Air Transportation and that all items of materiel requested are in fact authorized, required and their relative essentiality are such as to justify air transportation. In actual practice many items will not meet these criteria. The weight, cube, cost, and/or relative essentiality of an item may result in a determination to use surface transportation to meet all or a portion of the requirement.

(b) We have further analyzed the kinds of items that would typically be on the TASL to see what percent of such items might also be shipped by air. If we examine the unit weight and annual tonnage demanded per line item, we find that many of these items could be supplied by parcel post, most of which goes by air.

(c) We have analyzed the 20,000 high demand items determined by the COMZ data, as shown in Figure 44. These items would usually be part of the TASL. The Figure gives for specified values of unit weight and annual tonnages per line item, the number of line items falling within those weight limits and the total annual tonnage of shipment represented by those line items.

(d) Thus, Point A on Figure 44 indicates that slightly less than 16,000 line items had unit weight of 4 pounds or less and annual tonnage per line item of 1 ton or less. These 15,950 line items accounted for 1,740 tons shipped during the year, as shown by Point A.

(e) We can use this chart considering, only unit weight and annual tonnage, to help set criteria among these 20,000 high demand items for shipment by parcel post and/or Air Transportation. For example, if we choose 3,000 tons as the amount to be shipped annually by parcel post, and/or Air Transportation we get the following selected possibilities satisfying such a condition:

Points	Unit Weight	Annual Tonnage Per Line Item	Number of Line Items
B, B'	2.5 or less	10 tons or less	15,700
C, C'	3.0 or less	8 tons or less	16,000
D, D'	4.5 or less	5 tons or less	16,000
E, E'	7.2 or less	3 tons or less	17,000
F, F'	11.6 or less	2 tons or less	17,800

A major observation noted from the above data is that 75 to 85 percent of the 20,000 line items fall within the limits specified by all of the above weight criteria. To select the criteria precisely with respect to shipment by parcel post, we would have to investigate the number of units shipped with each requisition to be sure the package could fit into a mail bag. Examination of the above data leads us to choose the criteria represented by Points F, F' because it includes line items with the smallest annual tonnage. Such line items are the ones most likely to be shipped in packages small enough to go by parcel post. Selecting the characteristics represented by Points F, F' means that there would only be 2,200 out of the 20,000 to be shipped by surface means, because of high unit weight and high annual tonnage.

(e) The following table summarizes the results of the stockage criteria for repair parts and the movement considerations presented in this section. in terms of line items and tonnage, as derived from the European data. The results are based on 3 assumptions:

1. The TASL must provide 75 percent demand accommodation.

2. The TASL consists of high demand items; the low demand items are airlifted.

3. Approximately 9,000 tons per year of airlift capacity would be available for moving these repair parts.

TASL:	SURFACE MOVEMENT LINES	SURFACE MOVEMENT TONS	PARCEL POST or AIR MOVEMENT LINES	PARCEL POST or AIR MOVEMENT TONS	TOTAL LINES	TOTAL TONS
20,000 high demand FSNs	(2,200)	(26,400)	(17,800)	(3,000)	(20,000)	(29,400)
12,000 other FSNs			(12,000)	(1,200)	(12,000)	(1,200)
TOTAL TASL	2,200	26,400	29,800	4,200	32,000	30,600
NON-TASL:						
145,800 FSNs			145,800	4,800	145,800	4,800
TOTAL USAREUR	2,200	26,400	175,600	9,000	177,800	35,400

(f) We first found that a TASL providing 75 percent of demand accommodation should contain about 32,000 line items. Further, these 32,000 line items account for a total tonnage demanded of 30,600 tons out of a total for the theater of 35,400 tons annually. We then subdivided these 32,000 lines into the 20,000 highest demand items and the remaining 12,000 line items on the TASL. Our previous analysis of the 20,000 lines indicated that if we assume that 3,000 tons of these items were shipped by parcel post, we would be moving 17,800 of these items by this mode. This would include the items with the lowest unit weight and annual tonnage per line items shipped, and such items would also be highly air-eligible. The remaining 2,200 line items would normally be moved by surface, and they would represent an annual movement of 26,400 tons, representing line items with the highest unit weight and annual tons shipped per line item.

(g) For the remaining 12,000 line items on the TASL, which would be relatively of lower demand, we find that their annual tonnage moved would be only 1,200 tons, or about 0.1 tons per year for each line item. It seems reasonable to assume that the majority of these 12,000 line items would also go by parcel post and/or air. For purposes of this analysis, we have shown all of them in the table as moved by these modes.

(h) The non-TASL items, which represent 145,800 line items and 4,800 tons demanded annually would all be shipped by air, according to our assumption on low demand items. Undoubtedly, many of these items could be sent parcel post, which would also expedite delivery.

(i) Overall, this means that 2,200 line items representing 26,400 tons demanded annually would go by surface, and the remaining 175,600 line items representing 9,000 tons shipped annually, would primarily go by parcel post or air. This finding is very much in line with current trends to make increasing use of parcel post, but we also are emphasizing the desirability of using air shipment, either through parcel post or otherwise, to expedite delivery of low demand items and items with low unit weight and small annual tonnage.

(j) The above discussion of the 32,000 line TASL has been strictly limited to demand-supported items. The addition of insurance items to such a TASL should be held to the absolute minimum, to fit the concept of stocking high demands in the theater, and relying on rapid resupply from CONUS for other items. Further, the stockage criteria models discussed are intended for use in setting inventory policy for intermediate echelons of supply, such as the DSU or theater depot. They do not apply to the national ICP level, which is required to stock all items likely to be demanded, and whose inventory must also be determined on the basis of procurement lead time considerations.

(5) Generality of Findings

(a) Demand data for the Vietnam depots like those used in the COMZ stockage criteria calculations appear in Section C of this chapter at Figures 36-38. In addition, similar demand data were obtained for the 4 Army Divisions in Europe, also covering a one year's period.

(b) The demand data for these 8 logistic organizations: COMZ in Europe, the 3 Army depots in Vietnam, and the 4 Army Divisions in Europe, have been normalized by expressing all the data samples in terms of percentage of total FSN's demanded, instead of the number of FSN's.

(c) Figure 40 plots all eight relationships. The narrow envelope of these eight curves indicates that normalized data are probably applicable with a high degree of confidence to the range of logistics operations between an Army Division demanding about 15,000 different line items per year and a theater depot receiving demands for around 200,000 different line items per year.

(d) It is also likely that these findings would be applicable to the demand experience in overseas areas of the other Services for organizations having the same levels of logistic activity. That is, we would expect that they would also find that around 15 percent of the line items would satisfy about 60 percent of the total demands, and around 25 percent of the line items would satisfy 80 percent of the total demands, when the line items are arranged in decreasing order of frequency of demand. However, the stockage criteria for these organizations would generally be different than those obtained in this Section, because the criteria values are dependent upon the absolute levels of demand rather than the percentage values.

(6) Statistical Description

(a) Introduction - This is a description of the data base obtained from COMZ USAREUR and the stockage criteria model developed by the Research Analysis Corporation as a part of a study for the Department of the Army.

(b) Description of Repair Parts Data Base

1. A one year demand history file (1 November 1968 - 31 October 1969) was obtained from the U.S. Army Materiel Command, Europe.

2. The following criteria were used in the selection of repair parts. Each FSN must meet all of the following:

(a) Have at least one recurring demand in 365 days.

(b) The first digit of its Financial Inventory Accounting Code (AR 700-1) must be one of the following:

(1) B - Ground Support Equipment

(2) D - Support Vehicles - Commercial

(3) C - Electronics Equipment

(4) H - Aircraft - Air Materiel

(5) J - Ground Forces Support Materiel - (DSA)

(6) K - Tactical Vehicles

(7) L - Missiles - Missile Materiel

(8) M - Tanks, Small Arms, and Artillery Weapons

(9) N - Ammunition, Missiles and Chemicals - Special Weapons and Chemical Materiel

(10) Q - Electronics Materiel - (DSA)

(11) T - Industrial Supplies

(12) U - COMSEC Materiel

(c) The second digit of its Financial Inventory Accounting Code must be one of the following:

(1) S - Aircraft Repair Parts

(2) T - Missile Repair Parts

(3) U - Weapons and other Combat Vehicle Repair Parts

(4) V - Tracked Combat Vehicle Repair Parts

(5) W - Tactical and Support Vehicle Repair Parts

(6) X - Communication and Electronic Equipment Repair Parts

(7) Y - Other Support Equipment Repair Parts

(8) Z - Ammunition Repair Parts

(9) 2 - Army Stock Fund Secondary Items

(10) 3 - OMA Secondary Funds

(d) All items in the following Federal Supply Groups were eliminated from the data base.

(1) 23 - Motor Vehicles, Trailers, and Cycles

(2) 54 - Prefabricated Structures and Scaffolding

(3) 55 - Lumber, Millwork, Plywood, and Veneer

(4) 56 - Construction and Building Materiel

(5) 71 - Furniture

(6) 76 - Books, Maps, and other Publications

(7) 84 - Clothing, Individual Equipment, and Insignia

(8) 94 - Nonmetallic Crude Materiel

(9) 95 - Metal Bars, Sheets and Shapes

(10) 96 - Ores, Minerals, and their primary Products

(11) 99 - Miscellaneous

(e) All FSNs with a unit price exceeding $1,000 in the following Federal Supply Groups were eliminated from the data base.

(1) 34 - Metalworking Machinery

(2) 49 - Maintenance and Repair Shop Equipment

(f) Certain FSNs required estimates of unit price, weight, and cubic feet. There are two reasons for this: (1) The data were missing from the Army Master Data File or, (2) the data present were believed to be erroneous. Estimates were developed for each Federal Supply Group and were based on those FSNs in the data base for which full data was given and believed to be reasonably accurate. The FSG estimates were then applied to all FSNs requiring them.

(c) Stockage Criteria Model

1. This description of the stockage Criteria Model is derived from Logistics department report RAC R-31, "An Analysis of Alternative Procedures for Developing Prescribed Load Lists (PLLs)", Volume 1, by the Research Analysis Corporation under a contract with the Department of the Army. The stockage criteria model is a computerized special-purpose model designed for the analysis of alternative stockage criteria of the demand-qualified portion of the authorized stockage lists. In simplest terms, stockage criteria are the rules that govern the addition and removal of individual FSNs for the demand-qualified portion of the authorized stockage lists.

2. The two types of input used in the model are the frequency distribution of demand for a given unit and time period, and the alternative stockage criteria. The total number of recurring demands for repair parts in COMZ USAREUR for the year ending 31 October 1969 were used to create the frequency distribution of demand.

3. With this frequency distribution of demand, and a selected stockage criteria, such as 16 demands in 360 days to be added to the list, and 11 demands in 360 days to be retained on the list, the model will compute the number of demand-qualified FSNs that can be expected after a period of adjustment has passed, how many addition or deletions will occur in a year's period (turnover), and how effective the stockage list demand-qualified FSNs will be in meeting parts demands (demand accommodation). It is emphasized that this computation gives the expected average values of these outputs, based on the probabilities or frequency of demand observed in the base period.

4. RAC studies have concluded that the probability of demand follows a Poisson distribution. The model then takes the frequency distribution of FSNs for the observed demand level in the base period of year 1, and assuming that this demand is the mean of a Poisson distribution, it can calculate the expected number of FSNs at each demand level that will be on or off the stockage list in year 2. The model continues to iterate year by year. It moves forward to trace the changes that would occur in the list of year 2 as time passes, assuming that the demand-frequency distribution found in year 1 does not change. Again the laws of probability are applied, but now both addition and retention criteria must be considered. At each step in time (years 2, 3, 4 --) the following four types of operations must be answered: what is the probability that

(a) An FSN now on the list will stay on?

(b) An FSN now on the list will drop off?

(c) FSN not on the list will be put on?

(d) An FSN not on the list will remain off?

5. When these probabilities are calculated for a number of succeeding years, the list of demand-qualified items will eventually reach equilibrium, a point at which its size is stable, i.e., the number of additions is equal to the number of deletions. It is this equilibrium list that has been used to make comparisons of alternative stockage criteria. At equilibrium, the computerized model shows the following:

(a) Size of list (number of FSNs included)

(b) Stability of list as measured by turnover; the number of FSN additions and deletions per year

(c) Demand accommodation furnished (percentage of future demands expected to match the list)

(7) Conclusions

(a) Statistical analysis of eight Army logistics operations, including four Divisions in Europe and four Depots in Europe and Vietnam, indicates that there is substantial similarity in the percentage of total demands accommodated by a specified number of items included on Authorized Stockage Lists.

(b) The agreement for the observed demand data for Army units is so good that it seems reasonable to believe that a similar pattern could hold for other Service logistics organizations, whose logistics activity ranges between the 15,000 different line items demanded by a Division and the 200,000 different line items demanded at a depot level.

(c) The Board study indicates that there appear to be rational statistical techniques which could be used in establishing desired criteria for including items on authorized stockage lists in overseas areas. Statistical analysis affords an opportunity to optimize the relationship between number of lines stocked and percentage of consumer demands that can be accommodated from that stockage. For example, analysis of USAREUR data indicates that the stockage criteria of 3 demands per year for addition and 1 demand per year for retention should be more like and average of 20 and 8 to retain. A criteria of 20/8 will establish a stockage list of 32,000 lines that will accommodate 75 percent of annual demands. The wide spread between actual and what is statistically indicated certainly underscores the desirability of major service attention.

(d) In analyzing the top 20,000 high demand FSNs in Europe, it was found that the remaining 158,000 lines accounted for only 6,000 tons or 16.9 percent of the total 35,000 tons demanded during the year studied. These data indicate that the vast majority of these items should not be stocked in theater and should be routinely shipped by air from the CONUS.

(e) Further analysis indicated that 75 to 85 percent of the 20,000 high demand FSNs because of low unit weight and total annual demand tonnage should be moved by parcel post even though on the TASL and stocked in the theater.

(f) Stockage model techniques may be useful in advancing the concepts developed elsewhere in this monograph for establishing a major reduction in numbers of items stocked in overseas areas and placing additional emphasis on airlift for low demand items and items with low unit weight and small annual tonnage, in addition to using airlift for high unit cost items.

(g) This chapter has reviewed a specific situation, one involving repair parts for an Army force under stable, peacetime conditions. The basic pattern of demand may be expected to apply to other forces and situations, although the optimum range criteria will vary depending on the specific forces supported, the situation, and readiness considerations which differ from Service to Service. The Board is aware of the fact that there have been many related studies by all the Services in this important area with resultant adjustments in the range of items stocked, e.g., the periodic changes to the Fleet Issue Load List and the on-going Air Force program study involving 30 air bases.

(8) Recommendation. The Services in their ongoing efforts to improve supply operations explore the concepts of the stockage criteria model technique outlined in Paragraph 6 to determine the validity of its application to determining stockage criteria for overseas activities. (Conclusions a-g)

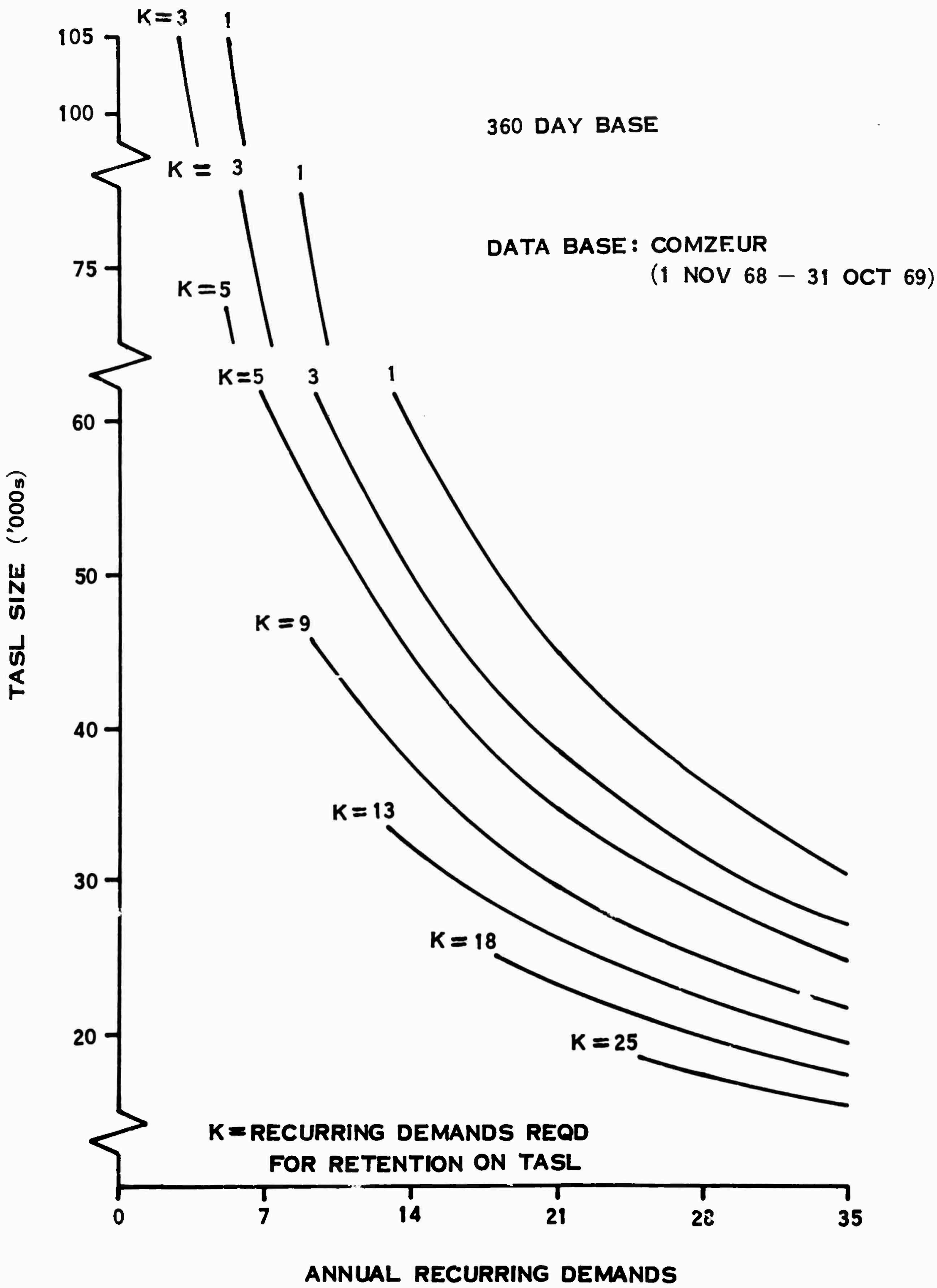

FIGURE 39. ANNUAL RECURRING DEMANDS REQUIRED FOR ADDITION TO TASL, COMZ STOCKAGE CRITERIA MODEL.

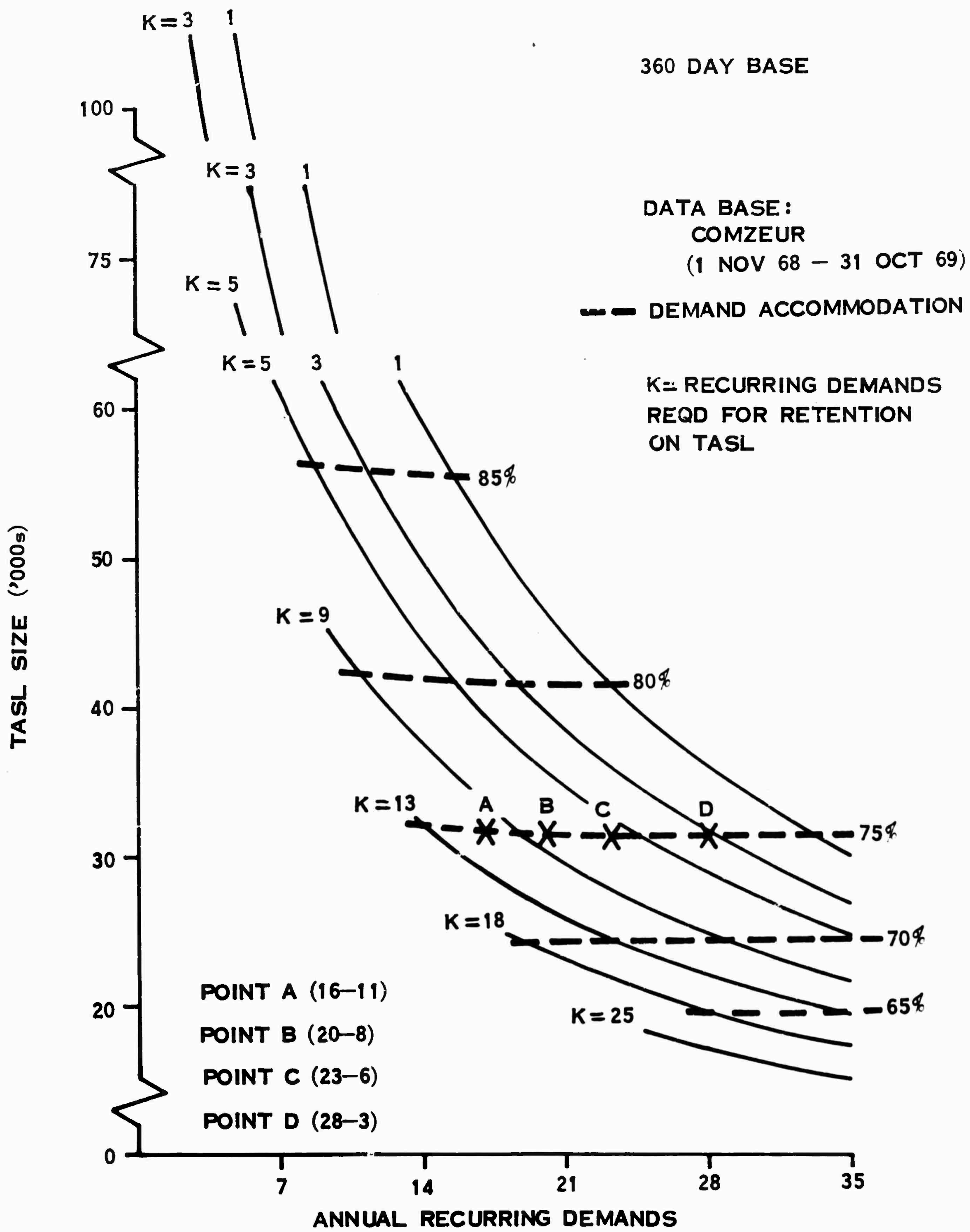

FIGURE 40. DEMAND ACCOMMODATION RELATED TO ANNUAL RECURRING DEMANDS REQUIRED FOR ADDITION TO TASL, COMZ STOCKAGE CRITERIA MODEL.

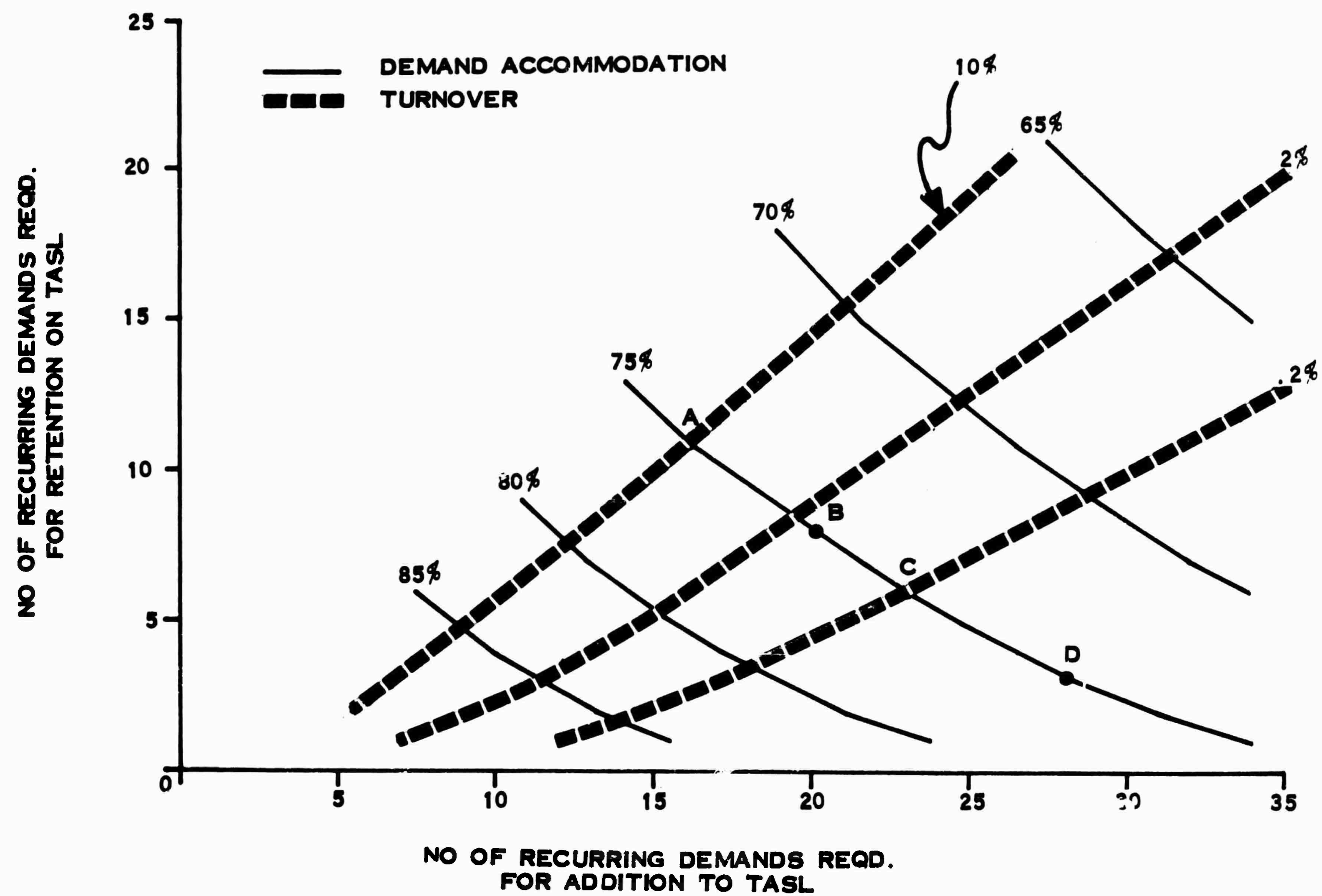

FIGURE 41. DEMAND ACCOMMODATION RELATED TO TURNOVER, COMZ STOCKAGE CRITERIA MODEL.

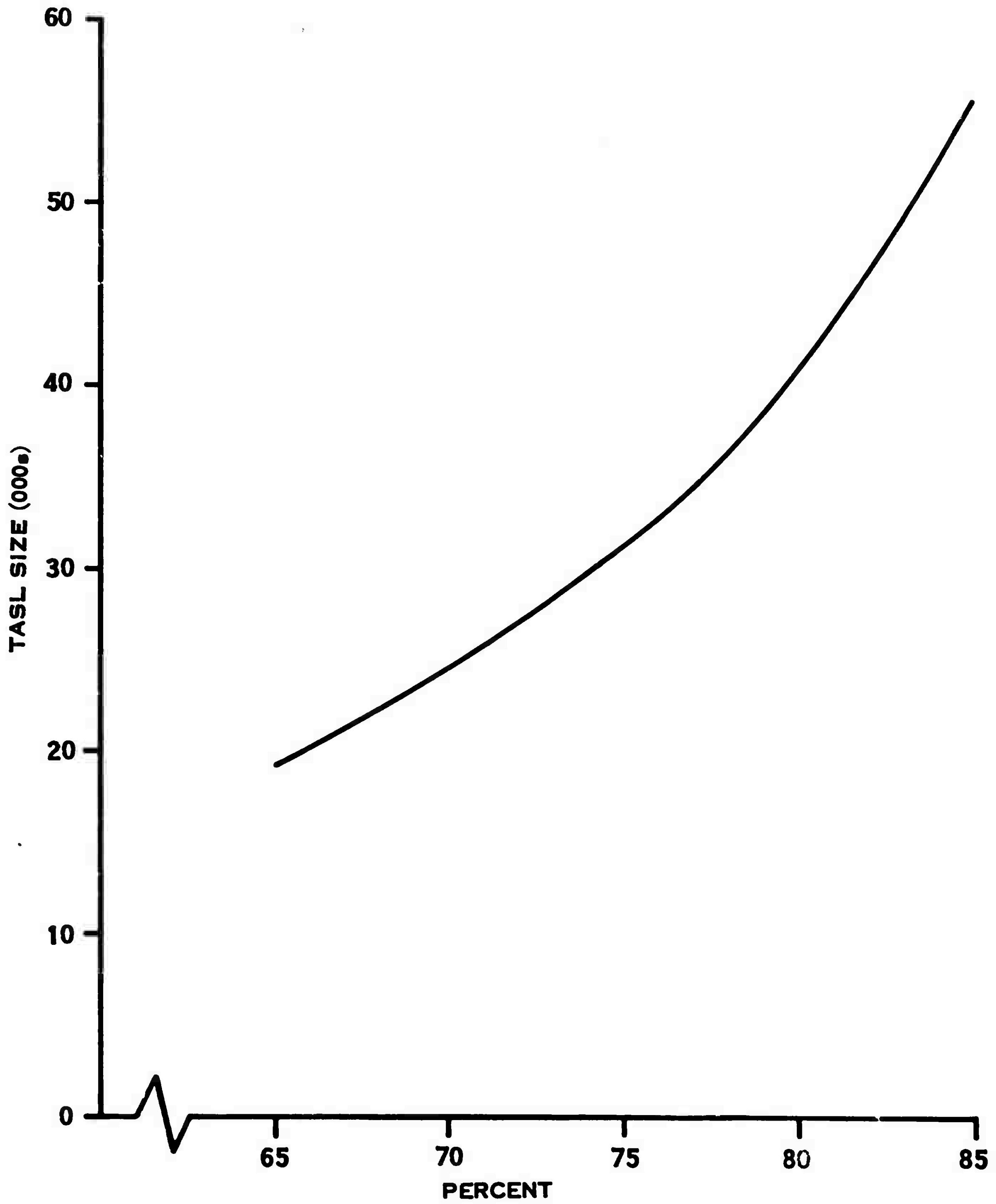

FIGURE 42. DEMAND ACCOMMODATION, COMZ STOCKAGE CRITERIA MODEL.

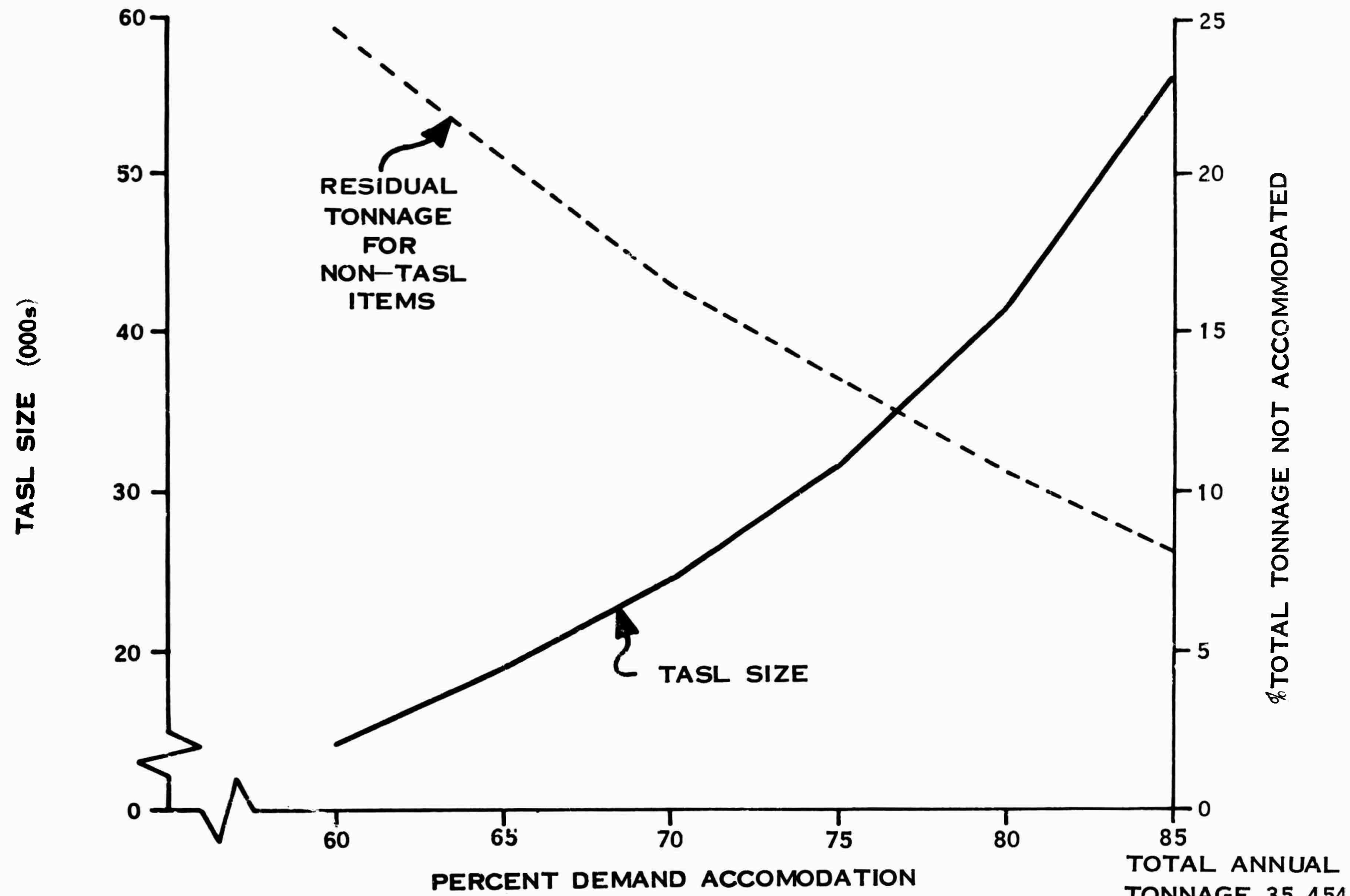

FIGURE 43. RESIDUAL TONNAGE OF COMZEUR REPAIR PARTS NOT ACCOMMODATED (1 November 68 - 31 October 69).

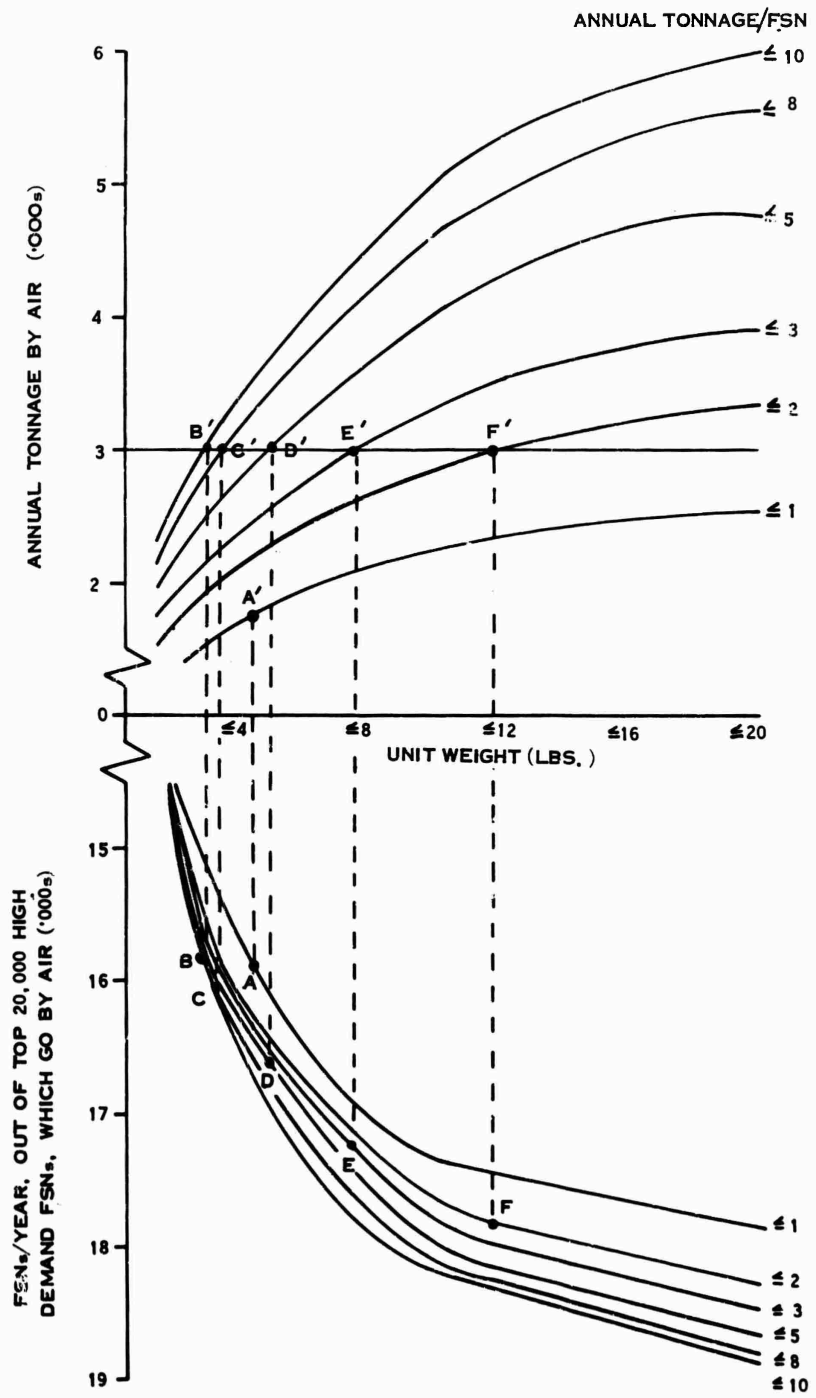

FIGURE 44. NUMBER OF FSNs AND TOTAL ANNUAL TONNAGE SHIPPED RELATED TO UNIT WEIGHT AND ANNUAL TONNAGE PER FSN

DATA BASE: TOP 20,000 HIGH DEMAND
FSNS FROM COMZEUR REPAIR PARTS
(1 November 68 - 31 October 69)

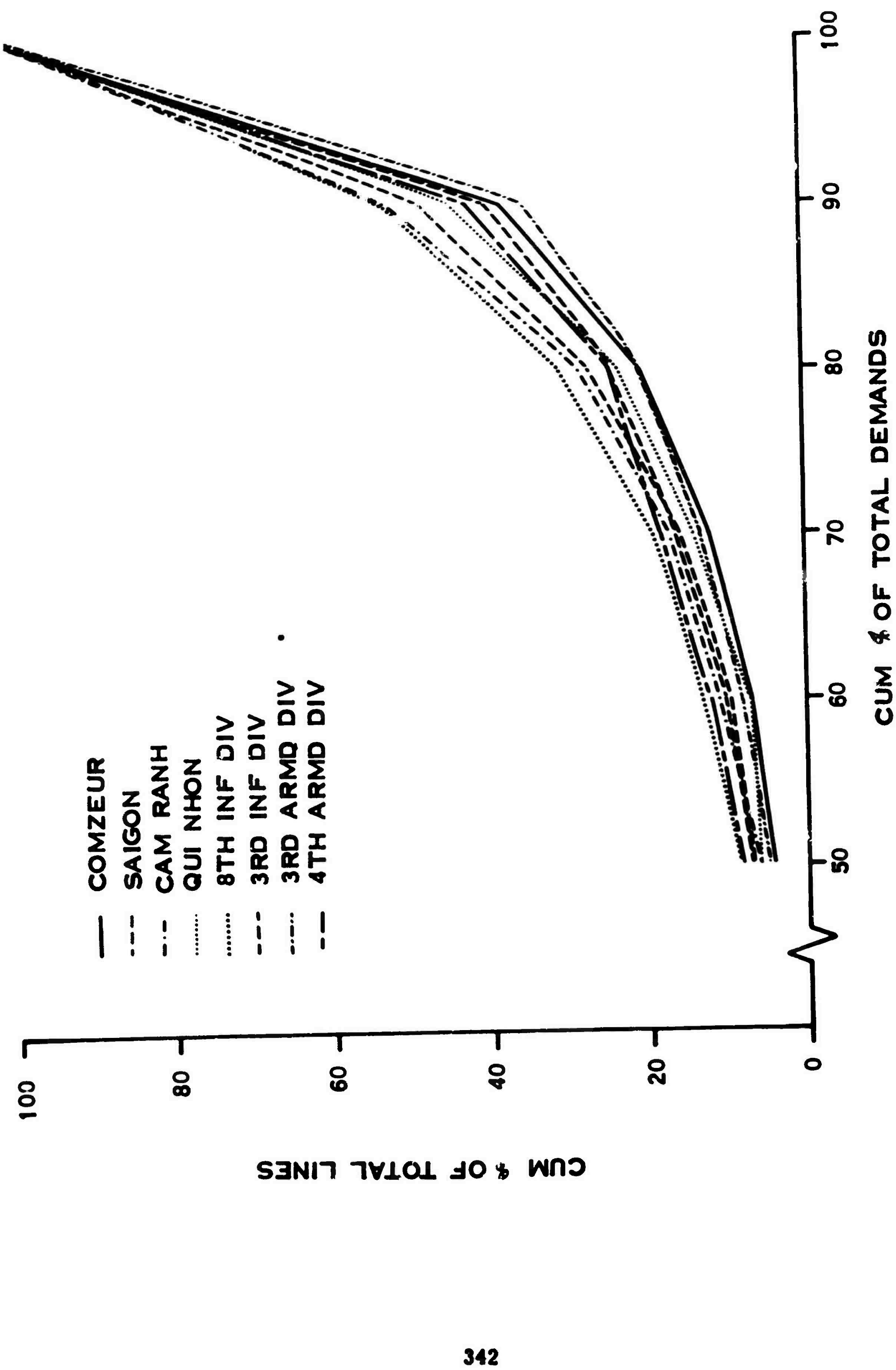

FIGURE 45. PERCENTAGE OF CUMULATIVE TOTAL DEMANDS RELATED TO PERCENTAGE OF TOTAL LINES FOR SEVERAL ARMY ORGANIZATIONS.

3. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) Review of the supply support problems in Vietnam leads to several conclusions that have application to both worldwide overseas supply operations and to similar future contingency operations.

(a) The capabilities of logistic facilities initially available ranged from marginal, at best, in some areas to inadequate or totally lacking in other areas to support the desired plan of buildup of forces in Vietnam.

(b) In many instances the quantities of materiel shipped into Vietnam were far in excess of those required for effective and efficient supply support of deployed forces. The excess quantities of materiel congested the supply distribution systems and generated long-range problems inhibiting effective and efficient supply support.

(c) During the early stages of a contingency, when facilities and personnel are at best marginal, the stockage criteria should be particularly stringent. As the capacity to handle material and the logistical data base are improved, the early stringent criteria can be relaxed if warranted by other logistic considerations.

(d) In most instances the supply stockage criteria employed by the Services in support of operations in Vietnam even after the initial buildup period, from 1965 through 1967, developed a wider range of stocks than was required for an optimum balance in effectiveness and efficiency.

(e) Each Service should establish for demand-supported items of materiel outside of the CONUS wholesale systems more stringent stockage criteria for both initial stockage and retention of stocks. The criteria may vary by Service, by activity or overseas geographical area, and by category of materiel.

(f) A stratification of the typical supply inventory of secondary items by frequency of demands at any segment of the DOD supply system will indicate that a relatively small number of items support the majority of total demands and that resources are required to manage many thousands of items for which there has been no demand over significant periods of time.

(g) The initial supply support problems experienced by the Army in Vietnam were accentuated by delays in providing an adequate top-level logistic management capability (paragraph 1b(1)).

(2) Requirements for logistical resources in overseas areas can be substantially reduced by using the capabilities of currently available transportation, communications, and data processing equipment to provide responsive supply support in lieu of stockage of materiel in overseas areas (paragraph 1b(1)).

(3) Service maintenance policies have a decided impact on the range and depth of in-theater stockage. Reorientation of maintenance towards a module replacement concept would substantially reduce the requirements for stockage of a wide range of repair parts in forward areas (paragraph 1b(1)).

(4) The value of a particular item of supply is not indicative of its importance to the ultimate user in terms of materiel readiness or combat capability (paragraph 1b(1)).

(5) It is both feasible and desirable to consider logistic support of overseas forces on a selected commodity basis for certain categories of supply, such as subsistence and

ammunition, while, at the same time, providing support on the basis of an entire weapons system or individual item of equipment. The Services should retain flexibility in selecting supply support procedures that best meet Service requirements (paragraph 1b(1)).

(6) The majority of Class II general supplies, Class VIII medical and Class IX repair parts required by forces in an overseas area can be satisfied by stocking in depth relatively few items in-theater and moving low-frequency demand items in by the use of responsive supply and transportation procedures (paragraph 1b(1)).

(7) Current overseas replenishment stockage policies for most secondary items, including repair parts, are primarily oriented to the frequency of past demands. A high percentage of the maintenance related consumables at the user level display erratic demand patterns. This is manifested by turbulence in the composition of stockage list (paragraph 1b(1)).

(8) Reduction could have been made in the range and quantities of housekeeping and administrative items, such as paper products, paints, office and quarters furniture, which are generally requisitioned from the General Services Administration, and which were introduced by the Services into Vietnam. This would have contributed to improving the overall effectiveness and efficiency of supply support operations (paragraph 1b(1)).

(9) The Army could make greater use of country store and self-service supply center techniques to make available repair parts and other consumables to the user units in overseas areas. This would facilitate the obtaining of supplies by user units and eliminate much of the expense and time required to process requests and account for these items according to formal requisitioning and accounting procedures (paragraph 1b(1)).

(10) Intermediate echelons of supply management between the overseas retail consumers and the CONUS inventory control points can contribute to increased document processing and order and ship times. Each echelon also adds to the depth of materiel stocked in overseas areas and creates requirements for additional logistic resources (paragraph 1b(1)).

(11) There appears to be a rational statistical technique which could be used in establishing the desired stockage criteria for authorized stockage lists in overseas areas (paragraph 2g).

(12) A substantial similarity appears to exist between the distribution of total demands in relation to line items demanded in various echelons of overseas supply in the Army where several thousands of demands per year are involved. The degree of similarity is such as to indicate that the same distribution pattern for frequency of demands could apply to all Services (paragraph 2g).

(13) All Services should be authorized to code routinely for air transportation, in accordance with criteria which they establish, and without challenge, except for apparent excess quantities, those requisitions for selected items of Class VIII medical supplies and Class IX repair parts not normally stocked overseas. Priorities currently authorized in UMMIPS for high-value replenishment items adequately provide for their transport by air (paragraph 1c(1)).

(14) The cost, essentiality, or criticality of materiel may require the use of air transportation. Overall economic advantages may also accrue from using air transportation for other categories of less expensive materiel when total systems' costs including logistic resources are considered (paragraph 1c(1)).

(15) Special supply and transportation procedures such as 999, Red Ball, and Tiger Tom, using allocated or predictable airlift between the CONUS and overseas, have proved effective in maintaining a very high state of materiel readiness for all of the Services in Vietnam (paragraph 1c(1)).

(16) Substantial reductions in the range and depth of maintenance related consumable supplies stocked by forces deployed ashore in overseas areas could be achieved by all of the Services if increased dependence is placed on airlift for the movement of infrequently demanded items. This is predicated on maintaining adequate stocks of a minimum range of items which demonstrate a sustained higher frequency of demands and with bulk replenisment normally accomplished by surface transportation (paragraph 1c(1)).

(17) In response to the infrequent requests for non-demand supported insurance and combat essential items, all Services should place greater reliance on air transportation in lieu of overseas stockage (paragraph 1c(1)).

(18) A substantial increase in the use of air transportation for overseas supply support, on a routine basis, should reduce pipeline inventory investment, requirements for depot facilities, and possibly some reductions in requirements for computer capability (paragraph 1c(1)).

(19) Prerequisites for effective and efficient overseas supply management operations include:

(a) Having in-being a trained logistical organization capable of assuming inventory and stock control management responsibilities in a place like Vietnam when a buildup of forces is required.

(b) Having adequate automatic data processing systems capable of supporting the inventory and stock control systems. In areas such as Vietnam, where there is an underdeveloped technology, such ADPS must, in fact, be transportable and practically self-contained.

(c) Interface with the CONUS wholesale system in such a manner that supply information and requirements can be passed in both directions without undue delay for intermediate processing. This includes under today's conditions an adequate telecommunications system to transmit digital data from both the standpoint of timeliness and reliability.

(d) Some method of item visibility that will provide the CONUS wholesale manager with timely, accurate, and pertinent data to allow correct requirements determination, redistribution actions, and central procurement (paragraph 2b(1)).

(20) Automatic data processing systems and communications have made it possible to design and develop management information systems that, in effect, are worldwide in scope and which provide for the retrieval of data in any format desired at any point of need throughout the entire management structure (paragraph 2b(1)).

(21) Each Service should have available transportable, self-sufficient data processing units complete with ADPE, adequate communications, functioning software, working procedures, and trained personnel ready for deployment to overseas theaters to support supply operations. The units should be designed so that minimal requirements are needed for site preparation. The design characteristics should also be compatible with and provide an interface with the automated systems of the CONUS ICPs (paragraph 2b(1)).

(22) The timing of operational and logistic capabilities had significant impact on supply management in Vietnam. Initially, operational requirements for supplies outpaced the construction of logistic facilities, including supply storage facilities, to such a degree that logisticians were unable to manage properly the supplies received (paragraph 2c(1)).

(23) Historically, construction of logistics facilities has always lagged behind operational capabilities with adverse effects on supply management. Vietnam experience indicates that the Serivces must develop methods of creating minimum essential storage facilities during the initial buildup period in contingency areas that will minimize competition with and reliance on more conventional and time consuming construction methods and procedures (paragraph 2c(1)).

(24) Improved open or horizontal storage was equally important with vertical construction. Steel matting provided excellent horizontal storage in Vietnam and facilitated effective use of materials handling equipment (paragraph 2c(1)).

(25) The successful use of the Navy's Advanced Base Functional Components, the Army's Project YZJ, the Marine Corps' Expeditionary Airfield, and the Air Force's Project Coronet Bare concept suggest possible methods of establishing minimum essential supply storage facilities capable of being erected in a minimum of time with basic skills. Possible methods include pre-packaged mobile depots, vans, binned containers, semipermanent quick erect structures, landing matting, portable reefer boxes, floating storage, and rapid soil stabilization techniques (paragraph 2c(1)).

(26) Service control over the range and depth of supplies initially moved into the contingency area through push and pull actions, as discussed in other sections of this monograph, will significantly minimize the requirements for initial supply storage facilities (paragraph 2c(1)).

(27) After establishing initial supply storage facilities, planning for contingencies must include provision for expansion or conversion to more semi-permanent facilities as determined by environmental and operational requirements. Construction priorities must be assigned recognizing the importance of maintaining a balance among the capabilities of each link in the supply chain and between supply and operational capabilities (paragraph 2c(1)).

(28) The advanced base functional component systems of each Service should provide for a transportable automatic data processing capability as a part of supply depot facility planning (paragraph 2c(1)).

(29) Shortages of operational materials handling equipment during the early build-up period in Vietnam contributed significantly to the inability of Service supply personnel to process and to maintain control of materiel as discussed in other sections of this monograph (paragraph 2d(1)).

(30) Initial shortages may have been caused in part by the omission of adequate materials handling equipment in planning for contingencies by the Services or lack of adequate funding for those that were included. Data obtained on pre-1965 contingency planning were inconclusive. Because of the long procurement lead times involved and the urgency of need during contingency operations, materials handling equipment, particularly short-mast and selected electric-powered forklifts and the large rough terrain forklifts not normally used in CONUS depots should be included in planning for contingencies and adequately funded. "Paper stocks" will not suffice. Quantities would depend upon the logistic requirements of the plans (paragraph 2d(1)).

(31) Provisioning documentation should be processed at the initial procurement of materials handling equipment. Repair parts lists based on wartime failure rates should be prepared and sufficient repair parts should be laid down in war reserve stocks at least to support those equipments specified in planning for contingencies. Reliance on local purchase action for CONUS depot commercial equipments should be continued (paragraph 2d(1)).

(32) Trained operators and maintenance personnel for materials handling equipment should be available for contingency operations and, along with the equipment and repair parts, should be included as an integral part of planning for contingencies (paragraph 2d(1)).

(33) Supply and maintenance support of materials handling equipment would be facilitated by reducing the number of makes and models employed to the maximum extent possible (paragraph 2d(1)).

(34) The Army should continue efforts to develop standard specifications for forklifts which are coordinated with current planning on the design and lift requirements of containers. Successful specifications should be used by all Services (paragraph 2d(1)).

(35) Efforts to achieve standardization should also attempt to achieve interface with the containers, pallets, aircraft configurations, ship configurations, and loading and unloading facilities used by each Service (paragraph 2d(1)).

(36) The granting by Service Secretaries of Determinations and Findings for sole source procurement, multi-year contracts, and limited bidder competition are ways of minimizing the proliferation of makes and models of materials handling equipment (paragraph 2d(1)).

(37) Disestablishment of the Army's Overseas Supply Activities (OSAs), effective 1 July 1964, resulted in the Army losing the capability for performing certain of the OSA supply management functions for which there were continuing requirements, e. g. , maintaining supply and movement data, on a current basis, at a central point. This is essential to provide the overseas commands or other agencies concerned with the timely status of items of materiel in the pipeline, to ensure effective supply management, and to accomplish the Army's responsibility for forecasting requirements to, and coordinating movements with, the Single Manager Transportation Commands and Services (paragraph 2f(1)).

(38) The initial impact on supply management from the closing of the OSAs was minimized when selected supply movement and transportation coordinating functions, which had formerly been the responsibility of the OSAs, were transferred to the Army terminal commands (paragraph 2f(1)).

(39) The creation of the Military Traffic Management and Terminal Service (MTMTS) in February 1965, with a concurrent transfer of the Army terminal commands from USAMC to MTMTS, virtually eliminated the Army's remaining capabilities for monitoring and coordinating the movement of materiel to overseas areas (Appendix A).

(40) The Logistic Control Offices were activated to reestablish the minimum essential capability required by the Army to accomplish its assigned supply management and movements responsibilities in connection with the overseas deployment of Army forces and the movement of Army responsibility/sponsored materiel (paragraph 2f(1)).

(41) The potential value of a Logistic Control Office for providing essential logistics intelligence was initially demonstrated during the support of operations in the Dominican Republic (Appendix A).

(42) A substantial portion of the excesses generated by the Army in Vietnam can be attributed to a lack of timely and usable logistic intelligence. The military standard systems flooded the overseas requisitioners and inventory managers with vast quantities of data which could not be assimilated on the limited automatic data processing equipment available or data which were of little, if any value, to management (Appendix A).

(43) Most of the supply management problems associated with a lack of knowledge of what materiel was in transit and in controlling the input of materiel into the theater in accordance with the command's requirements and capabilities could have been alleviated if the LCO-P, with its intelligence file, had been operational in the same degree in 1965 as it is currently (Appendix A).

(44) The LCO-P has been an outstanding success in improving the effectiveness and efficiency of supply management over materiel moved to Vietnam. It has not infringed on the mission or responsibilities of any other Army or DOD agency. The LCOs and the Logistic Intelligence File (LIF) complement the military standard systems (Appendix A).

(45) The soundness of the concept of Logistic Control Offices and a Logistic Intelligence File have been well established. Both are integral parts of the Army's current and future overseas supply distribution systems (Appendix A).

(46) The Army has a continuing requirement for Logistic Control Offices in peacetime with a capability to be rapidly expanded to support contingency operations (Appendix A).

b. Recommendations. The Board recommends that:

(SM-21) All Services reduce the stockage of demand supported consumable items of materiel including repair parts in forward operating locations to a range of items in accordance with the following:

(a) Each Service should establish stringent targets of a specific number of frequencies of demand for an item to qualify for initial stockage and retention. The targets will vary by Service, activity, type of materiel, and combat environment.

(b) During the early stages of a contingency, when facilities and personnel are at best marginal, the criteria for stockage should be particularly stringent and could then be relaxed to the extent that economy and capacity to handle materiel and data warrant.

(c) Special stockage criteria will be required for special categories of materiel, such as, shelf-life items, high-value items, seasonal items, planned program items, and items with special storage requirements.

(d) Initial stockage of items newly introduced into the Service's supply systems should be added to the overseas supply point's stock list only if their anticipated usage meets the criterion for initial stockage as specified above.

(e) Items not meeting the prescribed retention criteria will be reported to the applicable inventory manager in accordance with Service procedures (conclusions 1 through 7).

(SM-22) The Services establish policies and procedures to limit the range and quantity of non-essential housekeeping and administrative materiel (such as paints, furniture, and certain paper products) authorized to be requisitioned by units in overseas areas to the minimum required for essential administration and troop support. Special justification should be required for unauthorized items. Service procedures could be in the form of catalogues tailored for a specific overseas area(s), allowance lists related to assigned logistic support missions, or the use of item identifiers in Service master item data files (conclusion (8)).

(SM-23) The Army make greater use of Country Store and Self Service Supply Center techniques to make available selected repair parts and other consumables to the user units in overseas areas (conclusion (9)).

(SM-24) All Services limit intermediate echelons of supply with a normal goal of not more than one intermediate echelon between the overseas support elements supporting operating units and the CONUS wholesale system (conclusion (10)).

(SM-25) Army plans provide that when a contingency operation appears imminent an experienced logistic commander with rank appropriate to the anticipated scope of operations will be designated. He should be provided a nucleus staff and both should be located with the headquarters of the prospective operation or as near as possible.

(SM-26) The Services in their ongoing efforts to improve supply operations explore the concepts of the stockage criteria model technique outlined in Paragraph 6 to determine the validity of its application to determining stockage criteria for overseas activities. (Conclusion (11)).

(SM-27) The Office, Secretary of Defense, revise the Uniform Military Movements and Issue Priority System (UMMIPS) to extend the criteria for air transportation to permit the

Services, in accordance with criteria that they establish, to code for air transportation those requisitions for selected items of Class VIII medical supplies and Class IX repair parts not normally stocked overseas. Such coding should be permitted on a routine basis without being subject to challenge except for apparent excess quantities (conclusions (13), (14), (15)).

(SM-28) All Services restrict the stockage of non-demand supported, insurance, and mission-essential items of materiel in forward operating locations with reliance on air transportation to respond to overseas requirements for these types of materiel (conclusion (16)).

(SM-29) The Services, with due regard for the total costs involved, place increased dependence on air transportation for the movement of infrequently demanded items of materiel in addition to considering air as the normal means of transporting selected commodities such as high-dollar and reparable items on materiel (conclusion (17)).

(SM-30) Increased dependence on air transportation for the movement of materiel be accompanied by concurrent reductions in the requirements for logistic resources in overseas areas (conclusion (18)).

(SM-31) For contingency operations each Service should have available automatic data processing system (ADPS) packages compatible with the CONUS system with which they must interface. These ADPS packages should include transportable ADPE, proven programs, data transmission equipment, and trained personnel, and must be so designed that they can be readily expanded to meet unforeseen requirements without major problems in translation to greater capacity. Contingency plans should provide for early deployment of an ADPS package adequate to meet forecasted in-country logistics management requirements, with a reasonable safety factor to meet unforeseen demands (conclusions (19), (20)) (Reference Automatic Data Processing Monograph, Chapter III, paragraph 3a (6)).

(SM-32) The Services develop methods of establishing initial essential supply storage facilities capable of being erected and outfitted in minimum time without reliance on standard construction programs. The Army's Containerized Depot--Project YZJ, the Navy's Advanced Base Functional Components, the Marine Corps' Expeditionary Air Field, and the Air Force's Project Coronet Bare concept suggest methods that should be exploited and developed. A possible means of providing initial minimum essential supply storage facilities include prepackaged mobile depots, vans, binned containers, semipermanent quick erect structures, landing matting, portable reefer units, floating storage, and rapid soil stabilization techniques. The Services should include such capabilities in planning for contingencies (conclusion (22), (23), (24), (25), (26), (27)).

(SM-33) The Services specifically provide for selected materials handling equipment and supporting repair parts in planning for contingencies. This equipment should include short mast and electric-powered forklifts and the 6,000-lb., 10,000-lb., and 15,000-lb. capacity rough terrain forklifts (conclusions (29), (30), (31), (32)).

(SM-34) The Joint Logistic Commanders recommend a joint program to standardize among the Services and to reduce, to the maximum extent practicable, the number of makes and models of construction and materials handling equipment as well as other jointly-used items of major commercial equipment. In the development of this program the substantial progress achieved in the Mobile Electric Power Project should be noted. Two complementary courses of actions should be considered.

(a) Increase use of multi-year contracts; authorize limited-bidder competition; and expand criteria for the granting of Determinations and Findings for sole source procurement.

(b) Commonality of equipment within designated geographical areas. (conclusions (33), (34), (35), (36)).

(SM-35) The Army continue to maintain Logistic Control Offices and a central logistic data bank with the capability to provide timely and pertinent logistic intelligence for worldwide overseas Army responsibility materiel movements (conclusions (37), (38), (39), (40), (41), (42), (43), (44), (45), (46).

CHAPTER VIII

LOGISTICS PERSONNEL FOR SUPPLY OPERATIONS

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LOGISTICS PERSONNEL FOR SUPPLY OPERATIONS

1. INTRODUCTION AND BACKGROUND

a. Effective support to the combat forces requires a dynamic organization capable of anticipating requirements and satisfying them in a timely and economic manner. A problem facing the Services today is ensuring optimum support in terms of both effectiveness and efficiency in the face of increasing costs and decreasing resources. To that end, the Services are striving toward total integration of the flow of materiel, communications, financial management, transportation, storage, care and preservation, and materials handling to facilitate the smooth movement of materiel from the supply source to the point of ultimate consumption.

b. Supply personnel are involved in many ways in the management of the billions of dollars worth of Defense materiel assets. Their tasks as inventory managers involve computation of item requirements, analysis of requirements against assets, establishment of procurement programs, and programming the distribution of items. The objective is to ensure a proper balance between supply and demand, keeping within financial limits to provide responsive and efficient support to the combat and support forces.

c. In this era of rapid technological advances and growing complexity of logistics support, there is an ever increasing need for a high degree of specialization of equipment and personnel in the Services. Sound business management techniques are essential to an operation the magnitude of the Defense supply system. The Services must utilize the latest sophisticated quantitative techniques in the development of modern inventory control systems. The individuals participating in the management of these complex systems must be highly qualified, technically trained specialists in their fields. They must be afforded the opportunity for normal progression through a planned career development program which includes Service schooling and advanced training with industry or civil universities, to maintain and improve individual supply proficiency.

d. Operational reports from units in Vietnam often highlighted experienced supply personnel as one of their most urgent needs. The severity of supply personnel problems among the Services was generally related to their degree of involvement in wholesale operations in Vietnam. The Army with its vast in-country wholesale depot, General and Direct Support Unit distribution system had great difficulty furnishing experienced personnel replacements. The Navy also had difficulty providing adequate numbers of experienced depot operations personnel. The Marine Corps and the Air Force received wholesale supply support either from other Services in Vietnam or from out of country, and therefore, experienced no significant personnel problems directly related to wholesale logistics support.

e. This chapter reviews and evaluates the efforts of the Services to provide supply personnel for operational logistics support of combat forces in South Vietnam. It analyzes the policies and procedures of each Service in the selection, training, and career development of supply personnel and evaluates the effectiveness of each. The review of personnel management will include related areas of recruitment, retention, civilian career development, formal education, and programs for the Reserve components. Logistics personnel matters involving requirements determination for principal items, procurement, and overhaul (maintenance) are excluded since these topics are discussed in other monographs.

f. The fundamental objectives of this review are to:

(1) Determine the efficiency and effectiveness of logistics personnel management programs for supply operations and to evaluate their impact on combat readiness and combat support.

(2) Evaluate the comparative effectiveness of Service career management programs in providing supply personnel during the Vietnam era.

(3) Develop conclusions and recommendations to improve supply personnel career management concepts, systems and techniques.

g. This chapter is organized to provide background information essential to the development of issues covered in subsequent paragraphs. It outlines policies and procedures used by the Services for development of qualified supply personnel, and discusses methods used by the Services to identify supply skills as well as techniques for control and management of logistics personnel resources. The review analyzes each Service's ability to react to extraordinary personnel requirements and discusses specific problems encountered in the buildup in SE Asia. A summary of conclusions and recommendations is furnished in the final paragraphs.

2. LOGISTICS PERSONNEL IN THE ARMY

a. Logistics Career Development Program For Army Officers

(1) Each Army officer is assigned to a specific arm or branch of Service such as Infantry, Artillery, Corps of Engineers, Transportation Corps or Signal Corps. It is referred to as the officer's basic branch, in which he must qualify himself to perform duties and fulfill the responsibilities required of his rank and branch related assignments. The Army does not have a supply corps or formal career program for supply officers.

(2) The general pattern of training calls for attendance at the basic course of the officer's branch soon after entry upon active duty. The 2 years following branch orientation generally involves training with the combat arms, after which those on detail return to their basic branch. During the next 4 to 14 years of service, officers are eligible for selection to attend the advanced course of their branch, and later the Command and General Staff College, the Armed Forces Staff College, and/or post-graduate courses at civilian universities.

(3) In addition to the basic and advanced courses, each of the arms and branches of the Army conduct a variety of specialized courses of instruction in supply and maintenance. However, they are oriented toward the Army-in-the field and retail or "user" logistics.

(4) To extend logistics as a career field, the Army established the Logistics Officer Program in 1956 for selected officers of the combat arms and the technical services, who could qualify in the broad field of logistics in addition to their basic branches. Outstanding officers, in the field grades, who have demonstrated ability, aptitude for, and interest in logistics are eligible for entry into the Logistics Officer Program. Selected officers advance through assignments of progressive responsibility in the field of logistics. Logistics Officers are offered opportunity to attend logistics schools, such as the U. S. Army Logistics Management Center (USALMC), Army Management Engineering Training Center (AMETA), and Industrial College of the Armed Forces (ICAF) or to undertake postgraduate level training in civilian universities or training tours with industry. Through this program an officer can ultimately attain the status of "Logistician."

(5) The Army has a Key Logistician program in which certain staff positions worldwide are designated to be filled by officer personnel highly trained and specialized in the field of logistics. Logisticians are officers in the grade of Colonel with 20 years or more of service, usually graduates of senior service schools, who have served in key logistics positions, and have demonstrated outstanding performance of duty. A Department of the Army certificate is awarded in recognition of the officer's attainment of Army Logistician. Officers in the program maintain

basic branch qualification throughout their military careers. To this end, officers are periodically returned to positions of a branch-qualifying nature. To fulfill mobilization requirements, the Army has an Army Reserve Officers Logistics Career Program, under the U. S. Army Logistics Management Center.

(6) The Army uses Reserve components to augment its logistics forces during mobilization. Since a decision was made against call-up of Reserve units for logistics support requirements in Vietnam, the normal flow of supply officers through the career development program required immediate expansion. The lack of Reserve augmentation had a serious impact on the Army's logistics support capability in Vietnam. Use of Reserve personnel would have provided logistics skills with which to operate the Inventory Control Center (ICC), depots, perform maintenance and operate transportation and engineer facilities and equipment. Seventy percent of the officers assigned to SE Asia for supply operations were under a 2-year obligated tour. Training of a 2-year supply officer included their basic branch course, and a supply management course (9 weeks) which must be accomplished within the first year tour of duty since normally the second year included service in Vietnam. Upon discharge and return to Reserve status, each officer is expected to maintain expertise in his career field by continued training with the Active Reserve.

(7) A career pattern for the Army warrant officer differs from a commissioned officer development pattern. The warrant officer is appointed as a skilled technician to fill positions which are too specialized in scope to permit effective development of a broadly trained, branch-qualified commissioned officer. Career patterns are normally established on the basis of Military Occupational Specialty (MOS). Some MOS career patterns lend themselves to a variety of assignments. Other career patterns are highly restrictive in nature, and accordingly, the individual warrant officer may serve in the same type unit throughout his career.[1]

(8) To facilitate the assignment and school selection process, warrant officer career patterns have been structured on the basis of three phases. The first phase, which lasts approximately 5 years, represents an initial utilization period during which the warrant officer refines the skills of his specialty. The second phase extends to the thirteenth year and involves broadening of skills and assignment to positions of greater responsibility. The final phase involves assignment to positions which require the utmost in technical skill, experience, and maturity.[2]

(9) Current tables of organization or authorization do not provide for the assignment of warrant officers above the division direct support level of supply. This limits the potential for training afforded to warrant officers in the more sophisticated and complex responsibilities found at the higher echelons of supply management.

(10) Provisions are made for warrant officers to attend military schools such as pre-appointment, orientation, and technical courses prior to an initial assignment, and subsequent schooling based on requirements to obtain additional qualifications, refresh or update skills and knowledge in newly developed techniques or equipment. Warrant officers are encouraged to participate in correspondence or extension courses from Army service schools. It is desirable that warrant officers reach an education equivalency of 2 years of college, and participation in a degree completion program for baccalaureate, master's, and doctor's degree. Selections are made for programs of instruction conducted by other Government agencies, industry, and civilian education instruction to increase warrant officer technical proficiency.[3]

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[1] Department of the Army Phamphlets 600-11, subject: Career Planning for Army Warrant Officers, October 1969, p. 6-1.
[2] Ibid., p. 6-1.
[3] Ibid., p. 5-1.

b. Specialty Identification

(1) The Army uses a Military Occupational Specialty (MOS) identification code for officers and enlisted men. It is used to identify duty positions possessing close occupational or functional relationship at any given level of skill.[4] Generally, the MOS for commissioned officers defines the scope of an occupational area without regard to the level of skill, grade, echelon, or responsibility involved. For example, MOS 4200, Supply and Service Officer, involves a functional group of duties ranging from Supply Unit Commander to Supply Staff Officer.[5] Army supply officers are normally functionally oriented as progressive and varied experience tend to qualify them in two or more occupational specialties within a career pattern.[6] In the logistics career field, qualifications of an officer are necessarily broad and become progressively more so as the officer advances in grade. Once an officer becomes qualified in a particular MOS he remains fully qualified until that MOS is removed from his record. MOSs are normally awarded based on demonstrated performance on the job for a minimum of 60 days. The Army's philosophy in career development is to broaden the knowledge of an officer through varied assignments and qualification in more than one MOS. Technological advancements oftentimes necessitate retraining of officers in their specialties.

(2) A major problem for Army personnel managers is the lack of ability to determine specific qualifications of officers without manual review of the officers' records. For example, it cannot be determined if an officer qualified in MOS 4200, Supply and Service Officer, is actually qualified as a staff officer or depot Supply and Transportation officer. To further illustrate this difficulty, Table 46 shows a list of supply and maintenance MOSs, their titles, and a few typical duty assignments of each. Although the type duties are related, the responsibilities and experience gained are different; they are important considerations with respect to selection for future assignment.

TABLE 46

COMMISSIONED OFFICER MOS

MOS	Title	Examples of Supply Related Duties
4200	Supply and Service Officer	Supply and Service Officer Supply and Transport Officer Supply Unit Commander Service Unit Commander Supply Point Commander Supply Staff Officer Service Staff Officer
4201	Supply Management Officer	Supply Management Officer Stock Records Officer Inventory Control Officer
4470	Engineer Supply and Spare Parts Office	Engineer Supply Officer Engineer Depot Company Officer
4490	Medical Supply Office	Medical Supply Officer Medical Supply Staff Officer
4445	Depot Storage Officer	Storage Officer Inventory Officer Packing Officer

[4] DOD, Supply Management Handbook, Draft, May 1969.
AR 611-101 Manual of Commissioned Officer Military Occupational Specialties.
[5] Ibid., p. 2.
[6] Ibid., p. 3.

(3) The majority of supply officers assigned to SE Asia were in a 2-year obligated service category. These officers are normally not considered for career development but are given general training for maximum utilization during the second year of service. Two-year officers are assigned to a basic branch, receive basic branch orientation, and supply officers attend additional supply courses. This training must be accomplished within the first year since the second year is usually served in Vietnam. Very little time is available for supply officers to receive on-the-job training prior to reassignment overseas. Upon completion of overseas tours, the 2-year category officer normally returns to CONUS for separation from the Service.

c. Enlisted Career Development Program.

(1) Enlisted personnel in the Army are trained to be specialists. However, during contingencies, such as Vietnam, where the logistical buildup fell behind combat development, a strain was placed on the system to provide experienced career supply men. There were initial problems encountered in providing adequate numbers of trained logistical personnel within the desired time frame; however, qualitative problems persisted throughout the period. These problems were most prevalent in the areas of wholesale supply, and resulted primarily from lack of a CONUS training base, and the 1-year tour policy in Vietnam. Until recently the enlisted specialty code did not identify a person with wholesale logistics experience. An additional skill identifier has now been established by the Army to designate enlisted personnel qualified in depot operations. The new identifier will serve as an aid in the selection and assignment of trained and experienced personnel within several supply related military occupational specialties. [7]

(2) The high demands for trained supply personnel and continuation of the 1-year tour policy, limited the time available for adequate training or short term personnel. Therefore, large numbers of supply personnel were trained with only the basic skills necessary to permit further on-the-job training after deployment. By the time these individuals became fully productive and maximjm benefits were being achieved, they were due for rotation to CONUS. Overall, the Army had a lack of skilled career supply personnel, an inadequate rotation base, and a combat supply system managed by supply officers who were not specialized at operating and supervising a highly sophisticated supply system.

d. Training Projects in Support of Vietnam

(1) The Army supply training capacity has been adequate to meet functional training requirements. However, there are insufficient military supply positions available in CONUS to provide on-the-job training and experience for officer and enlisted personnel prior to their assignment overseas. This is true primarily in depot operations where the majority of the positions in CONUS are civilianized. This condition also limited proper utilization of skilled supply personnel returning from overseas areas. Reports of visits to Vietnam emphasized the problem of expertise in supply operations, indicating the apparent need for trained military personnel in both the noncommissioned officer and commissioned officer ranks through, at least, the grade of Colonel. [8]

(2) Adequate logistical training and experience are available at Direct Support and General Support Unit levels. However, there is limited opportunity for training and experience at the wholesale level, i.e., inventory control points and the wholesale depots. An officer, for example, may get some formal education during his attendance at the Branch Advance Course but most do not get any further formal wholesale logistics education. Except for the few officers assigned to CONUS depots and Commodity Commands, there is no practical training in wholesale

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[7] Magazine, Army Logistician, May-June 1970, p. 31.
[8] ADCSLOG (S&M), Memorandum, to ACS for 2 March 1968.

logistics operations in CONUS.[9] Therefore, the Army instituted several special actions and training projects to improve the qualifications of replacements enroute to Vietnam as follows:

(a) Short range actions to satisfy immediate SE Asia needs:[10]

1. Analysis of SE Asia training needs by category of personnel and MOS was made and verified.

2. As a result, training changes were initiated, such as expansion of the MOS 4200 (Supply and Services Officer) and MOS 4201 (Supply Management Officer) courses, to include depot instruction and 32 hours of "hands-on" training on the NCR 500 computer system.

3. A 2-week depot orientation program was made available at the DSA Depot, Richmond, Va., for MOS 4200 and MOS 4201 course graduates enroute to SE Asia.

4. MOS deficiencies in authorization documents were identified and action initiated to correct the new functional MOS.

5. The number of enlisted personnel receiving on-the-job training (OJT) at Atlanta Army Depot (ATAD) was increased and the scope of the training expanded to include stock accounting, storage, and movements control.

6. A "Redball" roster system was instituted whereby interested USARV agencies were advised of course graduates enroute to SE Asia.

(b) Follow-on efforts include:

1. Conference of DA Staff and AMC to discuss RVN requirements for enroute training (OJT) of officers in depot operations.[11] It was determined necessary to establish a rotation base in AMC depots and commodity commands to train military personnel in depot operations.

2. AMC identified 513 depot spaces and spaces in AMC activities to provide CONUS rotational base in support of overseas.

3. A 5-week depot/ICP course for officers scheduled to work with electronic equipment was developed by the Electronics Command. The officers trained were programmed for RVN assignments.

4. The Office of Personnel Operations (OPO) assisted in programming officer students of the Supply and Service (MOS 4200) and the Supply Management (MOS 4201) officer courses, enroute to Vietnam through the 2-week depot orientation course at the DSA Depot, Richmond. OPO requested CG, USARV, to identify requisitions requiring personnel orientation in depot operations.

(c) On-the-Job-Training (OJT)[12]

1. In February 1967 the Army established an on-the-job training program for selected logistics enlisted personnel enroute to assignment in Vietnam.[13] The program envisioned placing individuals on TDY at a USAMC depot of ICP for 90 days to receive depot

[9] Ibid.

[10] Army, Memorandum, for JLRB, Supply and Maintenance Manpower Requirements, 5 November 1969.

[11] DCSPER conference (DCSLOG/ACSFOR/OPO/AMC), subject: RVN Requirements For Enroute Training, 3 April 1969.

[12] Army, Memorandum, for JLRB, Supply and Maintenance Manpower Requirements, 5 November 1969.

[13] DA, Message 801504, subject: On-the-Job Training, 15 February 1967.

oriented training. A maximum input of 500 trainees per quarter was established. An appropriate sized cadre was stationed temporarily at Atlanta Army Depot, Atlanta, Ga., (ATAD) to support the program.

2. The purpose of the program was to provide practical training in depot operations for enlisted personnel prior to their assignment to depot activities in RVN. Individuals were sent to the course in response to appropriately coded personnel requisitions from RVN which indicate that the person selected to fill the requisition required depot training.

3. Although the program as originally planned envisioned attendance by supervisory personnel, the general shortage of enlisted personnel in the middle grades (E4-E6) necessitated substitution of lower grade personnel.[14]

4. The program was successful from the standpoint that it exposed the trainees to actual operating conditions in CONUS depots. It provided an insight of the functional aspects of various depot elements and their relationship one to another. They became familiar with supply documents and terminology. However, the program did not prepare them for the extraordinary operating conditions in depots in Vietnam. They were not accustomed to operating equipment for long periods, in extreme heat, on unimproved surfaces, and in highly congested areas. Personnel were required to work at night without adequate lighting. They experienced heavy workloads in receiving and shipping while major inventory and retrograde programs were in progress. It was necessary to use a labor force of uneducated, non-English speaking local nationals with little or no sense of urgency. Materials handling equipment was non-standard, poorly maintained, and insufficient in number to meet operational needs.

e. Discussion

(1) The most critical personnel shortages existed in the grades of Captain and Major and middle grades of enlisted personnel. Filling requirements in these grades oftentimes required substitution of personnel of a lower grade or alternate MOS causing a drop in the experience level of replacements.

(2) Providing sufficient numbers of skilled officer and enlisted replacements was further aggravated by repetitive Vietnam tours. In order to meet requirements, in Vietnam, it was necessary to return some individuals for their second involuntary tour. Frequently, the time between tours was less than the Department of the Army objective.

(3) Effective date termination of service (ETS) criteria was changed to meet personnel requirements for SE Asia. Normally an individual required at least 1 year of service remaining to complete a short tour overseas. The change made an individual eligible for overseas assignment provided he had 6 months or more service remaining. The Vietnam volunteer program was instituted to allow all personnel the opportunity to volunteer for duty in Vietnam.[15] Long tours overseas areas were designated as part of the sustaining base to meet short tour requirements.

(4) The lack of skilled military personnel at both operational and supervisory level of wholesale logistics required extraordinary remedial measures. Assistance was required for storage, maintenance, stock control, ADP, inventory, care and preservation, classification and identification and quality control. To meet the immediate demand for assistance USAMC organized a Quick Reaction Team (QRAT) program. The program furnished specialist teams consisting of over 300 Department of the Army Civilian (DAC) personnel in various grades and skill levels within approximately 40 functional areas of supply and maintenance operations and management. Later actions were focused on ways to improve the efficiency of logistical operations and compensate for the shortages of experienced logistics personnel.

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[14] Program began training in July 1967.
[15] DA Circular 614-11, 22 December 1965.

(5) Numerous special projects were undertaken, one of the first was Project Counter. The project was designed to provide a group of supply assistance personnel (civilian and military) to perform location surveys, conduct inventories, identify and classify materiel, review and purify supply instructions, provide prescribed load lists (PLL) and authorized stockage lists (ASL), and generally assist in supply management activities. Personnel in the program received training and orientation at Fort Lee, Va., then deployed to Vietnam for a 180-day TDY period. There were four Project Counter teams provided during 1967-1968 all of which contributed invaluable assistance in upgrading logistics support throughout the command.

(6) In addition to QRAT and Project Counter teams, intensive efforts were initiated to recruit qualified Civil Service personnel to fill Tables of Distribution (TDA) vacancies authorized by conversion from TOE type organizational Army depots. Other improvement programs involved civilian contracts for service functions such as care and preservation, and packing and crating.

3. LOGISTICS PERSONNEL IN THE NAVY

a. The Navy Supply Corps

(1) Paralleling the evolution of the Navy materiel logistics organization has been the development of a corps of officers to manage it. The Supply Corps, which is composed of roughly 5,800 officers, is headed by the Chief of Supply Corps who also serves as the Commander of the Naval Supply Systems Command. Participation in, and support of, the operating forces of the Navy and Marine Corps is the Supply Corps' primary mission. The principal effort of the Supply Corps is in the operation and management of military logistics systems involving the functions inherent in the fields of logistics planning, resources management, inventory management, procurement, materiel movement, integraded logistics support, merchandising, and subsistence technology/management. Supply Corps officers are highly trained professionals whose careers are spent entirely in the logistics field.

(2) Navy Supply Corps billets are located worldwide. Nearly half the billets are afloat or on foreign shores providing direct support to the deployed operative forces of the Navy. In CONUS, Supply Corps officers of all ranks serve at major operating and logistic bases, air stations, shipyards, and tidewater activities. At the departmental level Supply Corps officers serve in the Office of the Secretary of Defense, Chief of Naval Operations, Chief of Naval Material, and the individual systems commands. Only 16 percent of the officers in the Supply Corps work in activities that are directly under the parent Supply Systems Command. Approximately 25 percent are in afloat billets under the sponsorship of the Chief of Naval Operations. The departmental officers mentioned above account for a large percent of the billets occupied by Supply Corps officers.

(3) By functions, 49 percent of the billets in which Supply Corps officers serve involves supply management. Other specialties include fiscal services, fiscal management, procurement, food services, merchandising, transportation management, and data processing.

(4) All new officers begin their professional development with 26 weeks of basic supply training in the Navy Supply Corps School. This training is followed by an initial sea tour after which an officer goes to a tour ashore in CONUS where he commences his training in a functional specialty.[16] Proficiency in one or more functional areas is obtained through duty assignments and educational programs. The educational programs may include attendance at postgraduate courses at civilian institutions, Navy and other military Service courses, the senior Service schools, and training with industry. Approximately a 30 percent opportunity exists for selection to a military service school. Officers normally spend 2 or 3 tours working in their functional specialty, and usually are assigned to more than one functional specialty in order to develop their knowledge of the total materiel system.

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[16] Navy Management Review, February 1970.

b. Enlisted Supply Personnel

(1) Storekeepers are the enlisted supply personnel of the Navy who begin their progression through the ranks as seamen recruits. Seaman recruits attend boot training and are assigned a first duty station as seaman apprentice (SA). With practical instruction and later through written and practical tests, they qualify as seaman (SN). It is at this point Navy seamen normally begin training for the supply field. Seamen can qualify by attending a technical training school or by correspondence courses. In either case the Navy has established strict standards for the storekeeper's rating. The general requirements are:

(a) Time in grade

(b) Completion of prerequisite training courses

(c) Perform all the practical requirements for advancement

(d) Recommended by commanding officer

(e) Demonstrate knowledge by written examination.

(2) The above qualifications are generally applied for each advancement. The Navy's system provides credit for performance, knowledge, and seniority, and, while it cannot guarantee that any one person will be advanced, it does guarantee that all men within a particular rating will have equal advancement opportunity.

c. Specialty Identification of Supply Operations Personnel

(1) Officers entering the Naval Supply Corps are identified by a four digit designator, 3100, which includes all functional areas of the Navy supply system. As experience is gained, each officer's functional specialties, general qualifications, and level of skills are reflected in his official record.

(2) The enlisted rating structure is divided into general and service ratings. General ratings identify broad occupational fields of related duties and functions. Service ratings identify subdivisions or specialties within a general rating. The Navy enlisted classification structure supplements the enlisted rating structure in identifying personnel on active or in-active duty and billets in manpower authorizations. Supply classification for enlisted personnel in storekeeping operations is normally identified by a 6-digit code and is confined to three codes. They are:

(a) SK-2815 Independent Duty Storekeeper

(b) SK-2861 Repair parts (special weapons) man

(c) AK-8000 Aviation Storekeeper Basic

The classification code utilized in conjunction with the storekeeper rating structure is used for supply personnel assignments.

d. Discussion

(1) The major problem in providing sufficient numbers of properly skilled enlisted and junior officer replacements for supply operations in Vietnam has been one of providing sufficient numbers of personnel to meet fleet commitments while still fulfilling all RVN requirements in a timely manner. RVN requirements have at times been filled at the expense of fleet stability. The unusually large number of lieutenants required for Vietnam created a scarcity of lieutenants for fleet assignments.

(2) Due to the importance and nature of the assignments, Vietnam requirements were given first priority and every effort was made to assign the highest quality officers to in-country jobs. To fill billets requiring special skills when no qualified volunteer was available, personnel were assigned on a non-volunteer basis. Lieutenants (junior grade) were also taken on a non-volunteer basis from ships to fill heavy requirements for this rank. The tours of personnel in CONUS billets were often cut short to provide the numbers of people required in RVN. It was necessary to utilize functional training courses in the fuel and freight terminal areas to provide sufficient trained personnel for RVN assignments.

(3) Officers and men assigned to Vietnam were expected to perform their new duties from the date of arrival in-country. However, a significant percentage of the officer and enlisted billets in such areas as fuel, freight terminal, and stock control do not have comparable counterparts at CONUS activities which would provide this training. This is due mainly to civilian substitution that has been effected in CONUS supply activities, causing a lack of appropriate billets in CONUS, particularly at the junior officer and enlisted levels in these functional areas. Personnel in these specialist areas either received training prior to arrival in Vietnam or were trained in-country. In addition, by comparison with the rank structure or supply activities in CONUS and overseas locations, a greater need existed in Vietnam for junior officers with prior experience (lieutenants and lieutenants (junior grade)) to provide the middle management level of supervision. This supervision in CONUS supply activities would normally be provided by civil service employees.[17]

(4) In the enlisted skills for supply operations, there were, 1595 storekeeper billets in Vietnam, of which 945 were for storekeeper (SK3) and storekeeper striker (apprentice) (SK SN). Because of this large requirement, a high percentage of storekeeper Class "A" School graduates were sent directly to Vietnam. Thus, fleet units were deprived of personnel trained in afloat supply procedures. Many of these storekeepers assigned in Vietnam required additional training to refresh their skills for subsequent tours.[18] To meet heavy demands, Storekeepers were made eligible for voluntary assignment to Vietnam after completing only 1 year on sea duty.[19]

4. LOGISTICS PERSONNEL IN THE MARINE CORPS

a. Marine Corps Logistics Career Development Program

(1) The Marine Corps does not have a separate supply corps or special programs for acquisition of logistics personnel. Development of supply officers is accomplished through routine assignment practices to fill supply positions of progressively greater responsibility. Officers are procured from civilian sources, the Naval Academy, the Naval Reserve Officer Training Corps Programs, and from highly qualified enlisted personnel. The Career Development Program for officers is based on various types of assignments aimed at performing duties at higher levels of responsibility. Technical training is accomplished at appropriate times during the officer's career through attendance at intermediate and high level schools.

(2) Assignments for a Marine Corps officer in the supply management occupational field begins with orientation training at the Marine Corps basic school. As a Lieutenant a supply officer attends a Unit Supply Officers Course and later may be assigned those duties for a period of 2 - 3-1/2 years. Supply officers in grade of Captain are subject to assignments at Remote Storage Activities and/or Marine Corps Supply Centers. Captains may also be assigned staff positions as materiel officers. As Marine Corps Supply officers progress to the grades, Major and Lt. Colonel, they gain experience in service type activities as well as supply and are subject to assignment to more responsible staff positions, wholesale distribution activities, or the inventory control point of the Marine Corps.

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[17] Assistant Deputy Chief of Naval Operations (Logistics), Memorandum, to JLRB, 23 October 1969.

[18] Assistant Deputy Chief of Naval Operations (Logistics), Memorandum, to JLRB, OP-412c/cbo serial, 308 p. 41, 29 October, Para. 7.

[19] Ibid., paragraph 5.

(3) The Marine Corps career development leans toward developing a broad background as the officer advances. In a type assignment pattern, an officer may serve as: Guard Officer, Marine Barracks; Student, Amphibious Warfare School; and Marine officer instructor, in addition to gaining experience in supply management. The non-specialist concept for career development of logistics officers is more effective in the Marine Corps than other Services because of the limited size and scope of the supply management program. Specialist requirements in certain areas of supply can be controlled by manual surveillance of assignments.

(4) Assignments of Marine Corps enlisted men to the supply management field takes place after the individual has completed both recruit training and basic infantry training. He is then sent to Marine Corps Supply School, Marine Corps Base, Camp Lejeune, N. C. to attend one of two courses, i. e., the Manual Basic Supply Fundamental course (3 weeks) or the Mechanized Basic Supply Fundamental course (4 weeks). Upon graduation from either of these courses the man is sent to a unit or activity to fill a supply billet appropriate to his basic supply training.

(5) Prior to attaining the grade of E-7, a man is normally sent back to Camp Lejeune to attend a 9 week Supply Administrative course which serves the purpose of bringing him up on the learning curve in supply management.

(6) Subsequent to being promoted to E-7, E-8, or E-9, a man could be again returned to Camp Lejeune to attend a Senior Enlisted Supply course. This course is of 7 weeks duration and is primarily concerned with matters relating to the functions of more sophisticated supply management and the duties of a supply chief.

b. Specialty identification. The Marine Corps uses the military occupational specialty (MOS) to identify the skills of its officers and enlisted personnel. MOS codes provide a framework for career planning and promotions and plays an important role in personnel accounting, classification, assignment and training. Formal schools are normally used to qualify personnel in an occupational specialty such as supply. Once a person qualifies for a particular MOS it is assumed that he can efficiently perform the duties associated with the specialty. The Marine Corps has not yet developed a method of identifying levels of proficiency within each occupational specialty. These determinations must be made from manual review of personnel records.

c. Discussion

(1) The Force Logistics Command of III Marine Amphibious Force is the only new activity developed to meet supply operational requirements in Vietnam. This organization is similar to the Logistics Support Group previously envisioned for amphibious operations, but is larger in scope and capability. Marine Forces in Vietnam receive their support from the Third Marine Force Service Regiment stationed on Okinawa. This military unit operates the only large scale Marine supply point located overseas. The Marine Corps operates eight Remote Storage Activities in CONUS (two are major supply and maintenance complexes) all of which are partially civilianized. These activities have an equitable mix of military and civilian supply personnel. The mix is under constant study to retain the flexibility and responsiveness in the overall manpower management system.[20]

(2) The Marine Corps did not experience any significant problems in providing sufficient numbers of skilled officer replacements for supply operations in Vietnam. Enlisted personnel were available in most cases by using rank and MOS substitutes where feasible. However, rank and MOS substitution was not an effective measure in some specialties. For example, there was a heavy requirement for Sergeants in MOS 3051, (General Warehouseman) and it was necessary to substitute Corporals (MOS 3051) for most of the Sergeants billets. This condition existed in the other Services as well and is considered normal when contingency buildup is accomplished without use of Reserve forces.[21]

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[20] Ibid., p. 3.
[21] Ibid., p. 1.

(3) The decision not to call up the reserve forces did have some impact on supply operations. The drawdown of supply personnel from non-SE Asia Fleet Marine Forces and support activities, to form the 5th Marine Division, could have been significantly minimized. Further, the Reserve forces would have provided a ready pool of trained and partially trained personnel and lessened the immediate need for expanding the training pipeline.[22]

5. LOGISTICS PERSONNEL IN THE AIR FORCE

a. Air Force Logistics Career Development Program

(1) The Logistics career pattern in the Air Force is divided into the following occupational fields: Transportation, Maintenance Engineering, Production and Procurement, and various fields of Supply Management. Officers in transportation perform base level duties related to commercial transportation, personnel movement, and motor vehicle operations, and in positions such as aerial port commanders and station traffic managers. Officers in maintenance engineering perform a wide range of maintenance functions including the management of depot maintenance. Those in the production and procurement field are responsible for negotiating, administering, or terminating contracts, developing production schedules, and monitoring quality control programs. Officers in supply management have perhaps the broadest range of staff responsibility in the Air Force.

(a) Officers in supply management at the higher levels are responsible for program formulation, policy direction, management and operation of all supply activities, including the design, development and analysis of supply systems. At the intermediate level, principally AFLC, supply managers are responsible for the detailed design of supply systems; converting guidance into actual requirements determinations; balancing these against funds available to arrive at "buy" programs; detailed management of assets on a worldwide basis, including repair programs, redistribution actions, modification programs to correct service revealed deficiencies; and finally, determination of excesses and furnishing instruction for disposal.

(b) At the base level, supply managers are responsible for receipt, storage, and issue of material to operating activities; for the maintenance of accurate inventories; for planning and requisitioning material required for projected changes in activity rates and new operating programs and for the proper handling of reparables in accordance with instructions.

(c) At all levels, supply personnel are required to be familiar with Automatic Data Processing systems used throughout the Air Force Supply System, priority procedures, transportation procedures, and above all, financial constraints. The ability to provide required assets worldwide to support operational forces without the development of preventable excesses is a fundamental responsibility of supply management personnel throughout the Air Force.

(2) Duty assignments are integrated with courses of instruction in each of the occupational fields. The lowest officer grades attend the Supply Officer Course consisting of basic training in requisitioning, storing, packing, and shipping, recordkeeping, fund management, and related functions of organizational supply. A Supply Staff Officer Course is available for officers of the rank of senior captain and major, and is oriented to the supply and services programs. In addition, the Air Force sends Logistic Officers to civilian graduate schools, for training with industry, and to the various courses of other Services and the senior Service schools.

(3) For the development of senior logisticians, the Air Force has established a graduate program in logistics at the USAF Institute of Technology. Graduates of the course are candidates for assignment in the commander and director specialties. One of these specialties, for example, is the Deputy Commander for Materiel. An officer assigned to this position directs materiel programs including supply, transportation, procurement, and maintenance, and serves as a chief staff advisor to the commander of an Air Force organization.

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[22] Ibid., p. 2.

b. The Five Phases of Career Development for Officers

(1) During the initial phase (0-2 years) for officer grades 2d Lieutenant and 1st Lieutenant, officers will enter the supply field from Reserve Officer Training Corps (ROTC), Officers Training School (OTS), or a Service Academy. Prior to his initial duty assignment, the officer completes a basic supply operations course. The subsequent 12-24 month period encompasses controlled training in standard base level supply where the officer acquires a basic knowledge of the USAF supply system. Officers are rotated in positions commensurate with their rank to insure the broadest possible training. Officers entering the supply career field usually possess a college baccalaureate degree, in business administration, accounting, mathematics, or engineering, with a major in such fields as management, industrial management, marketing, or automatic data processing.

(2) During the intermediate development phase (2-5 years) for grades 1st Lieutenant and Captain officers are assigned duties in a fully qualified capacity requiring expanded supervisory and functional responsibilities. Local training programs are utilized by supervisors to prepare officers for increased responsibilities. Supply Officers receive additional technical and management training, short courses, or correspondence courses applicable to the supply career field. Some take off-duty education courses to prepare for the Air Force Institute of Technology (AFIT) graduate schools and education programs with industry. All career officers complete the squadron officer school in residence or by correspondence. Completion of a related AFIT graduate education program is a desired prerequisite for key positions in the supply field. A few highly qualified career officers enter AFIT at the PhD level and after completing the graduate program will be assigned for maximum utilization.

(3) The advanced development phase (5-15 years) for grades Captain to Major features rotation of officers into different echelons of command, major commands, and geographical areas in key supply positions with AFLC, DSA, and the Services. Officers who desire base supply training are normally assigned to management and operational positions at base level. It is the advanced development phase where Captains and Majors consider remaining at the retail level of supply or broadening their career into related staff positions in materiel/logistics areas. Officers desiring to become a director of materiel must attain a fully qualified Air Force Specialty Code (AFSC) in another materiel/logistics field.

(4) The staff phase (15-22 years) for grades Major to Lt Colonel, includes staff assignments as base supply officer or chief of supply, and subsequently assignments to the air staff or joint duty. Staff assignments are usually at major commands and numbered Air Forces include duties such as directors of materiel. Many key air materiel area and depot positions are included in this phase. Officers in this phase are subject to special assignments such as MAAG, Air attache, etc., to provide diversified Air Force experience in order to achieve a well-rounded background. Attendance at the Air War College, National War College, Industrial College of the Armed Forces, or comparable schools takes place during this phase.

(5) During the executive/leader phase (22 years plus) Lt Colonels and Colonels are assigned to major air commands, HQ, USAF, or higher level in key management positions. Command positions in tactical (rated) and non-tactical organizations are also available. Selected officers may attend the National War College, Industrial College of the Armed Forces, executive short courses or training with civilian industry.

c. Specialty Identification

(1) The Air Force uses a specialty code (AFSC) for identification of officer and airmen skills. The officer AFSC is a 4-digit numeric and provides for an Alpha suffix for further specialization identification. Supply officers are categorized by two specialty codes.

(a) AFSC 6424--Supply operations officer (Lieutenant through Major). This Air Force Specialty Code (AFSC) represents approximately 57 percent of the authorized supply positions.

(b) AFSC 6416--Supply Management Staff officer (Major through Colonel). This specialty represents approximately 43 percent of the authorized supply positions. Each specialty code provides for identification of entry level. For example, AFSC 6424 Supply Operations Officer entry is 6421 and the officer would so be identified until he is fully qualified. A Captain could be assigned and qualified in the AFSC 6416 position but would be identified as AFSC 6411 until he reached the rank of Major. Supply management is a career program in itself through the rank of Colonel, therefore, is considered specialist in nature.

(c) The specialty identification for airmen in supply management is basically in three groups (handling, accounting and ADPS personnel). Each group is controlled by separate specialty identifiers. The AFSC for airmen is a 5-digit code utilizing suffixes for further identification of specialization. The identification code identifies the group, level of knowledge and is aligned with the grade structure but does not include types of supply management such as wholesale storage or warehousing skills.

d. Enlisted Supply Personnel

(1) The Air Force supply career fields for airmen consists of 3 primary areas, i. e., inventory management, material facilities and supply systems. Personnel are selected for entry into the inventory management and material facilities fields while attending basic training. Upon completion of basic training, those personnel selected for supply training attend a basic course which furnishes general information about supply operations, and qualified trainees as apprentices. After this orientation, personnel are given duty assignments in their respective career fields. During this first duty tour personnel serve in an on-the-job training status and are evaluated by their supervisor. Through demonstrated performance each trainee must upgrade his proficiency to semi-skilled in order to be eligible for further specialized schooling and promotion. A comprehensive self-study career development course (correspondence) is available to upgrade skills to journeyman and qualify for entry into the Standard Supply System field and additional formal training.

(2) Supply personnel of the Air Force experience a career progression which results in added training and promotion. It is achieved primarily by on-the-job training and self study to upgrade individual proficiency and qualify for further advancement to the ultimate enlisted level of superintendent (E8 or E9 grade) in each career field.

e. Discussion

(1) The Air Force did not experience major difficulties in providing officers and airmen for supply operations in Vietnam. Active duty resources were sufficient to meet quantitative and qualitative requirements. There were 207 supply officer positions in SE Asia which were manned from worldwide major command resources. Major command manning other than SE Asia during the Vietnam era remained at a satisfactory level. Airmen training requirements were adjusted as increased requirements occurred. Giving personnel priority to SE Asia had only slight impact in other areas. However, certain special policies were necessary in order to meet total supply personnel requirements for SE Asia.

(2) To ensure that personnel requirements for supply officers would be satisfied and to minimize involuntary second SE Asia tours, the Air Force specialty code 64XX, Supply Management, was designated as a critical skill and assignment restrictions were imposed. Supply officers were restricted from long overseas tour assignments of 30 or more months and were not permitted extensions if serving in accompanied overseas areas. To maintain control of airmen reassignments and to retain adequate resources available, certain supply AFSCs were placed on a SE Asia critical skills list. Personnel with critical AFSCs came under controlled assignment procedures, with priority given to SE Asia. In addition, tour extensions in overseas areas other than SE Asia were not permitted. The above restrictions on officers and airmen insured adequate resources for supply personnel in SE Asia.

(3) The Air Force supply system did not require new types of base level organizations to support operational missions in SE Asia. Personnel augmentation from AFLC in the

form of Air Force Rapid Area Supply Support teams was utilized and AFLC was authorized Logistics Support Squadrons for this purpose.[23] During the period 1966-1967, the Air Force developed the Computerized Standard Base Level Supply System and implemented its worldwide base level supply system. Although not developed specifically for SE Asia operations, it proved highly responsive in that environment. Problems in providing skilled supply officer replacements for SE Asia arose because a number of officers assigned to critical positions at bases employing the new standard system were not completely trained. Therefore, supply officers selected for assignment to SE Asia began attending a 17-day Supply Systems Management Course conducted by Air Training Command prior to reporting to SE Asia. In addition, traveling instructor teams were provided to assist supply officers in SE Asia. This system today spans the world including all major Air Force installations in SE Asia. The standard base system allows supply personnel to be moved from one base to another as well as vertically without retraining.

6. EVALUATION

a. Since World War II the supply support concepts of the Services have evolved into highly complex and sophisticated systems involving the total integration of communications, supply and transportation. DOD standard procedures, inter-Service support agreements, and common supply systems are requiring greater commonality and system interface among the Services. Managers of the various interlaced systems and subsystems can no longer be specialists with interests only in their functional area. The concept of systems has become an exact science, the success of which depends on discipline to standard rules. Supply personnel must understand the basic principles of the total system, the intricacies of their functional area, and the interface of the system both vertically and horizontally. Their combined efforts make the system dependable, responsive and flexible to varying demands. Supply managers must have knowledge of the property and financial accountability responsibilities at various organizational levels from the CONUS supply source to the point of ultimate consumption. They must understand stock leveling techniques and the importance of inventory control and accounting. Operators of the system must understand the purpose of materiel requests, the significance of high priority releases, and the importance of orderly supply practices with relation to rapid response to customers. Supply personnel must be supply oriented, receive extensive supply training, and be given the opportunity, through formal career programs, to achieve a high degree of individual proficiency. The complex supply systems of the Services must be operated by skilled and experienced supply personnel dedicated to maintaining responsive support to the combat forces.

b. Logistics Personnel in the Army

(1) Army officers are career oriented toward their basic branch. However, the Army does not have a program specifically aimed at wholesale supply, rather, it depends on normal supply related assignments to fulfill supply officer training requirements. Further, there is no rotational base in CONUS for maintaining skill levels in supply for wholesale operations overseas. Supply officer career patterns are based on broad training which involves a wide variety of supply functions.

(2) The Army has numerous Military Occupation Specialties (MOS) for officers in supply management and each of these specialties are aligned on depot manning documents. In 1969 the Army created an MOS to identify supply officers with expertise in depot operations (MOS 4445, depot storage officer). A prerequisite to the establishment of a rotation base for supply officers necessitates a requirement for realignment of career development to include assignment in wholesale supply operations and follow-on training to maintain pace with technological advances.

(3) During the Vietnam era the Army experienced a shortage of middle grade officers and enlisted personnel. Although personnel in the lower grades of each category were generally plentiful they were, on the whole, untrained and inexperienced in wholesale supply

[23]Air Force, Letter, to JLRB, subject: Supply Manpower Requirements, AFSSS, 6 October 1969.

operations. At least one-half of the tour of short term personnel (2 years) is used by branch orientation and training, leaving little opportunity for functional training prior to deployment into combat. This type junior officer performs supervisory duties over specific functional areas within supply depots, e.g., stock control, ADP, receiving/shipping, storage areas, care and preservation and inventory. These are important facets of depot operations because they involve reporting of receipts, stock locations, warehouse space, stock selection, care and accountability of materiel, and other tasks so essential to successful depot performance.

(4) The Army requires greater resources of trained and experienced first line supervisory and middle management personnel to meet emergency and follow on requirements for wholesale activities in support of combat. Also, the Army is unable to sufficiently train short term supply officers. Extension of formalized career programs for warrant officers (retail specialists) and senior non-commissioned officers (Logistics NCOs) to the field of wholesale supply operations would ease the impact of inexperienced officer personnel.

(5) The establishment of a rotation and training base in itself will not meet the needs of supply operations in wholesale logistics. An expansion of the personnel management system is required to encompass ready identification of supply personnel qualified in wholesale logistics. Future officer career development programs should include wholesale depot operations as part of assignment requirements and follow-on training to keep pace with procedural and technological changes. Without the assistance from Reserve components the Army was able to meet combat support requirements through extraordinary measures involving Quick Reaction Teams and other special project teams, greater reliance on civilian personnel, and realignment of personnel resources.

c. Logistics Personnel in the Navy

(1) Navy supply officers are developed within the Navy Supply Corps. The Supply Corps is responsible for officer personnel management and the career development of technically qualified supply oriented personnel for operation of the Navy logistics support system. Officers are trained in various functional areas for the purpose of developing Supply Corps personnel with a broad knowledge of the Navy logistics system.

(2) The establishment of Navy support functions in-country at Da Nang and Saigon were unexpected requirements for the Navy and created heavy demands for trained supply personnel which were not readily available from similar CONUS operations. Navy requirements for supply personnel in Vietnam were at times met at the expense of fleet stability. The usually large requirements for lieutenants created a scarcity of that grade for fleet assignments and a potential impact on fleet readiness. However, the Navy was able to meet supply operations personnel requirements within existing resources and without extraordinary measures involving special training, Vietnam requirements strained the available resources of Navy supply personnel, but overall, the impact of not calling on the Navy Reserve forces was minimal.

d. Logistics Personnel in the Marine Corps. No extraordinary policies were necessary in order to meet officer personnel requirements for Vietnam. Supply officers have been assigned to Vietnam consistent with assignment policies for all officers. For enlisted personnel, measures such as rank and specialty substitution were necessary for high turnover areas. At the present time in the Marine Corps, a desirable military-civilian mix exists in wholesale supply activities. This mix is under constant study so as to retain the flexibility and responsiveness in the overall system required to meet changing needs in procedures. The large requirements for supply personnel in the Marine Corps, generally resulted in diminished operating efficiency of non-SE Asia forces wherein personnel assets were withdrawn to support Vietnam or activation of new units. Personnel resources of the Marine Reserve would have provided a more immediate source of supply personnel to fill WESTPAC requirements.

e. Logistics Personnel in the Air Force. The Air Force supply training programs are aimed toward specialization for both officer and enlisted personnel. Officer career patterns in supply management are clearly identified and each career program maintains vertical development in various functional areas. Since the Air Force operates depots only in CONUS there was no requirement for wholesale supply personnel for sustaining operations within Vietnam. Worldwide implementation of the Air Force Standard Base Level Supply System took place during 1966-67 and included operational base sites in Vietnam. Establishment of the standard system in Vietnam caused some training problems related to support of the new system. Personnel restrictions were necessary to meet supply personnel requirements for SE Asia. However, the drawdown of worldwide personnel assets did not impair the operational capabilities of other Commands.

7. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusions

(1) The personnel management systems of the Services do not provide for immediate identification of qualified officers and enlisted personnel in wholesale logistics except through manual review of personnel records (paragraphs 2b(2), 3c(1), 4c(2), and 5c(1)).

(2) The nonparticipation of Reserve forces in support of Vietnam impacted to varying degrees on all the Services. The Air Force and the Marine Corps had little difficulty establishing a rotational system to support operations in Vietnam. Navy's personnel problems had no significant impact on supply support. The Army, however, took extraordinary measures to sustain training and furnish qualified supply personnel to support their vast wholesale logistics system in Vietnam (paragraphs 2a(6), 3d(1), 4c(3), and 5e(1), (2), and (3)).

(3) The type of assistance provided by the Army's Quick Reaction Team program and the Air Force's Rapid Area Supply Support program proved invaluable in resolving many supply problems (paragraphs 2d(4) and 5e(3)).

(4) The Army does not have a sufficient training or rotational base for development of qualified wholesale supply personnel to support operations overseas. Except for the few military positions at CONUS depots and commodity commands, there is no routine method of training in wholesale logistics operations (paragraphs 2d(1), and 2d(2)).

(5) The Logistics Officer career development program of the Army creates an avenue for a limited number of senior officers to perform duties in wholesale logistics but does not extend the career pattern for identification and follow-on training to maintain proficiency in pace with technological advances (paragraph 2b(1)).

(6) The lack of depot trained Army personnel for Vietnam appears to have resulted from over civilianization of Army depots in CONUS, lack of time to train junior officers for supervisory positions, and inadequate preparation of trainees in the special training programs at CONUS depots to meet the extraordinary operational conditions of Vietnam (paragraphs 2b(3), 2d(1), and 2d(2)).

(7) The difficulties experienced by the Army in providing adequate numbers of qualified supply personnel to Vietnam is evidence of their heavy reliance on Reserve support (paragraphs 2a(6), 2d(1), and 2d(2)).

(8) The Army should designate spaces to be filled by supply warrant officers at echelons of supply management above the divisions direct support level. This would enhance supply management capabilities by providing a nucleus of highly specialized technicians with the required expertise in supply management throughout the supply distribution system (paragraph 2a(9)).

(9) The Army could benefit by establishing critical management and administration of logistic officer career development, training and assignments, such as currently exists within the Navy Supply Corps for supply management personnel (paragraphs 2a(9), 2b(1), 2b(3), 2d(1), 2d(2), 3d(1), and 4c(2)).

(10) The Navy was able to fulfill supply personnel requirements in SE Asia through personnel management actions involving restrictive assignment policies and redistribution of worldwide resources (paragraph 3d(1)).

(11) The career development, identification and selection of supply personnel for overseas operations was adequate to meet the Marine Corps requirements during the Vietnam era (paragraph 4c(2)).

(12) After it was developed and implemented the Air Force Standard Base Level Supply System provided a worldwide rotational base for base level supply personnel which was responsive to the Air Force needs (paragraph 5e(3)).

b. Recommendations. The Board recommends that:

(SM-36) The Services establish a system for ready identification of supply personnel qualified in each of the functional elements of wholesale supply operations (conclusions (1), (2), and (3)).

(SM-37) The Services ensure that career development programs and the associated CONUS training base are aligned to meet worldwide requirements, including the support of contingency plans, and provide a sustaining base for military skills required to support key officer, warrant officer, and enlisted personnel needed in overseas supply support activities (conclusions (2), (3), (4), (5), (6), and (7)).

(SM-38) Assign to Deputy Chief of Staff for Logistics, Department of the Army, policy responsibility for developing Army-wide qualitative and quantitative requirements for, and capabilities to provide, trained officer, warrant officer, enlisted, and civilian logisticians. This responsibility to include maintaining staff cognizance over logistic officer, warrant officer, enlisted, and civilian personnel management (Conclusion (9)).

(SM-39) The Army designate spaces to be filled by supply warrant officers at echelons of supply management above the divisions direct support level. This would enhance supply management capabilities by providing a nucleus of highly specialized technicians with the required expertise in supply management throughout the supply distribution system (Conclusion (8)).

CHAPTER IX
SUMMARY

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1. OVERVIEW

a. Military operations in Vietnam tested the capability of the Services' supply management organizations and procedures to respond to the demanding requirements of a large-scale contingency operation thousands of miles from the continental United States (CONUS). Although the adequacy of supply support in Vietnam is evidenced by the exceptionally high state of operational readiness of the Services, this support was not as efficient as it could have been. The congestion in ports and receiving areas, the difficulty experienced by supply personnel in locating, accounting for, and issuing supplies to customers during the buildup phase, and the development of excesses indicate that inefficiencies existed in all of the Services' supply systems.

b. The rapid buildup of the logistical base in Vietnam did not follow generally accepted logistic doctrine. The Secretary of Defense placed precise limitations on the number of U. S. forces that could be introduced into Vietnam within specific time frames. Within these limitations, tactical requirements dictated a high priority for the deployment of combat units without a proportionate buildup of the required logistical base. The Commander, U. S. Military Assistance Command, Vietnam, plans for the buildup of forces in Vietnam called for logistic base and supporting facilities to be assigned the lowest priority for construction. Ports were generally assigned a somewhat higher priority.

c. There were inordinate delays in the preparation of logistic facilities and in the establishment of adequate supply management capabilities. These factors, combined with the tremendous quantities of materiel that were shipped into Vietnam at a rate that was not in balance with the handling capabilities of the theater, created backlogs at the major logistic facilities, e.g., ports, depots, and in-transit storage areas. Supply assistance teams were dispatched from CONUS to assist in the receipt, storage, issue, and accounting for materiel throughout Vietnam. The consequences of the initial problems created by overloaded logistic systems, however, were of long duration and impacted adversely on the efficiency of supply management in Vietnam from 1965 through 1968.

d. Push procedures, necessary in the initial stages of a contingency operation, were used effectively as a means of providing initial supply in Vietnam; although, in some instances, the range of items supplied should have been decreased. Contingency plans generally call for 180 days of push shipments; however, in actual practice a pull system of requisitioning materiel should be initiated at the earliest possible date.

e. The use of intensively managed weapons systems techniques employing special supply and transportation procedures were used to good advantage. Some of these, such as for aircraft and missiles, represented normal Service policy, whereas others, like Red Ball and 999, were established to respond to urgent requirements in SE Asia for repair parts and other critical materiel essential to the support of combat operations.

f. The Department of Defense standard supply procedures and support systems were thoroughly tested for the first time during the Vietnam conflict. Standardization of data elements, codes, forms, and format facilitated the interchange of supply data within and among the Services. These systems provided a standard reporting system for evaluating the effectiveness of selected supply and transportation functions. Experience in Vietnam, however, demonstrated the adverse impact of changes or revisions to the military standard systems during combat involvement.

g. The experience in support of supply operations in Vietnam indicates a great potential for more efficient CONUS management of inventories by extending to overseas areas visibility on selected items of materiel. Visibility over the more important and costly segments of inventories, including repairables, can provide the necessary data for management to redistribute assets and program for the return and repair of materiel—thereby reducing requirements for new procurement.

h. The Services' inventory and stock control systems in SE Asia have many similarities. Each has specifically identified organizational elements for performing inventory management, determining stockage criteria and levels, providing for the receipt, storage, and shipment of materiel to customers, and related data processing and reporting. There is, however, a marked difference in the extent to which the inventory and stock control functions have been automated and in the degree of standardization of supply systems, procedures, and programs. Service policies also differ in their criteria for stockage and requirements for asset reporting to the CONUS inventory managers from overseas supply activities.

i. The conduct of supply operations in Vietnam demonstrated that stockage criteria that are too liberal, which creates an unnecessary range of stocked items, can impact adversely on supply management. Some of the indications of this in Vietnam were inaccurate inventories, increased requirements for stockage facilities, a high turbulence in demand-based stockage lists, increased use of high-priority requisitions, excessive inventory investment, excesses, increased requirements for automatic data processing equipment and other resources for supply management activities.

j. Primary supply management emphasis overseas should be directed to stockage of those items of materiel that have a relatively high degree of sustained demand and contribute most to the maintenance of equipment in a high state of materiel readiness. Where practicable, responsive supply and transportation may be used to good advantage in lieu of stockage of infrequently demanded, high-dollar, or selected repairable items of materiel.

k. The expanded use of air transportation, containerization, automatic data processing systems, and advanced communications capabilities provide the means for minimizing requirements for logistic resources in overseas areas and can contribute to the effectiveness and efficiency of overseas supply operations.

l. As military operations in Vietnam began to intensify, it became increasingly difficult for Service personnel managers to meet the requirements for qualified and experienced supply personnel. Because the CONUS wholesale supply system had been largely civilianized, resources of military personnel with wholesale depot operations and inventory control experience were reduced drastically and, in some cases, quickly exhausted. The use of reserve components would have made more logistic skills available and allowed sufficient time to expand and accelerate the CONUS training base.

m. The preceding paragraphs summarize the most important aspects of supply management support of the Vietnam conflict. The major lessons learned and the most significant 17 of the 39 recommendations developed within the monograph are addressed in the balance of this chapter.

2. DEPARTMENT OF DEFENSE PROCEDURES AND SUPPORTING SYSTEMS

a. Lessons Learned

(1) The performance of the Military Standard Requisition and Issue Procedures (MILSTRIP) system, used for the first time in support of combat operations in Vietnam, was generally satisfactory. Because of the frequent changes and additions to the MILSTRIP procedures, however, supply customers had problems in using the system. In some instances, the changes to MILSTRIP appeared to be oriented to solving wholesale management problems without regard to the impact on the user. The cumulative effects of MILSTRIP changes created turbulence

throughout the supply distribution system and were responsible for many of the problems encountered by supply managers in Vietnam in achieving desired standards of effectiveness and efficiency in supply operations.

(2) Changes in catalog management data, e.g., stock numbers, unit of issue, and item migration among managers, created problems in supply operations and for the requisitioner in Vietnam. These problems were particularly acute during the buildup phase and often delayed action on high-priority requisitions.

(3) The Uniform Materiel Movement and Issue Priority System (UMMIPS) time standards were based on goals and desires that did not prove to be realistically obtainable. Most requisitioners in Vietnam did not receive materiel within the UMMIPS time standards regardless of the issue and transportation priority. This led to a lack of confidence in the supply systems, abuses in assignment of supply priorities, and submissions of duplicate requisitions for materiel. It also resulted in the necessity to use considerably longer order and ship times in computing requisitioning objectives to maintain required level of supplies overseas.

(4) UMMIPS allows consolidation of urgency of need designator (UND) C shipments (priorities 11 through 15) with those in UND D (16 through 20) providing the time frames of the former are met. Factually, UMMIPS surface time frames are seldom met, especially for overseas shipments. Inasmuch as materiel in both UNDs move by surface, and often in the same shipment and/or transportation unit, the necessity for continuing the 20 issue and 4 transportation priorities appears unnecessary.

(5) With additional automatic data processing equipment capacity, the MILSTRIP-formatted part-numbered requisitions could be routed by the Defense Automatic Addressing System (DAAS). Automatic processing of part-numbered requisitions would reduce the burden of the requisitioner, improve supply response, and reduce the number of requisitions being mailed and electrically transmitted as narrative format messages.

b. Recommendations

(SM-1) The Director, Defense Supply Agency, as the MILSTRIP administrator, keep changes in the Military Standard Requisitions and Issue Procedures to a minimum, particularly during contingency operations, to avoid confusion and misapplication at the requisitioner level.

(SM-11) The Office of the Secretary of Defense develop and promulgate policies designed to:

(a) Hold in abeyance or strictly limit the migration of items among materiel managers during periods of hostilities.

(b) Limit catalog data element changes, particularly to those that have an impact on the requisitioner, e.g., unit of issues, during contingency operations.

(c) Restrict Federal stock number and other data element changes to a quarterly interval unless there are cogent reasons for an immediate change to minimize impact on the retail system.

(SM-5) The Office of the Secretary of Defense, using Military Standard Evaluation Procedures (MILSTEP) as the vehicle, develop and adopt realistically attainable time standards to cover each significant element of the communications, supply, and transportation spectrum from the time of requisition origin until the delivery of materiel to the ultimate consignee.

(SM-7) The Office of the Secretary of Defense, with Service participation, prescribe use of urgency of need category C instead of D for replenishment requisitioning purposes and eliminate the latter category. This will, in turn, reduce the number of priority designators from 20 to 15, simplify selection and application of correct requisitioning priorities, and reduce the number of priority groups and transportation priorities from four to three.

(SM-14) The Office of the Secretary of Defense take necessary action to enhance the capability of the Defense Automatic Addressing System to process and route electrically transmitted Military Standard Requisitioning and Issue Procedures part-numbered requisitions.

3. CONUS INVENTORY CONTROL POINTS

a. Lesson Learned

(1) Push supply procedures were used effectively as a means of providing initial supply support to forces in Vietnam. Push packages were provided to some extent by all Services to meet initial requirements; however, the Navy and the Marine Corps employed a modified version in that requirements were determined by organization or units in SE Asia rather than by CONUS activities. The major problems encountered were in obtaining timely force structure information, computing requirements for a wide range of end items of materiel, and delays, in some instances, in establishing a normal pull requisitioning system.

b. Recommendation

(SM-17) The procedures and techniques developed by the Services for providing push packages, or modified versions thereof, be made a part of established policies and procedures and provide that computation of requirements be equipment-oriented rather than force oriented, the supplies be containerized and prebinned to the extent practicable, and the range be limited to high-demand items and essential items for selected critical systems.

4. ITEM VISIBILITY

a. Lesson Learned

(1) The lack of item visibility below the wholesale level made it difficult for inventory managers to distinguish between issues for purposes of filling retail stock levels and issues for immediate use. Item visibility is required on a selective basis below the CONUS wholesale level in order to manage efficiently inventories involving high-dollar value sales. All active depot-level repairable items should be visible regardless of condition or location, to provide a tool for the use of inventory managers in expediting their return and repair. Ownership at the item-manager level is not essential to visibility and control. However, data at all levels must be consistent and procedures for reaching decisions must be clear and authoritative.

b. Recommendation

(SM-19) For the long range, the Services and the Defense Supply Agency plan to develop the capability to attain worldwide visibility of high-dollar value items for which this depth of visibility may be required, recognizing that the range and depth of visibility should be variable as selected by the Service concerned.

5. SERVICE STOCKAGE IN CONUS OF INTEGRATED ITEMS

a. Lesson Learned

(1) The review of Service stockage of integrated materiel in the continental United States and the effectiveness of support provided reveals no basis for recommending a change to the present use of specialized support depots (SSD) and direct supply support points (DSSP) operated by the Defense Supply Agency and the Navy. Current Army tests of direct shipments to using units may establish a requirement for similar support for the Army.

6. MANAGEMENT AND CONTROL OF MATERIEL IN OVERSEAS AREAS

a. Lessons Learned

(1) The Vietnam conflict demonstrated the long-range problems that can be created by delays in providing timely and adequate in-country logistic support organization. Early in the

buildup of forces in Vietnam, quantities of materiel were introduced in-country that, in many instances, were excessive in relation to what was required in that time frame. This excess of materiel surpassed the capabilities of the limited logistic facilities to properly receive, store, issue, and maintain materiel. During the early stages of a contingency, when facilities and personnel are at best marginal, stringent control should be exercised over materiel shipped into the area of operations. As the capacity to handle materiel and the logistical data base are improved, the criteria for requisitioning and stockage can be relaxed if warranted by other logistic considerations.

(2) The majority of general and medical supplies and repair parts required by forces in an overseas area can be satisfied by a supply system based on stocking in depth relatively few items in-theater and supplying low-frequency demand items by the use of responsive transportation procedures. Service maintenance policies have a decided impact on the range and depth of in-theater stockage. Reorientation of maintenance toward a modular replacement concept would substantially reduce the requirements for stockage of a wide range of repair parts in forward areas.

(3) A reduction in the range and quantities of items shipped overseas that are nonessential to a particular contingency operation, e. g., paints, office furniture, and certain paper products, can be made without adverse effects. Such a reduction would contribute to improving the overall effectiveness and efficiency of supply support operations.

(4) Substantial reductions in the range and depth of maintenance-related supplies stocked by forces deployed ashore in overseas areas could be achieved by all of the Services if increased dependence is placed on airlift for the movement of high-dollar, repairable, and infrequently demanded items of materiel. This is predicated on maintaining adequate stocks of a minimum range of items that demonstrate a sustained high frequency of demand and with bulk replenishment, normally by surface transportation.

(5) Special supply and transportation procedures, such as 999, Red Ball, and Tiger Tom, using allocated or predictable airlift between the continental United States and overseas, proved effective in maintaining a very high state of materiel readiness for all of the Services in Vietnam.

(6) All Services should place greater reliance on air transportation in lieu of overseas stockage, particularly in response to the requests for nondemand supported, insurance, and mission-essential items.

(7) During the early phase of contingency operations, storage facilities will compete with many other construction requirements that often have a higher priority. Consequently, the Services need to develop methods of creating minimum-essential storage facilities for use during initial buildup periods of contingency operations that will minimize competition with the reliance on more conventional and time consuming construction methods and procedures.

(8) Shortages of operational materials handling equipment during the early build-up period in Vietnam significantly impaired the ability of Service supply personnel to process and maintain control of materiel. Supply and maintenance support of materials handling equipment would have been facilitated by standardization among the Services to the maximum extent possible and by the reduction of the number of makes and models employed.

b. Recommendations

(SM-21) All Services reduce the stockage of demand supported consumable items of materiel, including repair parts, in forward operating locations to a range of items in accordance with the following:

(a) Each Service should establish stringent targets of a specific number of frequencies of demand for an item to qualify for initial stockage and retention. The targets will vary by Service, activity, type of materiel, and combat environment.

(b) During the early stages of a contingency, when facilities and personnel are at best marginal, the criteria for stockage should be particularly stringent and could then be relaxed to the extent that economy and capacity to handle materiel and data warrant.

(c) Special stockage criteria will be required for special categories of materiel, such as, shelf-life items, high-value items, seasonal items, planned program items, and items with special storage requirements.

(d) Initial stockage of items newly introduced into the Service's supply systems should be added to the overseas supply point's stock list only if their anticipated usage meets the criterion for initial stockage as specified above.

(e) Items not meeting the prescribed retention criterion will be reported promptly to the applicable inventory manager in accordance with Service procedures.

(SM-22) The Services establish policies and procedures to limit the range and quantities of nonessential housekeeping and administrative materiel (such as paints, furniture, and certain paper products) authorized to be requisitioned by units in overseas areas to the minimum required for essential administration and troop support. Special justification should be required for unauthorized items. Service procedures could be in the form of catalogues tailored for a specific overseas area(s), allowance lists related to assigned logistic support missions, or the use of item identifiers in Service master item data files.

(SM-25) Army plans provide that when a contingency operation appears imminent an experienced logistic commander with rank appropriate to the anticipated scope of operations will be designated. He should be provided a nucleus staff and both should be located with the headquarters of the prospective operation or as near as possible.

(SM-27) The Office of the Secretary of Defense revise the Uniform Materiel Movement and Issue Priority System (UMMIPS) to extend the criteria for air transportation to permit the Services, in accordance with criteria that they establish, to code for air transportation those requisitions for selected items of Class VIII medical supplies and Class IX repair parts not normally stocked overseas. Such coding should be permitted on a routine basis without being subject to challenge except for apparent excess quantities.

(SM-28) All Services restrict the stockage of non-demand supported, insurance, and mission-essential items of materiel in forward operating locations with reliance on air transportation to respond to overseas requirements for these types of materiel.

(SM-29) The Services, with due regard for the total costs involved, place increased dependence on air transportation for the movement of infrequently demanded items of materiel in addition to considering air as the normal means of transporting selected commodities such as high-dollar and repairable items of materiel.

(SM-30) Increased dependence on air transportation for the movement of materiel be accompanied by concurrent reductions in the requirements for logistic resources in overseas areas.

(SM-32) The Services develop methods of establishing initial-essential supply storage facilities capable of being erected and outfitted in minimum time without reliance on standard construction programs. The Army's Containerized Depot—Project YZJ, the Navy's Advanced Base Functional Components, the Marine Corps' Expeditionary Airfield, and the Air Force's Project Coronet Bare concept suggest methods that should be exploited and developed. A possible means of providing initial minimum-essential supply storage facilities include prepackaged mobile depots, vans, binned containers, semipermanent quick-erect structures, landing matting, portable reefer units, floating storage, and rapid soil stabilization techniques. The Services should include such capabilities in planning for contingencies.

(SM-33) The Services specifically provide for selected materials handling equipment and supporting repair parts in planning for contingencies. This equipment should include short-mast and electric powered forklifts and the 6,000-lb., 10,000-lb., and 15,000-lb. capacity rough-terrain forklifts.

(SM-34) The Joint Logistic Commanders recommend a joint program to standardize among the Services and to reduce, to the maximum extent practicable, the number of makes and models of construction and materials handling equipment as well as other jointly used items of major commercial equipment. In the development of this program the substantial progress achieved in the Mobile Electric Power Project should be noted. Two complementary courses of actions should be considered:

(a) Increase use of multiyear contracts; authorize limited-bidder competition; and expand criteria for the granting of Determinations and Findings for sole source procurements.

(b) Commonality of equipment within designated geographical areas.

7. LOGISTICS PERSONNEL FOR SUPPLY OPERATIONS

a. Lessons Learned

(1) The non-participation of reserve forces in support of operations in Vietnam impacted primarily on the Army, which experienced by far the greatest expansion in its force structure. The Army had to take extraordinary measures to expand its CONUS training base and to draw on other worldwide Army activities to furnish adequate numbers of qualified personnel to support its vast logistic operations in Vietnam.

b. Recommendation

(SM-37) The Services ensure that career development programs and the associated CONUS training base are aligned to meet worldwide requirements, including the support of contingency plans, and provide a sustaining base for military skills required to support key officer, warrant officer, and enlisted personnel needed in overseas supply support activities.

APPENDIX A
ARMY LOGISTIC INTELLIGENCE

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1. General

a. Introduction. During the Vietnam conflict the necessity for, and value of, a CONUS central logistic data bank containing current, valid, pertinent, and accessible information on the status of supply and transportation actions were fully demonstrated to the Army. The Central Army data bank known as the LIF (Logistics Intelligence File) evolved at the Logistic Control Office, Pacific, (LCO-P). The purpose of this section is to examine the background that gave rise to the LIF, discuss its salient features, develop logical conclusions, and support a recommendation pertaining to future requirements for the Army to maintain a logistic intelligence file capability.

b. Background

(1) Overseas Supply Agencies

(a) The Army's Overseas Supply Agencies (OSAs) had served since 1942 as central activities in CONUS where requisitions from overseas commands were received, processed under established control criteria, and placed on CONUS supply sources. The principal objective for organizing the OSAs was to minimize the number of contacts required in CONUS for overseas commands engaged in the conduct of large-scale logistic operations and to provide essential logistic intelligence, e.g., movement and supply status to overseas requisitioners.

(b) The requirements for the OSAs were originally recognized very early in World War II and were reaffirmed during the Korean conflict. Each OSA served a specific geographic area, i.e., Overseas Supply Agency, New Orleans (OSANO)—Carribean, South America, and Africa; Overseas Supply Agency, New York (OSANY)—North Atlantic, Europe, and Middle East; Overseas Supply Agency, San Francisco (OSASF)—Alaska, Pacific, and the Far East. The major functions of the OSAs that affected the oversea command were:

1. Troop support requisition routing
2. Troop support requisition follow-up
3. Troops support requisition status information
4. Reports on supply performance
5. Status on major supply problems
6. Preparation for oversea movement (POM)
7. Contingency plans (pre-positioned requisitions)
8. Oversea liaison

9. Cargo movement control including:

a. Frustration or diversion

b. Reconstitution of cargo resulting from loss of a vessel or aircraft

c. Follow-up on shipments in transportation channels.

(c) The OSAs were under the staff supervision and direction of the Deputy Chief of Staff for Logistics, Department of the Army. They were collocated with the U. S. Army Terminal Commands (USATCs) which were activities within the Army's Transportation Corps until the reorganization of the Army and the activation of the U. S. Army Materiel Command (USAMC) in 1962. At that time the terminal commands became an element of USAMC. Collocation with the USATCs permitted the OSAs to have ready access to movement data in USATCs records.

c. Discussion

(1) In February 1961 the Secretary of Defense directed that a study, known as OSD Project 80, be made of the functions, organization, and procedures of the Department of the Army in the light of the then current defense environment and projected trends. The final report was forwarded to the Secretary of the Army in October 1961. The reorganization plan as a concept became effective 17 February 1962 and resulted in the activation of the Army Materiel Command (USAMC) in May 1962.

(2) USAMC was established to consolidate the materiel functions of the former chiefs of technical services. Individual supply commodities became the responsibilities of five commodity commands while two functional commands were created for supply and maintenance and test and evaluation. Simultaneously, the Defense Supply Agency (DSA) was established to manage common items of general and industrial supplies; petroleum, oils, and lubricants (POL); subsistence; clothing and textiles (C&T); and construction, medical, and electronic materiel for the DOD.

(3) In November 1961 the Office of the Secretary of Defense (OSD), based on the Project 80 findings, decided to close the Army's Overseas Supply Agencies (OSAs). The original schedule proposed OSD I&L would have closed the OSAs by 30 June 1962. However, the Army reprogrammed $6 million to sustain the operations of the OSAs to the end of FY 63 based on its desire to review the mission in connection with the implementation of the changes resulting from Project 80. OSD noted upon receipt of the FY 64 budget that the Army had not complied with the decision to close the OSAs. OSD by Subject/Issue 69, on the FY 64 budget, removed all funds for the OSAs. The Army was directed to submit detailed plans showing the ultimate phase out of the agencies prior to obtaining approval from OSD on the Army plan to continue operations past 30 June 1963. OSD also decreed that even if approved, the operation of the agencies past 30 June 1963 would be funded by the Army absorbing the cost from other Army Operation and Maintenance funds.

(4) In response to Project 80, AMC initiated in 1963 a study of the Army Supply and Maintenance System (TASAMS). Study recommendations, as approved, were to consolidate 41 storage and 44 maintenance facilities, to reduce operating costs, and to centralize supply accountability at the national inventory control points (NICPs) and the requisitioner.

(a) Based on the TASAMS concept, the three Overseas Supply Agencies were scheduled to be gradually phased out during 1964 and the requisitioning channel was established from overseas requisitioners (other than MAP (Military Assistance Program) recipients) directly to the appropriate Army NICP, DSA center, or General Services Administration (GSA) region. MAP requisitions were to be submitted to a central point at the U. S. Army Terminal Command, Atlantic.

(b) As previously indicated, based on the TASAMS concept the Commanding General, USAMC, had recommended the gradual phase-out of the OSAs during FY 64. This was to have been an integral step in the implementation of a broader plan that involved adoption of a new supply management system and the construction of the CONUS depot system. However, as a result of OSD denying funds to operate the OSAs, the Army was forced into an accelerated closing schedule. The Commanding General, USAMC, pointed out that the impact of acceleration of closing of the OSAs, compared with the gradual impact that could be achieved through an orderly transition over a 1-year period were incalculable. However, the Commanding General of the USAMC felt expeditious closing of the OSAs was necessary due to the intolerable financial position that the OSD had placed the Army in by refusing to allow funding for the OSAs in the FY 64 budget submission. The time phased plan, developed by the USAMC in June of 1963, for the closing of selected functions of the OSA was:

1. Preparation for Overseas Movement requisitioning follow-up functions to the Terminal Commands by 31 January 1964.

2. Contingency Plan Records to the Supply and Maintenance Command (SMC) by 29 February 1964.

3. Transportation Coordination to the Terminal Commands by 31 January 1964.

4. Military Assistance Program central requisitioning point to the Terminal Command, Atlantic, by 30 June 1964.

5. Theaters Division to the USAMC Supply and Maintenance Command (SMC) by 31 March 1964.

(c) Other functions previously accomplished by the OSAs were to be phased-out and relocated to the Overseas Commands, the NICPs, and the Theater Division of SMC during the later part of FY 64. These included:

1. Troop Support Requisition Routing

2. Troop Support Requisition Follow-up

3. Troop Support Requisition Status Information

4. Reports on Supply Performance

5. Status on Major Supply Problems.

(d) During 1964, the number of Army NICPs was reduced from 11 to 7 through consolidation of functions and item management assignments. Then, effective 1 February 1965, the stock control and accountability functions performed at 10 of the 25 Army depots were transferred to the NICPs thereby standardizing wholesale supply management.

(5) Disestablishment of the OSAs, effective 1 July 1964, represented a substantial departure from traditional Army supply management philosophy. It immediately became obvious that the Army had lost the capability to accomplish certain of the former OSA functions for which there were continuing requirements, e.g. maintaining supply and movement data, on a current basis, at a central point. This is necessary to provide the overseas commands or other agencies concerned with the timely status of items of materiel in the pipeline, to ensure effective supply management and a single agency to accomplish the Army's responsibility for forecasting requirements to, and coordinating movements with, the Single Manager Transportation Commands and Services.

(6) The Army's solution was the establishment of Logistic Control Offices. The evolution of these offices and the eventual emergence of a logistic intelligence file, which has been so outstandingly effective during the Vietnam era in filling the void in the availability of timely and pertinent supply and movement data created by the disestablishment of the OSAs, are discussed in the following portions of this appendix.

(7) On 15 February 1965, the military traffic management function and terminal service operations were consolidated as a single manager and resulted in the creation of a new agency, the Military Traffic Management and Terminal Service (MTMTS). As a result Army terminals were transferred from USAMC to MTMTS. Disestablishment of the Office, Chief of Transportation, and creation of a new Directorate for Transportation in ODCSLOG, the Department of the Army (DA), occurred in the same time frame.

(8) Paralleling disestablishment of the Army terminal commands, the United States Army Supply and Maintenance Command (USASMC) at the direction of the Department of Army established in January 1965 logistic control offices (LCOs), at Oakland, California; New York; and New Orleans, Louisiana. The assigned functions for each LCO were to receive, maintain, and coordinate data pertaining to USASMC responsibilities for supply, maintenance, and transportation of Army-sponsored materiel/cargo. The basic peacetime LCO supply functions were limited to monitorship of approved contingency plans and follow-up on outstanding AR 220-10 (Preparation for Overseas Movement (POM)) requisitions. Initial staffing provided only a minimum caretaker force. Deployment of U. S. forces to the Dominican Republic and the SE Asia buildup necessitated substantial buildup of LCO-New Orleans and LCO-Pacific, respectively, in order to provide the required supervision of supply and materiel movements.

(9) Disestablishment of the OSAs in 1964 and subsequently the Army's closure of the terminal commands in 1965 resulted in assignment of certain supply management functions of USASMC to the LCOs, such as contingency plan documentation, POM requisition monitoring, and materiel movements monitoring. These actions also resulted in the traffic management and terminal operation functions being transferred to MTMTS.

(10) It is pertinent at this time to review paragraph 1B of Appendix B, "Terms of Reference," to DOD Directive No. 5160.53, which established MTMTS. This paragraph states:

> "The Military Services and other DOD components will, with respect to the functions and scope of operations of MTMTS:
>
> "Identify passenger and the specific materiel and quantities to be moved.
>
> "Determine the destinations to which passengers and materiel are to be moved.
>
> "Specify date(s) available for movement and the required date of arrival at destination for passengers and materiel to be moved.
>
> "Establish transportation priorities for passengers and materiel in accordance with applicable DOD directives.
>
> "Monitor the flow of traffic based upon data furnished by MTMTS as agreed to by the Military Services, other DOD components, and MTMTS.
>
> "Provide technical advice to MTMTS.
>
> "Provide cargo diversion, disposition, and/or supply instructions as required.
>
> "Execute, or arrange for execution of, provide necessary documentation and/or data to obtain necessary customs clearances for their materiel.

"Plan for special projects and coordinate with MTMTS.

"Assure that materiel offered for shipment is properly packed, marked, certified, and documented.

"Perform, or arrange for performance of the acceptance function for vendor-supplied materiel shipped direct to an air or ocean terminal, the function to include technical inspection, and preparation or completion of shipping documentation.

"Plan, program, budget for, and finance transportation including terminal services, for the movement of passengers and cargo.

"The military services will provide liaison officers at MTMTS headquarters area commands, and at such activities/installations as mutually agreed with MTMTS. "

(11) Within the context of the above listed responsibilities of DA to MTMTS, certain LCO functions inherited from the USATCs are performed at one of the most critical points in the supply pipeline—the transshipment point between CONUS carrier and overseas transport, or the links between the CONUS supply agency and the overseas customer.

(12) The first contingency that occurred after the demise of the OSAs was the deployment of U.S. forces to the Dominican Republic in April 1965. This immediately created requirements for a central point to coordinate the modifications directed in weapon systems deployed and the changing logistic requirements of the force commander. These functions were assigned to the LCO at New Orleans, (LCO-G). The success of the LCO-G in support of the contingency operations in the Dominican Republic was firmly established by the Army. Both the Army and the DOD, as a result of lessons learned in the Dominican Republic, acknowledged the need for a logistic link between the overseas command and the CONUS wholesale system.

(13) The Brown Board, in its study of Army Logistics, noted that the responsibility for providing supply support to overseas areas had been fragmented across many commands and agencies, and, in the process, the Army had lost the capability to control or ensure responsiveness of the supply distribution system in support of Army units deployed overseas. It was further recognized that the Army required a gateway or control point into and out of CONUS in support of overseas operations.

(14) At the beginning of the Vietnam buildup, the normal flow of SE Asia fringe and high-priority requisitions in USARPAC was through the Okinawa Depot and the USARPAC ICP. There was no Army logistical base in Vietnam. Logistical support for Army tactical requirements were processed through the ICP for supply action while the Navy supported the Army's requirements for housekeeping supplies.

(15) In May 1965, a USARPAC and USAMC meeting resulted in the development of operations plan SEA which provided for automatic push type replenishment shipments from CONUS to Vietnam and Okinawa. At the same time the LCO-P was designated as the agent of the USAMC to provide a focal point for logistic information for movement of materiel to Vietnam (Figure A-1). The limited staff and automatic data processing equipment in existence at the Logistic Control Office, Pacific, did not initially have adequate capabilities to provide the necessary management data. It was to take 2 years of evolution to develop these capabilities.

(16) Execution of operations plan SEA with its concept of push resupply package shipments placed the LCO-P in the position of advising overseas recipients of materiels being shipped and estimated theater arrival dates.

(17) The automatic resupply program under operations plan SEA was expanded during the 1st quarter, FY 66 to encompass numerous other package-type shipments. This, and subsequent events, impacted upon the LCO-P operation as follows:

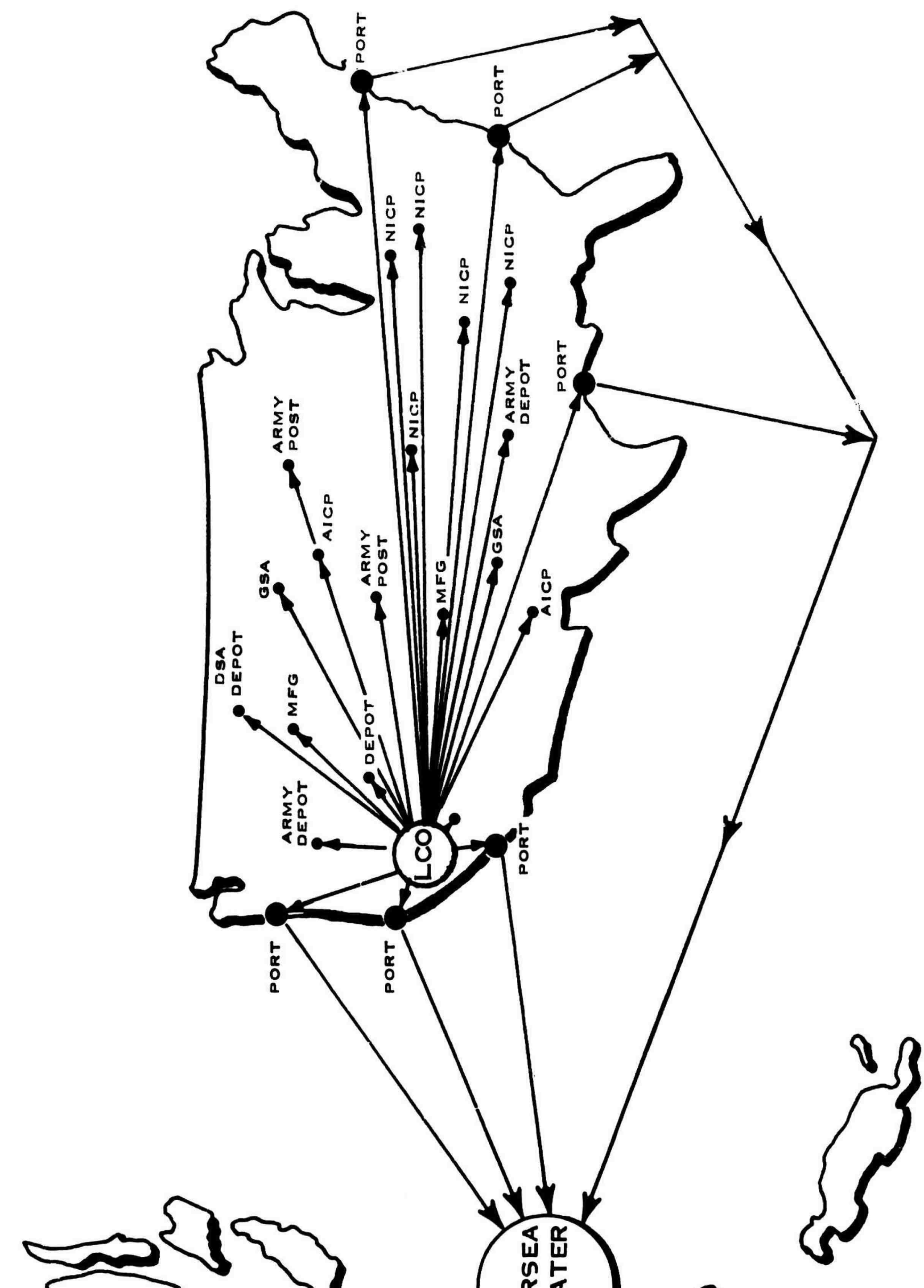

FIGURE A-1

LOGISTICS CONTROL OFFICE, PACIFIC, A FOCAL POINT

(a) Monitorship of 1,548,393 line items under operations plan SEA (July 1965-June 1966) involved advice to USARVN, Okinawa, and USARPAC ICP as to items being shipped under specific project codes and the names of vessels, including CONUS sailing dates and overseas arrival dates.

(b) Approximately 300,000 POM line items were monitored in FY 66 in connection with the deployment of over 800 different Army units. Status was maintained and furnished to deployed units, periodic followups initiated, and continual coordination maintained with terminal personnel to ensure early shipment.

(18) During the early stages of operations in Vietnam a basic problem encountered in managing supplies stemmed from a lack of control and coordination exercised over the flow of materiel. Materiel shipped into Vietnam in 1965-1966 were often not only excess to in-country requirements but also beyond the overseas commands' capability to handle effectively and efficiently. There was an immediate need for information on the status of incoming shipments on the part of the overseas command to allow identification of critical items to establish movement priorities and to allow planning for receipt.

(19) This situation emphasized again that a central point in CONUS was required to provide readily available information on the status of materiel moving to the overseas commands. This was absolutely essential to allow both the overseas commands and the USAMC to have timely and pertinent information on the status of materiel ordered for shipment or in-transit and to take timely actions to control the input of materiels into the overseas theater in consonance with the theater's capabilities to receive and manage.

(20) By direction of the Secretary of Defense, the Red Ball Express Project was placed in effect on 2 December 1965. This project was designated to expedite the flow of repair parts needed in Vietnam to remove specific equipment from deadline. Full operational control of this project was centralized at the LCO-P by USAMC.

(21) The thousands of line items moving into SE Asia supply channels emphasized the problem of a lack of timely supply and movement intelligence to the customer. Requisitioners could not determine, under the current MILSTRIP and MILSTAMP documentation procedures, the specific delivery status of materiel. Furthermore, the volume of supply and shipment advice cards was far beyond the capability of Vietnam supply channels. To bridge this gap, the LCO-P provided the overseas customer with supply manifests indicating project-coded materiel by line item and shipping unit being loaded on specific vessels, together with sailing and estimated arrival dates.

(22) The MTMTS was not organized to, or capable of, providing the line item identification of items shipped. The capability to cross reference MTMTS manifest data with supply documentation did not exist in USARV. This ability is inherent in the MILSTRIP and MILSTAMP concepts; but prior to the LIF the Army did not have a technique to use it effectively.

(23) Department of the Army report, October 1966, titled, The Army Logistics System in the Pacific Command in Support of Forces in Southeast Asia (U), emphasized the need for establishing a CONUS capability to support the overseas customer in three ways—first, satisfy customer requirements, provide current information on the status of supplies and equipment requested, and perform on an exception basis those supply support functions the overseas commander is unable to manage effectively; second, provide management data required to evaluate the day-to-day CONUS supply response to the overseas customer; and third, provide the means for managing supply and movement procedures through adequate controls.

(24) To accomplish its assigned responsibilities the LCO-P established a Logistics Intelligence File (LIF) for all Vietnam requisitions. The LIF, by utilizing images of the requisitions passing through the Defense Automatic Addressing System (DAAS), was built into a data bank that contained the very information that had been so critical, because of its unavailability, during the early stages of the buildup in Vietnam. A complete chronology of each supply

transportation transaction was built up on the LIF as transactions passed through the Defense Automatic Addressing System (DAAS), to the overseas terminal, to the customer (Figure A-2). The data were built from the military standard systems—MILSTRIP and MILSTAMP, in particular. Therefore, data were available in requisition and shipment context, and inquiry was possible by any one of a combination of means, such as document number, project code, flight number, FSN, requisitioner (Tables A-1 and A-2).

TABLE A-1

LOGISTIC INTELLIGENCE FILE INQUIRY CAPABILITY

Any One or Combination of:	Document Number
	Requisitioner
	Date of Requisition
	Supplementary Address (Consignee)
	Supply Source
	Priority
	Project Code
	Voyage Number
	Flight Number
	FSN, Part Number, FSC

The MILSTRIP/MILSTAMP interface provided a loop of information between Vietnam, the transportation media, and the LCO-P (Figure A-3). The LIF is a data bank. As such, it provides a readily available source of pertinent and timely supply and related movement data. The LIF is essentially an example of management by exception, and reduces the vast quantities of unnecessary data that otherwise must be transmitted to and from overseas requisitioners and only provides them with what they actually need.

(25) The LCO-P has been requested by USARPAC, USARVN, USAMC, and various item managers to monitor a number of special shipments of widely diversified equipment through CONUS terminals and to expedite movement to SE Asia customers. Examples of such special projects are construction materials, CH-47 and CH-54 aircraft parts, and tropical boots and clothing. LCO responsibility basically entails ensuring that shipments are complete, movement is coordinated with the MTMTS Area Command or the Military Airlift Command for air shipments, and the customer is provided with appropriate notification of lift.

(26) The CONUS supply system includes 17 NICPs, 30 depots, and numerous vendors all involved in supply actions. Because there is no established agency charged with the responsibility of following materiel through the system until it reaches the customer, the LCO-P frequently becomes the point of contact by SE Asia requisitioners in seeking information on critical supply problems. These requests are in the form of teletype messages and daily telephone calls averaging 1,500 requests per month.

(27) Shipments become frustrated at water and air terminals as a result of missing address markings on containers, damaged containers, and requests from supply or other authoritative sources to stop movement of a particular shipment. The LCO assists the air and water terminal activities in the management of frustrated shipments by contacting various supply sources including manufacturers to acquire necessary address data; or to otherwise obtain authority to reconsign shipments to other destinations.

TABLE A-2

ELEMENTS OF LOGISTIC INTELLIGENCE FILE DATA

	RQN/SUP DR	Supply Status	Shipment Status	Receipt/Lift	Shipment Detail Lift (ADC)
FSN	X	X	X		X
Quantity	X	X	X		X
Sup. Doc. NR.	X	X	X		X
Project Code	X	X		X	X
Priority	X	X	X	X	X
TCN			X	X	X
POE			X	X	X
POD				X	X
Receipt in POE				X	
Lift From POE				X	X
Vessel Voyage/Flt NR				X	X

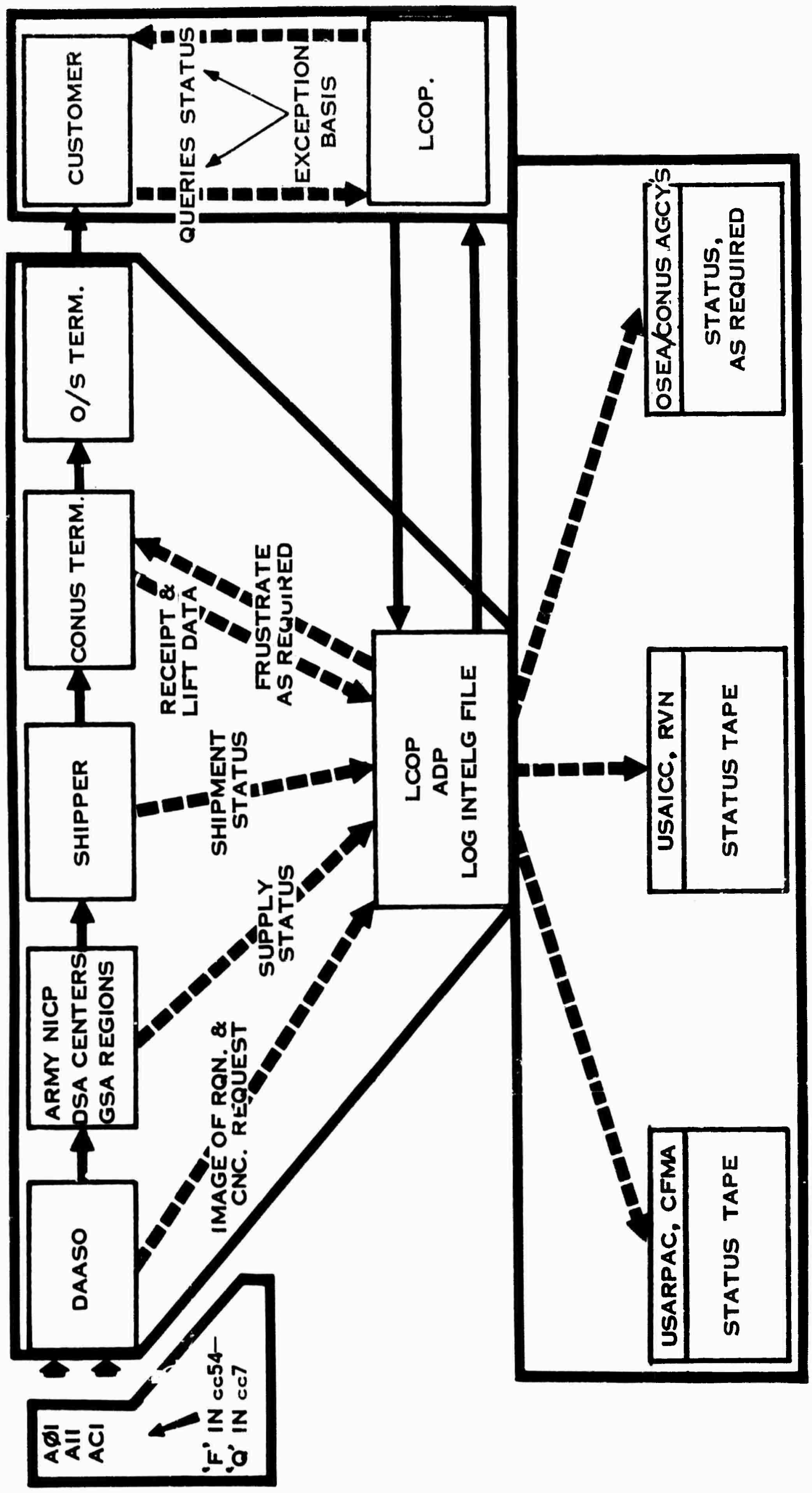

FIGURE A-2
LOGISTIC INTELLIGENCE FILE

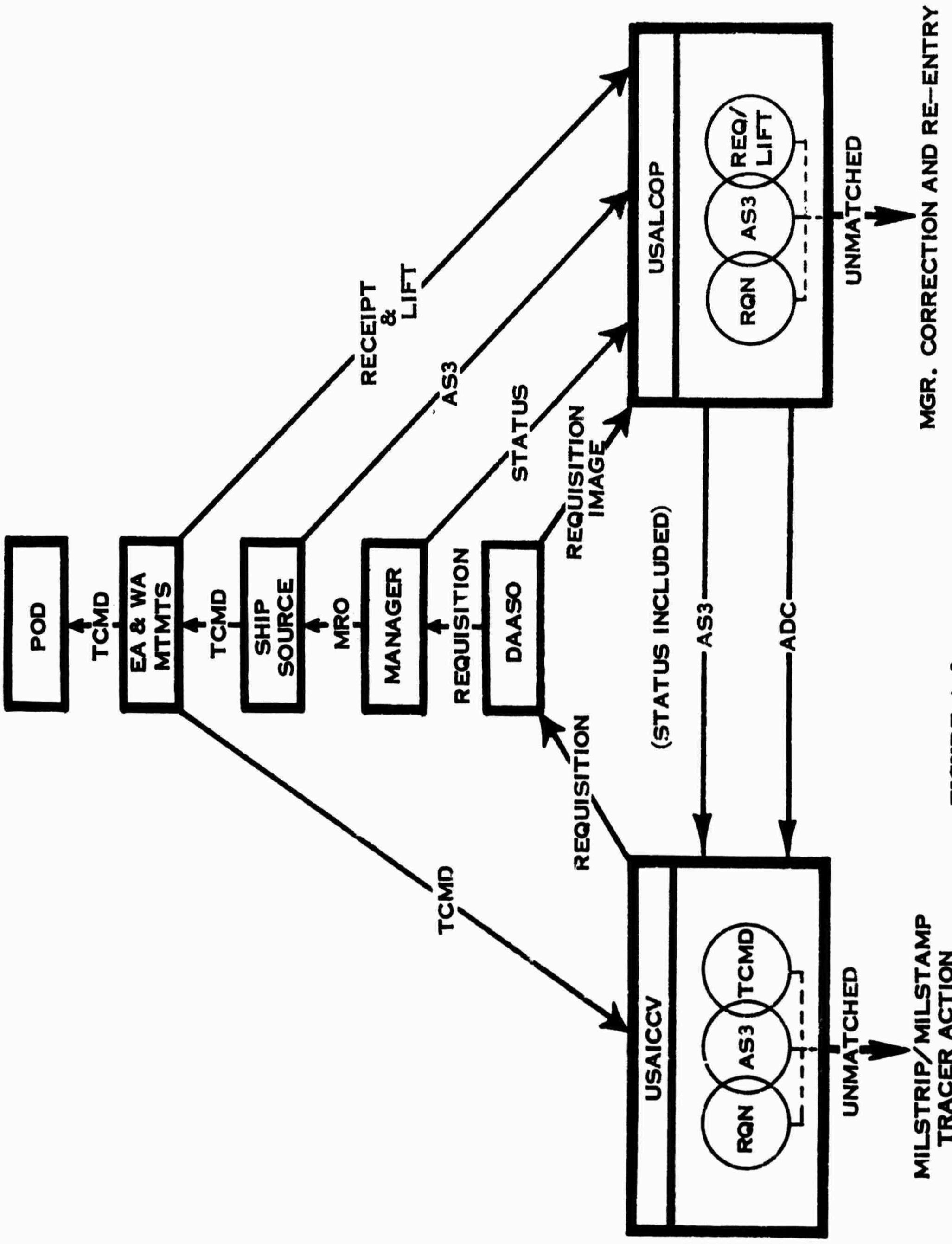

FIGURE A-3

MILSTRIP/MILSTAMP INTERFACE

(28) Supply priority challenge of cargo scheduled for airlift. Each of the LCOs are responsible for challenging high-priority shipments with the requisitioner when the shipment exceeds 2,000 pounds. This management control has been in effect within USAMC over the past 3 years. The purpose of the procedure is to preclude unwarranted use of premium lift for quantities of items that are erroneously introduced into the supply system as high priority demands. The procedure does not impinge on the MILSTAMP challenge procedure because Army control is initiated prior to the offering of cargo to the transportation clearance authority. The procedure requires that shippers, during the shipment planning phase at depots, evaluate the planned shipments to determine those high priority issues that dictate the requirement for airlift. After these data are accumulated, the shipping activity contacts the LCO and cites the MILSTAMP document information and quantities involved. The LCO then contacts the requisitioner to determine if the quantities are either totally or partially required on a high priority basis. When the information is obtained, the LCO contacts the shipper and verifies the urgency of need, or provides instructions for reducing the transportation priority in whole or in part. It is at this point, based upon the requisitioner's advice that the offer of cargo is then made to the transportation clearance authority, where normal MILSTAMP procedures apply.

(29) The LIF, as previously noted, provides the focal point to identify requisition status in both supply and transportation channels. It is the central source of data for the overseas commander. The LCO-P uses the LIF to assist in cancellation and frustration actions in response to special requests. The file is maintained current without delaying or complicating supply and transportation processing of requisitions and shipments because it merely receives image copies of data output by the various MILSTD systems. This flow is designed to be entered on the LCO-P LIF without impeding the requisition action or requiring a change to MILSTRIP and MILSTAMP. The Defense Automatic Addressing System Office bleeds off the image copy when an "F" appears on column 54; all supply agencies then furnish the LCO-P latest status.

(30) The Army has strong convictions concerning the essential and vital role the LCO-P has played in support of operations in SE Asia. The Army requires the capability of identifying and correcting incipient supply problems before they adversely affect the operation of Army forces rather than after the fact. The Deputy Chief of Staff for Logistics pointed out in testimony to the Congress in 1969 that the LCO-P was essential to the ability to stop supplies that were to be frustrated because they were excess or beyond the capability of the overseas command to handle.

(31) The LCO-P, by virtue of its responsibilities to support U.S. Army forces in SE Asia, has been expanded in the last 5 years from an original cadre of 29 civilians to a peak of 308 employees and a current strength of 290 personnel. Included in this expansion has been the development of third-generation computer capability to accomplish tasks previously performed manually. This automation has not resulted in new missions but rather a much more efficient and responsive capability to support SE Asia within the framework of the basic LCO-P missions. This balance of well-trained and experienced supply and transportation personnel with dedicated computer support has proven to be highly effective in producing essential logistic intelligence using data inputs available from the Military Standard Systems without impeding the flow of requisitions to the CONUS supply source. The success of the LIF in support of SE Asia operations has opened consideration of expansion of the concept to other Army overseas areas.

(32) With the introduction of new Army logistics doctrine, e.g., inventory in motion, worldwide asset visibility, and the reduction of overseas forces, the evolution of the LCOs has been influenced by several organizational changes either already completed or in process. Late in CY 69 the LCO-G was consolidated with the LCO-A which has, in effect, established two LCOs—one on the east coast and one of the west coast. A consolidation of the LCO-A with the International Logistics Center located at the New Cumberland Army Depot is currently in progress. It is also planned in the near future to centralize all LCO data processing operations at the LCO-P. Each of these organizational changes has been instituted to improve overall operations, provide efficient utilization of existing facilities, and reduce overall operational costs.

APPENDIX B

LIST OF ACRONYMS AND ABBREVIATIONS

APPENDIX B

LIST OF ACRONYMS AND ABBREVIATIONS

AB	air base
ABFC	Advanced Base Functional Component
ACCESS	Afloat Consumption, Cost, and Effectiveness
ADP	automatic data processing
ADPE	automatic data processing equipment
ADPS	automatic data processing system
AF	Air Force
AFB	Air Force Base
AFCS	Air Force Communication System
AFLC	Air Force Logistics Command
AFM	Air Force Manual
AFPCS	Air Force Planning Control and Status System
AFPI	Air Force Procurement Instructions
AFPLUF	Air Force Provisioning Look-Up File
AFRAMS	Air Force Recoverable Assembly Management System
AFCSC	Army Field Stock Control System
AGE	aerospace ground equipment
ALOC	air lines of communications
ALPHA	Automated Logistic Program Hardcore Agency
A NORS	anticipated, not operationally ready
AMA	Air Materiel Area
AMC	Army Materiel Command
AMDF	Army Master Data File
AMMC	Aviation Materiel Maintenance Center
APC	Accelerated Provisioning Concept
APL	allowance parts list
APOE	Aerial Port of Embarkation
APOD	Aerial Port of Debarkation
ARSTRIKE	Army Strike Command
ASA	Assistant Secretary of the Army
ASA	Appropriation Stores Account
ASC	Automatic Switching Center
ASD(I&L)	Assistant Secretary of Defense (Installations and Logistics)
ASL	authorized stockage list
ASO	Aviation Supply Office
ASW	anti-submarine warfare
ATC	Air Training Command
ASPR	Armed Service Procurement Regulation
AUTODIN	Automatic Digital Network
AVCAL	Aviation Consolidated Allowance
AVSCOM	Aviation Systems Command
BLSG	Brigade Logistic Support Command
BOB	Bureau of Budget
BUBUD	Bureau of the Budget
CAMIAF	Consolidate Army Master Item Application File
CASREPT	casualty reporting
CAVAMP	Central Asset Visibility and Management Programs for United States Army, Vietnam

CCIL	Commanders Critical Items List
CDC	Combat Development Command
CDCP	CONUS Central Data Collecting Point
C-E	communications-electronics
C&E	communications and electronics
CG	commanding general
CINCPAC	Commander in Chief, Pacific
CINCPACFLT	Commander in Chief, Pacific Fleet
CINCUSARPAC	Commander in Chief, United States Army, Pacific
CLS	closed loop support
CNM	Chief of Naval Material
CNO	Chief of Naval Operations
COD	Carrier On-board Delivery
COMM R.I.	Communication Routing Indicator
COMSERGRU3	Commander, Service Group 3
COMSERLANT	Commander, Service Force, Atlantic Fleet
COMSERPAC	Commander, Service Force, Pacific Fleet
COMUSMACV	Commander, United States Military Assistance Command, Vietnam
CONARC	Continental Army Command
CONEX	Container Express
CONUS	continental United States
COSAL	Coordinated Shipboard Allowance List
COSCOM	Corps Support Command
COSTAR	combat support to the Army
CPR	cards per minute
DA	Department of the Army
DAAS	Defense Automatic Addressing System
DASA	Defense Atomic Support Agency
DCA	Defense Communication Agency
DCSLOG	Deputy Chief of Staff for Logistics
DCSOPS	Deputy Chief of Staff for Operations
DCIA	Deputy Comptroller for Internal Audit
DCO	dial central office
DEPSTAR	Deployment Status of Army Units
DIC	Document Identifier Code
DIFM	due in from maintenance
DLSC	Defense Logistics Services Center
DOD	Department of Defense
DODI	Department of Defense Instruction
DS	direct support
DSA	Defense Supply Agency
DSC	Defense Supply Center
DSSA	Direct Supply Support Activity
DSSC	Direct Support Stock Control
DTRA	Defense Technical Review Activities
EAM	Electrical Accounting Machine
ECO	engineering change orders
ECOM	Electronics Command
EDP	electronic data processing
EMU	electric mobile unit
ENSURE	Expediting Non-Standard Urgent Requirements for Equipment Procedures
EOQ	economic order quantity
ESO	Electronic Supply Office
EUCOM	European Command
F/AD	force activity designators
FASCOM	Field Army Support Command
FBM	Fleet Ballistic Missile

FIFO	first-in-first-out
FIIN	Federal Item Identification Number
FILL	Fleet Issue Load List
FLC	Force Logistic Command
FLSG	Force Logistic Support Group
FLSIP	Fleet Logistic Support Improvement Program
FMF	Fleet Marine Force
FMFPAC	Fleet Marine Force, Pacific
FMS	foreign military sales
FMSO	Fleet Material Support Office
FOB	forward operating base
FOSAT	fitting-out supply assistance team
FSA	forward support area
FSN	Federal Stock Number
FSR	Force Service Regiment
FWF	Free World Force
FY	fiscal year
GAO	General Accounting Office
G-4	Designation of the General Staff Logistics Officer
GS	general support
GSA	General Services Administration
HAWKSMET	Hawk Supply and Maintenance Evaluation Team
HDV	high-dollar value
H-F	high frequency
HIVAC	high-value asset control
HQ AFLC	Headquarters, Air Force Logistics Command
HQMC	Headquarters, Marine Corps
HSA	Headquarters, Support Activity
HSAS	Headquarters, Support Activity, Saigon
ICC	Inventory Control Center
ICCV	Inventory Control Center, Vietnam
ICP	Inventory Control Point
ICTZ	I Corps Tactical Zone, Vietnam
IDC	in-transit data card
ILS	Integrated Logistics Support Program
IM	inventory manager
IMA	Intermediate Maintenance Activities
IOL	Initial Outfitting List
IPD	Issue Priority Designators
ISSL	Initial Spares Support Listing
IWCS	Integrated Wideband Communication System
JCS	Joint Chiefs of Staff
JLRB	Joint Logistics Review Board
K	one thousand
LATAF	Logistics Activation Task Force
LCO	Logistic Control Office
LCO-P	Logistic Control Office, Pacific
LDV	low-dollar value
LIF	Logistics Information File
LSA	logistical support area
LST	landing ship tank
MAAG	Military Advisory and Assistance Group
MAC	Military Airlift Command
MACA	Military Airlift Clearance Authority
MACV	Military Assistance Command, Vietnam
MAG	Marine Air Group
MARES	Marine Corps Automated Readiness Evaluation System
MASS	Modern Army Supply System

MC	Marine Corps
MCSA	Marine Corps Supply Activity
MCSC	Marine Corps Supply Center
MCSCB	Marine Corps Supply Center, Barstow
MDCS	Maintenance Data Collection System
MDV	Medium Dollar Value
MEAD	Maintenance Engineering Analysis Data Program
MEB	Marine Expeditionary Brigade
MECOM	Mobility Equipment Command
MHE	Materials Handling Equipment
MICOM	Missile Command
MIDA	Major Item Data Agency
MILSCAP	Military Standard Contract Administration Procedure
MILSTAMP	Military Standard Transportation & Movement Procedure
MILSTEP	Military Supply & Transportation Evaluation Procedure
MILSTRAP	Military Standard Transaction Reporting & Accounting Procedure
MILSTRIP	Military Standard Requisitioning and Issue Procedure
MLSF	Mobile Logistic Support Force
MO	mount-out
MOA	mount-out augmentation
MOB	main operating base
MOS	Military Occupational Speciality
MMA	Materiel Management Agency
MRF	mobile riverine force
MSP	Maintenance Support Positive Program
MSTS	Military Sea Transportation Service
MT	measurement ton
MTMTS	Military Traffic Management and Terminal Service
MUCOM	munitions command
MUMMS	Marine Corps Unified Materiel Management System
MWSG	Marine Wing Service Group
NAVAIR	Naval Air Systems Command
NAVSUP	Naval Supply Systems Command
NCR	National Cash Register Company
NICP	National Inventory Control Point
NORM	not operationally ready, maintenance
NORS	not operationally ready, supply
NORSAIR	Navy Reporting System for NORS Aircraft
NMC	Naval Material Command
NSA	Naval Support Activity
NSC	Naval Supply Center
NSD	Naval Supply Depot
OASD	Office of the Assistant Secretary of Defense
OASD (I&L)	Office of the Assistant Secretary of Defense (Installations and Logistics)
OASIS	AMC Ownership and Accountability of Super High Dollar Value Secondary Items in the Overseas Theater Depots
OCAMA	Oklahoma City Air Materiel Area
OOAMA	Ogden Air Materiel Area
OPNAV	Office of the Chief of Naval Operations
OR	operationally ready
OSD	Office of the Secretary of Defense
OST	order and ship time
PACAF	Pacific Air Force
PACOM	Pacific Command
PAMN	Procurement of Aircraft and Missiles, Navy
PBR	Patrol Boat River
PCAM	Punched Card Accounting Machine

PCS	Permanent Change of Station
PD	priority designator
PDD	priority delivery date
PEB	pre-expended bins
PEMA	Procurement of Equipment and Missiles, Army
PG	priority group
P.I.	Phillipine Islands
PLL	prescribed load lists
PMOLANT	Polaris Material Office, Atlantic
PMOPAC	Polaris Material Officer, Pacific
POL	petroleum, oils, and lubricants
POSSE	progressive on-slaught to stamp-out stock errors
POV	privately owned vehicles
PRISM	Progressive Refinement of Integrated Supply Management
PURA	Pacific Utilization Redistribution Agency
PURM	Program for the Utilization and Redistribution of Materiel
PWRS	Pre-positioned War Reserve Stock
QGMC	Quartermaster General of the Marine Corps
QRICC	Quick Reaction Inventory Control Center
RASS	Rapid Area Supply Support Team
RATT	radio-teletype
RDD	required delivery date
RED BALL EXPRESS	An Army program to expedite supplies to overseas units to remove aircraft and equipment from deadline and to keep them operational
RFP	request for proposal
RO	requisitioning objective
RPT	Resident Provisioning Team
RSA	remote storage activity
RVNAF	Republic of Vietnam Armed Forces
SAAMA	San Antonio Air Materiel Area
SAC	Strategic Air Command
SAFEGUARD	Anti-ballistic missile system designed to protect industrial areas.
SALTI	Summary Accounting for Low-Dollar Turnover Items
SASM	Special Assistant for Strategic Mobility
SASSY	Support Activities Supply System
SB & CR	Stock Balance and Consumption Report
SCRIP	Ship capability impaired for lack of parts
SEABEES	Naval Construction Battalion
SECDEF	Secretary of Defense
SIAFP	Selective Initial Air Force Provisioning System
SIMS	Selected Item Management System
SIMSI	Selected Inventory Management of Secondary Items
SM	Systems Manager
SMAMA	Sacramento Air Materiel Area
SMOLANT	Ships Material Office, Atlantic
SMOPAC	Ships Material Office, Pacific
SMS	Surface Missile Systems Project (PM-3)
SPCC(ORD)	Ships Parts Control Center (Ordance)
SPCC(SP)	Ships Parts Control Center (Ship Parts)
SSA	supply support arrangement
SSB	single side band
SSSS	Self Service Supply Store
STAR	speed through aerial resupply
SWAMS	Standard WECOM, ATAC (TACOM), MECOM System
SWIFTS	Patrol Craft Fast (PCF)
TAC	Tactical Air Command
TACOM	Tank Automotive Command
TASMS	The Army Supply and Maintenance

TASL	Theater Authorized Stockage List
TDY	temporary duty
TICP	Theater Inventory Control Point
TLL	tender load list
TRANSPAC	trans Pacific submarine cable
TROPO	tropospheric scatter radio
UADPS	Uniform Automatic Data Processing Systems
UICP	Uniform Inventory Control Program
UND	urgency of need designator
UMMIPS	Uniform Materiel Movement and Issue Priority System
USA	United States of America
USAF	United States Air Force
USAMC	United States Army Materiel Command
USARAL	United States Army, Alaska
USAREUR	United States Army, Europe
USARPAC	United States Army, Pacific
USARSO	United States Army, Southern Command
USARV	United States Army, Vietnam
USASCV	United States Army Support Command Vietnam
USMC	United States Marine Corps
USN	United States Navy
USOM	United States Overseas Mission
VDP	vehicle down for parts
VHDV	very high dollar value
VHF	very high frequency
VLF	very low frequency
WAMTMTS	Western Area Military Traffic Management and Terminal Service
WECOM	Weapons Command
WESTPAC	Western Pacific
WPB	Coast Guard Patrol Boat
WRAMA	Warner-Robbins Air Materiel Area
WRSK	War Readiness Spares Kit
WSCP	Weapon System Control Point
WSEG	Weapon Systems Evaluation Group
ZI	zone of interior
1st Log Cmd	1st Logistical Command
2nd Log Cmd	2nd Logistical Command
3M	Maintenance Material Management Program
3S	supply support system
711	MILSTRIP project code used in conjunction with the Navy's casuality reporting system for the Seventh Fleet
999	a super priority code
III MAF	Third Marine Amphibious Force

APPENDIX C
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APPENDIX C
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