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PROJECT NUMBER 012

IMPACT ON DARCOM OF NONSTANDARD MTOE

FINAL REPORT

MARCH 1981

U.S. ARMY
LOGISTICS MANAGEMENT CENTER
FORT LEE, VIRGINIA
23801

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This report examines how and why the creation of nonstandard MTOE can adversely impact DARCOM. The cost, in terms of management and operational dysfunction, is discussed. The conclusions are that DARCOM is adversely affected in several ways. Among these are perversion of the system to buy needed equipment, the system to distribute equipment, and the system to support items in the Army's inventory. The report recommends that commanders

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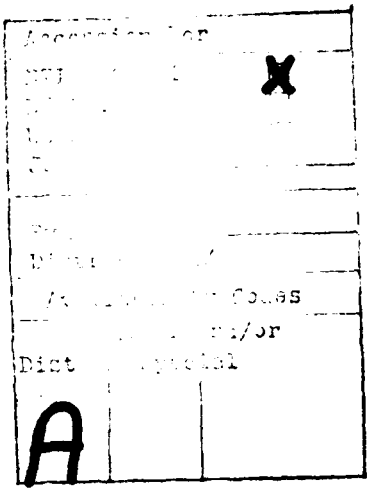

FINAL REPORT

MARCH 1981

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ABSTRACT

This report examines how and why the creation of nonstandard MTOE can adversely impact DARCOM. The cost, in terms of management and operational dysfunction, is discussed. The conclusions are that DARCOM is adversely affected in several ways. Among these are perversion of the system to buy needed equipment, the system to distribute equipment, and the system to support items in the Army's inventory. The report recommends that commanders no longer be authorized to delay updating their MTOE to reflect changes made to the TOE, that the approval of unit initiated MTOE change be more stringently controlled, and that the established equipment acquisition and distribution priority systems be more closely coordinated.

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EXECUTIVE SUMMARY

1. Authority for the Study. The sponsor of this study is the Director for Plans, Doctrine and Systems, US Army Materiel Development and Readiness Command (DRCPS-C). Tasking was made by letter, DRCPA-S, 8 February 1980, subject: Impact of Nonstandard Units Upon DARCOM.

2. Background. During a trip to Europe in the fall of 1978, General Guthrie observed serious problems besetting DARCOM which resulted from changes to organizational MTOE. Upon his return, the General sent a letter to the Deputy Chief of Staff for Operations and Plans, Department of the Army (DA, DCSOPS) pointing out that the turbulence caused within DARCOM, because of the magnitude and frequency of organizational change, was adversely impacting DARCOM effectiveness and efficiency. In December 1979, the Force Development Directorate of DA, ODCSOPS requested that DARCOM identify and quantify the impact of organizational nonstandardization; the Logistics Studies Office (LSO) was tasked in February 1980 to provide answers to the questions posed in the letter from ODCSOPS. The LSO study revealed:

a. MTOE nonstandardization has two basic causes.

(1) The unit commander, for various valid reasons, can request modification of the unit Modification Table of Organization and Equipment (MTOE). The MTOE is the authorization document for a combat, combat support or combat service support organization; it grants the unit authority to exist, and enables the unit commander to requisition men and materiel. If approved, the MTOE is altered and the organization can reconfigure to conform with the change. For DARCOM, this will generally entail an equipment action--either issue or receipt of assets. The organization will no longer be the same as the Table of Organization and Equipment (TOE), thus will be nonstandard.

(2) The TOE also change frequently. TOE are documents that provide models for units which will operate in combat theaters. The TOE change to reflect evolving strategy, tactics, missions, and technology. TOE changes originate from various sources. They are collected and published twice each year (April and October) by the US Army Training and Doctrine Command (TRADOC) in Consolidated Change Tables (CCT). After publication of TOE changes, regulations require that all MTOE based on the affected TOE are updated within six months. In June 1978, ODCSOPS waived the requirement to update MTOE when the equipment required to implement a change is not available for issue. When the TOE change but the MTOE do not, all units organized under the affected MTOE become nonstandard.

b. Nonstandardization is widespread in the Army today. Using data provided by Department of the Army (DA), a comparison was made of equipment authorized by the TOE and associated MTOE for all US Army Forces Command (FORSCOM) organizations. The analysis identified 1,049 units within FORSCOM where the TOE and unit MTOE varied in terms of equipment. FORSCOM has a total of about 2,000 organizations within the command. If the TOE is taken as the standard, approximately 50% of the FORSCOM units are nonstandard. The data upon which the analysis is based is constantly changing and any subsequent sample may produce different results.

3. Objectives. The purpose of this study is to determine how nonstandard organizations--and the consequent change actions--affect DARCOM and, insofar is feasible, to what degree DARCOM is impacted.

4. Limits and Scope. The study is restricted to the impact upon DARCOM management systems and operations caused by equipment change actions which can be attributed to MTOE nonstandardization. It considers the current time period only.

5. Methodology. DARCOM management system and/or operational dysfunction was identified through a series of visits and interviews within Headquarters (HQ)

DARCOM and DARCOM Materiel Readiness Commands (MRC). The scope of the problem was assessed through analysis of data provided by HQDA, HQ FORSCOM, and the US Army Logistics Center.

6. Conclusions.

a. About fifty percent of the FORSCOM units are nonstandard in that they differ from the TOE in equipment type or quantity. Of the nonstandard units, about half are created because of TOE changes that are not reflected in the MTOE. This occurs because the requirement to adjust the MTOE to reflect TOE changes was waived by a DA DCSOPS message in June 1978.

b. The remaining nonstandard units are created by their commanders when they perceive a need for organizational change. The reason for change is normally based on special requirements of mission, climate, or terrain. However, many changes seem to be based as much on the commander's whim as on actual need; the authorization process does not filter out such change requests effectively.

c. The lack of coordination between the acquisition and distribution priority systems, in combination with the creation of certain nonstandard organizations, can subvert DARCOM efforts to acquire and issue equipment systems.

d. Increases in POMCUS stocks are causing FORSCOM to draw down low priority units in order that the required equipment can be made available. In addition to the obvious detrimental effect--creating under-equipped, nonstandard units--the drawdown has caused a reluctance on the part of the affected unit commander to release his remaining equipment for depot maintenance. This failure to send equipment in for maintenance results in DARCOM having currently overestimated the resources required for the depot maintenance program. It also may result in the underestimation of resource requirements if commanders should, as a group, turn in the equipment in need of depot maintenance. Finally, DARCOM must support

the aging and increasingly unreliable fleet which is the result of avoiding required maintenance. These problems will remain as long as POMCUS stock increases are dependent upon active and reserve organizations as a source of equipment.

7. Recommendations.

a. Rescind the DA DCSOPS message of June 1978, waiving the requirement to bring affected MTOE into consonance with altered TOE and establish another method of coping with the unit status reporting requirement. If this is not possible, then either develop a system of amending the MTOE Required Column to reflect TOE changes, without degrading the unit status report, or alter the system of computing the Authorized Acquisition Objective to reflect the program force to include the latest TOE changes.

b. Tightly control command initiated MTOE changes at HQDA and approve a change request only if the need is proven. Once approved, the process to revert back to the original MTOE configuration should be as difficult and demanding as the initial process of change.

c. Analyze, in depth, the distribution and acquisition priority systems with the goal of providing a better coordinated procurement and distribution of equipment.

MAIN REPORT

CHAPTER 1

INTRODUCTION

I. Background.

A. During a trip to Europe in the fall of 1978, to observe the annual REFORGER exercise, General Guthrie became aware of serious problems besetting the Army Materiel Development and Readiness Command (DARCOM) that resulted from the number of organizational changes approved for implementation. Like type units were appearing in various nonstandard versions. Upon his return, General Guthrie sent a letter to the Deputy Chief of Staff for Operations and Plans, Department of the Army (DA DCSOPS), pointing out that the turbulence caused within DARCOM because of the magnitude and frequency of organizational change was adversely impacting DARCOM's effectiveness and efficiency (Inclosure 1, Annex A). Although General Guthrie's letter specifically addressed the problems of managing the expanding and changing prepositioned stocks in Europe, it was clear that the creation of nonstandard organizations was far more widespread. Department of the Army (DA) perceived the essence of the problem as the management and control of change within the Army. Within this context, the Concepts Analysis Agency (CAA), which had earlier completed a study on the Management of Change, was tasked to perform a study on how change could best be implemented; the Implementation of Change study was published in June 1980.

B. The genesis of this study effort was a letter from the Force Management Directorate of DA ODCSOPS in December 1979 (Inclosure 2, Annex A) asking DARCOM to identify and quantify the cost caused by organizational nonstandardization; the Force Management Directorate is charged with reducing nonstandard units to a minimum. The Logistics Studies Office (LSO) was tasked in February 1980, as a

direct result of this letter, to provide data on the current costs of change associated with nonstandardization. The initial LSO effort was directed toward a cost analysis. In September 1980, the cost analysis was abandoned and the effort redirected to conduct an analysis of the management and operational dysfunction created by the rapid change associated with nonstandardization of like organizations.

C. Organizational change within the Army is a controlled process. It is part and parcel of the system of requirements documentation and authorization documentation. To understand how nonstandardization is impacting DARCOM, it is first necessary to understand what the documents are and how they are used.

1. Combat, Combat Support, and Combat Service Support organizations within the US Army are all modeled after documents entitled the Table of Organization and Equipment (TOE). The TOE are requirements documents; that is, they represent the latest and best calculation of what an organization will need to perform its assigned missions in a combat environment on a sustained basis. The TOE lists various authorized personnel and equipment levels. Level 1 depicts the minimum essential personnel and equipment necessary to operate in a continuing combat situation. The other levels depicted indicate the personnel and materiel requirements if the unit is to function at a lesser capability; e.g., level 2 represents 90% of the level 1 capability, and level 3 represents 80% of the level 1 capability. The TOE is not an authorization document. No one can create a unit with a TOE only.

2. The Modification Table of Organization and Equipment (MTOE) is the authorization document necessary to create or maintain a Combat, Combat Support, or Combat Service Support organization. The title is somewhat misleading in that the MTOE can be, and often is, identical in every particular to the TOE. It is

only after an MTOE has been issued that an organization is granted authority to exist. The MTOE gives the unit a Unit Identification Code (UIC) with which the commander can requisition people and equipment, as indicated in the Authorization column of the MTOE. The MTOE also includes an Effective Date (EDATE) which indicates when the unit is activated--or when the unit MTOE change will be completed. With a UIC and EDATE the unit can requisition whatever the MTOE Authorized column indicates is authorized to it. The MTOE may apply to only one organization, or it may apply to many like-type units at the same Authorized Level of Organization (ALO). If a unit is unique, it will have its own MTOE; or, if several units are identical in every particular, they will all be grouped and included on one MTOE. When an item manager at a Materiel Readiness Command (MRC) receives a requisition, he will check its validity through use of the MTOE by checking the UIC, the EDATE, and comparing the number of items the unit has; i.e., the asset posture--with the quantity the unit is authorized to have.

3. The MTOE has other uses, besides serving as the basis for requisition and distribution of assets. As part of the Army Authorization Document System (TAADS) it is used to support the Planning, Programming, and Budgeting System (PPBS); that is, under TAADS the "Required" column of the MTOE is used to project total force requirements for the purpose of asset acquisition. The MTOE Required column lists the minimum essential personnel and equipment necessary for the unit to perform assigned missions on a sustained basis; therefore, the Required column of the MTOE should be identical to the level 1 column of the TOE, plus or minus DA approved modifications (AR 310-49, para 3-15c). The MTOE is also the basis on which the commander reports his unit readiness status. This last function apparently was a primary reason that DA, in June 1978, waived the requirement to make MTOE capture TOE changes within six months of the TOE change publication. Changing the MTOE when the additional personnel and equipment resources needed

are not available often caused a degradation in the unit status reports when the unit commander modified his MTOE. That is, the asset posture of the unit, although physically unchanged, now fell farther below the required level, thus adversely impacting the unit status report.

4. TOE changes are published twice each year by the Headquarters, US Army Training and Doctrine Command (TRADOC) in the form of a Consolidated Change Table (CCT). TRADOC collects and compiles approved TOE changes from all sources and publishes them in the CCT each April and October. Each TOE change affects all MTOE based on the changed TOE. As an example of the scope of change, in 1978 two CCT were published: CCT 300-64 affected some 30,000 TOE lines, both personnel and equipment; CCT 300-65 affected some 19,000 lines. Therefore, in 1978, about 49,000 TOE lines were changed, and this seems to be in the normal range. Some changes are far greater in magnitude; this is usually due to a conceptual change of some sort. CCT 300-63, for instance, affected some 88,000 TOE lines. To give an idea of the impact on the unit in the field, the Implementation of Change (IC) study team selected seven company sized TOE to analyze, and looked at all changes that were applied to those TOE in the period November 1970-October 1978. Eighteen CCT were published during that period (four in 1972 instead of the normal two). During the eight-year period the team found that 1845 personnel changes and 4439 equipment changes had been made to the seven TOE; put another way, 71% of the changes impacted equipment. There were 434 companies organized under the seven TOE that were affected by the TOE changes. Or, to put it another way, an equipment change which happened to impact all seven TOE--as the addition of another 1/4-ton truck--would result in a requirement for an additional 434 1/4-ton trucks. An extract from the Implementation of Change study is at Annex B; it identifies the TOE analyzed and gives data on the type of change made.

D. The commander in the field can also request that his organizational MTOE be modified because of unusual or unanticipated mission requirements. For example, a truck company assigned to the Transportation School, teaching drivers, may need a winch on each truck in order that the requirements of the Program of Instruction--to teach winch operation--can be met within the time available. Or, the commander may feel the need to modify his organization because of extreme weather conditions; for example, units stationed in Alaska need arctic equipment and units in Panama require tropical equipment. The approval authority for such a request may be at DA or at a DA major subordinate command (MACOM), such as US Army Forces Command (FORSCOM) or the US Army Europe (USAREUR). The level at which approval authority is vested will depend on whether additional resources will be required beyond those authorized by the MTOE, or whether the additional resource requirements exceed the quantity authorized by the level 1 of the TOE, and whether the equipment is under DA control. The vast majority of MTOE changes are proponent (MACOM) approved.

II. Objectives. The purpose of this study is to determine how equipment change actions, that result when nonstandard organizations are created, impact DARCOM management and operational systems. A concomitant objective is to determine the degree of impact upon DARCOM.

III. Limits and Scope.

A. The study is unclassified.

B. Management systems, processes, activities, and operations surveyed were restricted to those within DARCOM.

C. Only the impact caused by equipment change attributed to nonstandard MTOE was addressed; personnel change and attendant problems were not considered.

D. Table of Distribution and Allowances (TDA) units were not addressed.

E. Time Period: Current.

IV. Methodology.

A. The project began as a cost analysis, and data were provided by Department of the Army through the US Army Management Systems Support Agency (USAMSSA). The data compared TOE and MTOE of all active FORSCOM organizations in terms of equipment and identified all units where the TOE and the applicable MTOE differed in equipment quantity in any degree. Additionally, when an MTOE was identified as "nonstandard"--i. e., different from the TOE--the items and quantities of the item which varied from the TOE mandated items and quantities were identified. These data, planned as the basis for cost analysis, were retained to show the scope of the problem under consideration after the project focus shifted.

B. Management and operational problems were identified through a series of visits and interviews; most of the useful information gained was provided by personnel at HQ DARCOM. Visits were also made to HQDA, HQ FORSCOM, and to three Materiel Readiness Commands (MRC). Finally, the Tactical Wheeled Vehicle Management Office of the US Army Logistics Center (LOGC) has been analyzing data on the 5-ton and the 2 1/2-ton truck series to support TRADOC requirements rationale. The data encompass vehicles in active units worldwide. The analyses on the 5-ton series are complete and these data were used in this study as an indication of the scope of the problem of nonstandardization and the equipment actions which they precipitate.

V. Problem.

A. Although it is the stated policy of the Department of the Army (DA) to maintain standard organizations within combat, combat support, and combat service support elements, this is clearly not always the case. There are identifiable and good reasons for the creation of some nonstandard organizations; however, the magnitude of nonstandardization is now great and generates turbulence.

B. Organizational alterations can affect either equipment or personnel, or both. This study is directed to analyzing the effects of equipment variances in organizations patterned on Tables of Organization and Equipment (TOE).

C. Many of the nonstandard MTOE encountered today are caused by change to the TOE. Approved TOE changes are published by TRADOC twice each year--in April and October--in a Consolidated Change Table (CCT). The Implementation of Change study identifies six different processes which generate change to the TOE. These are:

1. Application of Manpower Authorization Criteria (MACRIT): MACRIT provide the standards which determine how many and what type service personnel will be authorized to an organization. That determination is made based on a comparison of the annual manhour requirements for a unit with the number of productive man-hours each soldier can perform within one year. The purpose is to determine how many service personnel the unit needs. AR 570-2 details information on MACRIT and defines the various criteria used to make that determination. MACRIT are reviewed by the proponent service school, and the applicable materiel developers, each three years. DA periodically publishes MACRIT revisions as changes to AR 570-2.

2. Development of Basis of Issue Plans (BOIP): A BOIP is prepared for each equipment item being introduced into the inventory. The plan is prepared by the proponent service school based on feeder data from the materiel developer and used by DA to program equipment acquisition (and to identify changed personnel requirements resulting from introduction of the new equipment). The BOIP is also used to revise affected TOE.

3. Change of Doctrine: TRADOC is the proponent for doctrinal studies within the US Army. Studies may be initiated as the result of the introduction

of new tactical or support concepts, the introduction of new equipment, or a recognized inadequacy in organization, tactics or equipment. Although TRADOC is responsible to monitor, coordinate, analyze, and recommend the acceptance of new doctrine, only HQDA can approve and direct implementation.

4. Scheduled Review of TOE: DA policy requires review of all TOE at least once each three years. The HQDA Program Schedule for Preparation and Processing of TOE specifies which TOE are to be reviewed during any given year. TOE can be scheduled for review because of the introduction of new equipment or new doctrine or simply because three years have elapsed since the last review. TRADOC is responsible for the application of changes to the TOE in coordination with the materiel development and the combat development communities and the MACOM.

5. Changes to Supply Bulletin (SB) 700-20: Twice each year DARCOM's Catalog Data Agency will update and publish SB 700-20. The updated supply bulletin reflects any equipment additions or deletions, Line Item Number (LIN) or National Stock Number (NSN) changes, and changes in equipment classification that have been approved by HQDA.

6. Change to MOS Structures: The US Army Military Personnel Center (MILPERCEN) accumulates and provides twice yearly any changes to the MOS structure; e.g., skill level requirements, grade, etc., to TRADOC for inclusion in the CCT. HQDA is the approval authority for MOS changes.

C. Following publication of the CCT, Army Regulation 310-31 gives the commander in the field six months to bring his Modification Table of Organization and Equipment (MTOE) back into line with the TOE. For the last several years, fiscal constraints and, in some cases, industrial capacity have caused shortages of the resources necessary to effect many of the changes directed in the TOE. In those cases, if MTOE's are altered and the necessary equipment is not

available for issue, the affected units are degraded in terms of readiness condition reporting (Unit Status Reports). In recognition of this fact, in June 1978 the Office of the Deputy Chief of Staff, Operations, Department of the Army, dispatched a message to the field which lifted the requirement for MTOE to be brought into line with TOE changes within six (6) months where the necessary resources to do so are not available. Although this action has relieved the problem of adverse Unit Status Reports from the units in the field, it has created a situation where many MTOE are no longer patterned on the current TOE.

D. MTOE can also be changed at the request of the commander in the field. If the commander decides that, because of operational necessity dictated by local circumstances--e.g., mission, geography, climate, etc.--a change is required, he can submit a request to modify his MTOE. If approved, authority will be granted to turn in, or draw, equipment as is necessary to institute the change. Some requests to alter the MTOE must be approved at Department of the Army (DA) level, while others are approved at the major command (MACOM) level. Generally, if the MTOE modification involves a reduction in equipment quantity, the MACOM has approval authority. If the equipment quantity is to be increased, the equipment is not DA controlled, and the increase will not exceed the quantity shown in the MTOE required column, the MACOM may approve in this case also. (AR 310-49, Table 2-1, lists approval authority to effect change in MTOE). In some cases, modifications to the MTOE that are initiated in the field may result in a change to the TOE, thus impacting all MTOE based on that TOE. Most often, however, such unit initiated MTOE changes will not affect the TOE. Data provided by HQ FORSCOM indicate that almost half of the command's nonstandard organizations result from unit initiated MTOE changes. (See Table 3-6). LTC Robert E. Mann, who was Chief of the MTOE Section, Manpower Division, ODCSRM

(Resource Management) in HQ USAREUR for one and one-half years, stated in his research paper entitled "Force Structure and MTOE Changes" that MTOE changes initiated by unit commanders represented only 10% to 20% of the MTOE section workload in that theater.

E. For whatever reason, a large number of nonstandard organizations now exists throughout the force structure. The USAMSSA furnished a computer tape and printout that compared all FORSCOM MTOE with their corresponding TOE. The level 1 column of the TOE was compared with the authorized column of the MTOE. Accepting the TOE level 1 as the Army standard, the DA-furnished data, which was current through CCT 300-68 (April 1980) identified 1,049 organizations within FORSCOM which differed in terms of equipment from the TOE to some degree. There are about 2,000 organizations in FORSCOM. It must also be pointed out that the DA-furnished data represented only equipment variances; personnel differences were not within the scope of analysis. Therefore, within FORSCOM, which represents some 49% of the total of US Army organizations, about fifty percent of the units varied in terms of equipment from the TOE standard at the time these data were collected.

CHAPTER 2

IMPACT ON DARCOM

VI. General. Several effects of unit nonstandardization impact adversely on DARCOM; these will be discussed in the following paragraphs. However, there are other pervading forces which affect not only the Army, but the entire defense community and that color the atmosphere within which the elements of DARCOM must operate. The Army seldom has enough of anything that it requires. The basic underlying cause has been the lack of needed funds. Budget constraints, and to a much lesser degree dwindling industrial capabilities, have forced the Army into this situation. Today the Army must prioritize the list of equipment items that should be bought during a given year to fully outfit the programmed force; then it will acquire as much of the equipment as the procurement appropriation (PA) funds will allow--buying down through the priority listing until the funds are exhausted. The list of required equipment, which is prepared annually, is known as the Authorized Acquisition Objective (AAO). Since the Army has not been able to buy all items on the AAO for the past several years, there exists today a pervasive belief that fund limitations will never allow all items on the AAO to be purchased. The conviction is not only encountered within the logistical community, but in the development and the procurement communities as well. The impact of this belief, although impossible to measure, cannot be discounted. Another cause of problems is the lack of coordination and synchronization between the TOE/MTOE change, the equipment acquisition, and the equipment distribution processes. The Implementation of Change study looked in great detail at the TOE/MTOE change process and found that the lack of coordination resulted in the Army approving changes on a piecemeal basis without determining the total costs. When making an equipment change, for instance, the approval of

a single item may seem affordable; but when considered with all other proposed changes, and the monetary restrictions that apply, different decisions may be indicated. Under the current system, equipment increase changes to the TOE are approved even when the Army cannot afford to procure and issue the requisite items. This causes problems to DARCOM which will be discussed later. Too, there exists a lack of synchronization between the prioritized procurement process and the prioritized distribution process and this creates other problems for DARCOM. The introduction of nonstandard organizations into this problem-laden atmosphere serves to compound it.

VII. Problems Related to Acquisition.

A. Possibly the most serious problem for DARCOM, which can be directly attributed to organizational nonstandardization, deals with the Army acquisition program. In this case, nonstandardization is directly perverting the system designed to procure those items the Army requires--and can afford to buy--to support a specified force structure. In recent years, monetary constraints have forced the Army to prioritize and choose the equipment that can be procured. The process used to develop the annual listing of the equipment to be procured is the Planning, Programming, and Budgeting System (PPBS). One function of the system is to determine what the Army needs to purchase in order to fully equip the approved US Army force and then sustain that force and certain allies from the onset of hostilities through a period of time that is established by the Department of Defense. The data reflecting what must be acquired is provided from the Structure and Composition System (SACS). SACS is a computerized system that compares the organizational detail of TAADS with the time-phased force structure demands for equipment and personnel. The Logistics SACS (LOGSACS) produces estimates of equipment needs for the proposed force structure that are

phased over time. The LOGSACS file, in addition to the TAADS data, is configured so that the latest changes to the force equipment requirements, due to modernization, will be incorporated also. (This is done through inclusion of BOIP and, where impending changes are known but not yet included in another file, "Short Hand Notes" (SHN) are used to ensure inclusion in the LOGSACS file.) One aspect of the nonstandardization problem seriously subverts the accuracy of the process to identify equipment needs. The Required Column of the MTOE is extracted from the LOGSACS file to develop the total force equipment requirements. The total compilation of the Required Column quantities produces figures which serve as the base for the process that determines the Army's equipment needs. This is done by comparing what is needed versus what is currently in the inventory and then considering what will be needed to replace combat loss, normal attrition, contingency requirements, and the impact of production capabilities. The system then determines what should be bought in any given year to support the projected force. The MTOE Required Column does not properly reflect the current force requirements when the TOE changes and the MTOE is not modified to reflect that TOE change. FORSCOM data indicates that about one quarter of that command is now nonstandard because of failure to update MTOE. As discussed in paragraph VC, when assets are not available, the commander need not alter his MTOE to reflect a TOE change. When not brought into conformation with the TOE, MTOE do not accurately list the TOE level 1 equipment quantities (and any DA authorized modifications) as Army regulations require. The June 1978 message from HQDA waived the requirement to update MTOE but the acquisition process continues to rely on the MTOE Required Column to furnish the equipment quantities on which the annual acquisition process is based. Since 1978, the force structure reflected in the TOE and that in the Required Column in the MTOE have become increasingly divergent;

i.e., the aggregate totals of the TOE level 1 column and the MTOE Required Column have been steadily diverging.

B. From DARCOM's point of view, the problems are easily identified. First and foremost, the Army is not buying towards its needs. Since funding constraints have precluded the Army from buying all that it needs in recent years, allowable purchases must be made selectively on a priority basis. With the updating of the MTOE Required Column two to three years behind the TOE changes in many cases, the Army may be purchasing equipment that really is not wanted in the current force structure and, at the same time, failing to buy items that are needed. It is not difficult to see attendant problems in the acquisition of spares and repair parts, special tools and diagnostic equipment, training and maintaining maintenance personnel. Whenever basic equipment items are acquired in improper quantities, the requisite support will also be improperly and somewhat proportionately skewed.

VIII. Problems Related to Distribution.

A. Equipment distribution is adversely affected by nonstandardization. It has already been noted that the process of distributing equipment assets is not coordinated with the acquisition process. Priority is established in procurement of equipment by deciding which items would best serve the total needs of the Army; the total equipment requirements cannot be bought because insufficient funds are available. In establishing equipment priorities, the Army must decide what is most needed to accomplish assigned missions, what is next most important, and so on until all of the items on the list of requirements are ranked. Acquisitions are made down through the list until PA funds have been exhausted. Priority in the distribution system, on the other hand, is established based on tactical and operational considerations. Put very simply,

The distribution priority system is designed to deliver scarce assets first--and in the greatest quantities--to the units that would be first engaged in combat. Under more prosperous circumstances, the dichotomy in the two priority systems would not be a serious impediment. However, if, after the budget process has been completed, HQDA approves an organizational change which will require additional assets, the distribution priority system will prevail. Conceptual changes are thoroughly studied and coordinated, and they are normally incorporated into both priority systems; nonstandardizing changes generally are not coordinated with either priority system.

B. The organizational changes which cause problems tend to be those quick, sometimes unilateral, changes that create nonstandard organizations. Changes of this type tend to occur so quickly that they are not accounted for in procurement appropriations. When this occurs, the distribution priority system may well distribute the assets procured to recipients other than those for whom the equipment had been intended. The following is a simple, illustrative, and hypothetical example of this point. Consider an artillery fire control system which is composed of an automated fire control unit, a van body, and a 5-ton truck. If a decision is made to buy fifty of these systems, each of the components will be bought separately and will be purchased under a different priority. (It is possible, although not probable, that one or more components of an equipment system being procured will not even be bought because a low purchase priority was assigned and available funds were not adequate to buy everything needed.) The fire control units may be unique, but the vans and the trucks would be combined with all other approved and identical requirements for purchase. If, for some reason, HQDA authorizes additional 5-ton trucks to certain high priority units (for instance, one truck to each infantry battalion

in Europe), it is entirely possible, and even probable, that at least some of the trucks acquired as a component of the fire control system will be issued instead to an infantry battalion in Europe. The impact on the artillery is easy to see. The fire control units are incomplete and cannot be issued to the units which require them. DARCOM is also impacted. Not only must the incomplete elements be held in inventory until other 5-ton trucks can be acquired but plans to maintain the system and support it must be altered. Then too, the Army (DARCOM) will probably ask again, in a later procurement package, for the trucks that are needed to complete the fire control systems. Since the funds for these vehicles have already been appropriated once, the second request will often bring accusations from the Congress that we are not properly planning or managing resources. Thus, in this hypothetical case, the materiel manager is faced with the additional unplanned inventory costs; plans to support ASL/PLL quantities must be adjusted, i.e., reduce the lines supporting the fire control units and increase support to trucks in Europe; and perhaps sites to support the equipment will have to be established or disestablished. At the least, the Army gains a reputation of not knowing what it must buy to support its programs.

C. The changes which create nonstandard units and adversely impact DARCOM unfortunately are not isolated incidents. Recent examples include:

1. ROLAND: After the Army had completed the development process, including the statement and defense of a requirement quantity, HQDA reduced the number that would be procured because of monetary constraints. However, many actions had been undertaken prior to the decision to reduce the purchase quantity, to include procurement contracts, which had to be undone or altered. Such modification is neither easy nor cost effective.

2. TOW: A recent decision by HQDA to place the TOW into organizations that were not originally planned to have the system has resulted in an expanded AAO. Again, many DARCOM actions require changes which produce turmoil within the command and cast a bad light on the Army in the eyes of the Department of Defense (DOD), Congress, and industry.

3. Armored Personnel Carrier (APC): A recent HQDA decision to use the APC as the means of transport for a new weapons system was not expected. As indicated above, the decision impacts procurement, maintenance, support, and distribution actions.

D. Nonstandard units are also created when type equipment variations exist. Any time a newly introduced system is only partially fielded, problems are created for DARCOM. This is especially true if the new system is replacing an older system which performs the same function. In today's environment of limited procurement funds and dwindling production capacity, it is not unusual to see multiple versions of an equipment system in the inventory. Such a situation causes DARCOM to contend with increased requirements for repair parts, spare parts, components, etc., and expanded maintenance requirements also occur. Mechanics must be taught to maintain each version of the system they can encounter; special tools and diagnostic equipment may be needed for each version; and expanded Authorized Stockage Lists (ASL) and Prescribed Load Lists (PLL) must be supported. All of the parts, tools and equipment that are unique must be assigned a LIN and an NSN and will be listed in SB 700-20, thus expanding cataloging efforts. The main battle tank is an example of this. The current inventory includes the M60A1, the M60A3, the M48A5, and the M1 which is now being introduced. To compound this, the M60A1 is found in three different versions and a single tank company can have all three types. There is the M60A1, the M60A1 "Rise," and the M60A1

"Rise Passive." The M60A1 "Rise" has an improved engine and an upgraded turret fire control system. The M60A1 "Rise Passive" has only the engine improvements; money problems have cut back the turret modifications for the time being. The problems encountered in supporting these differing weapons systems, all designed to do the same job, adversely impact the retail logistics systems as well as DARCOM.

E. It is not unusual for low priority units to have equipment assets assigned that are in short supply and that high priority organizations have on valid requisition. Although this can occur because of oversight, usually such maldistribution seems to be the result of a deliberate planning process. Reserve units do not enjoy a high priority in the scheme to distribute assets but unless some equipment items are made available they cannot train operators or maintenance personnel. HQDA can order low priority organizations to turn in critical items that are in short supply but such action is seldom taken. There is a plan whereby DARCOM will require low priority units to turn in critical items which are in short supply in the event of a national emergency. The problem here is that the monies required to do this (that is, to transport the items to the depots, replace components and parts where necessary, perform required maintenance, and redistribute the equipment where needed) are not programmed, so will not be available when needed.

F. There are a few organizations in the field which, for a variety of reasons, are maintaining old nonstandard equipment. In at least one case, the items are unique in that no other organization in the US Army still has the equipment. The problems encountered when multiple systems exist within the inventory were discussed in subparagraph D above and apply here as well. Until the few old items can be purged, DARCOM must support them with repair parts and maintenance

assistance; and the item manager and the cataloger must continue to manage the equipment line. These efforts are costly.

IX. Problems Related to POMCUS.

A. Prepositioning of Materiel Configured to Unit Sets (POMCUS) is a concept developed to enable the United States to maintain a force level in Europe acceptable to the North Atlantic Treaty Organization (NATO) but at a reduced level of cost. In the 1960's, political and economic pressures mandated the withdrawal of troops from West Germany. POMCUS enables the US Army to rapidly deploy selected forces to Europe in the event of emergency; these organizations have near complete sets of organizational equipment stored at various locations in West Germany. In concept, the predesignated units will be moved to Europe, with small arms and personal gear only, to fall in on the stored equipment when needed. A large-scale, annual exercise, REFORGER, is conducted to practice and demonstrate the POMCUS concept.

B. POMCUS stocks are now being expanded, and the process is posing problems to the Army, including DARCOM. Equipment to be placed into POMCUS stocks cannot be programmed and procured for that purpose; that is, POMCUS equipment is not included in the Army's annual Authorized Acquisition Objective (AAO). Every piece of equipment placed into POMCUS storage sites must be withdrawn from the Army inventory. Currently, there are no equipment items available in depot storage for this purpose, and since it cannot be bought for placement in POMCUS, any items required must be withdrawn from an organization somewhere. Further increases in POMCUS stocks are being contemplated, and this can only mean additional drawdown of existing active and reserve component units, and even greater nonstandardization of units.

C. HQDA (the Program Analysis and Evaluation Directorate) developed a method, called the Force Packaging Methodology, which is designed to deal systematically with organizational shortages and the distribution of inadequate assets to the units which need equipment. This system establishes priorities for the distribution of assets based on the organizational mission and urgency of need. As mentioned in paragraph VIII A, the unit expected to be the first to fight gets the most equipment first. Units assigned to the Continental United States (CONUS) get less and get it later. In terms of unit drawdown, the same philosophy is applied. When equipment is needed for placement in POMCUS stocks, CONUS units provide the items, and the unit expected to fight last loses the most equipment first. Although the concept is good, at least in theory, the implementation is growing more and more difficult. HQDA is meeting strong resistance in drawing down both active and reserve component organizations. Those units find it increasingly arduous to accomplish their assigned missions as more and more equipment is withdrawn. Some reserve component units now have less than 50% of the equipment authorized by level 1 of the TOE.

D. The asset distribution priority system works against the low priority CONUS units; the commander of such an organization will hesitate to turn items in to depot maintenance because the chances are that it will not be returned. Once an item has been repaired at the depot level, it is given over to the control of the materiel manager, not the relinquishing unit. The item is then considered to be a DARCOM asset and will be issued in accordance with the DA distribution priority system. The equipment is issued to the unit enjoying the highest standing on the DA Master Priority Listing (DAMPL). Knowing this, some commanders of low priority units undertake repairs beyond the unit capability, or apply for a waiver of the distribution priority system, a time consuming task which can be

successful. It is suspected that a few commanders simply retain the non-functioning item, unreported, in the hope that, if an emergency occurs, the equipment will be repaired and returned to them. These actions are occurring often enough that the DARCOM depot maintenance system has been impacted. For example:

1. Each year the DARCOM materiel managers must estimate how many equipment items can be expected to be returned from the field, how many of those items will be put through a maintenance process of some kind (e.g., repair, overhaul, renovation), and how many will be washed out of the system. The estimates serve an important purpose. They impact the AAO as well as planning, programming, and budgeting for the depot maintenance and property disposal functions. When the assets expected are not turned in, DARCOM is affected. The quantity of equipment items turned in fall short of the forecast, resulting in an overstatement of maintenance requirements, thus wasting both money and manpower and the acquisition of more repair parts than are needed. Because DARCOM counts on the return of some of the maintained assets to depot stocks, the item manager will find himself with fewer items available for issue than had been anticipated, and fewer assets to schedule into depot maintenance. From experience, the item manager knows that more items should be coming in and he knows that the defective items are being held in a unit somewhere, but he cannot identify where. Not only is the Army not performing needed maintenance but it also will not be planning to replace all of the items that it should. Thus, an aging fleet, with its attendant increased maintenance demands and decreased reliability, is being created.

2. The estimate of the number of items to be returned for depot maintenance is made based on several factors (such as degree of use, area of deployment, age of item, etc.), but a base figure for these computations is derived by establishing

the average number of items which were actually turned in over the preceding three years. When the number to be turned in is significantly less than expected, future estimates based on this figure will be skewed on the low side. If the trend continues, the succeeding estimates of maintenance turn-ins and, consequently, the resources programmed for depot maintenance will also dwindle. A major danger is that a sudden future influx of equipment requiring depot maintenance, for any reason, may exceed the capability of the readiness command to service and return those items to stock.

E. Another significant problem caused by MTOE nonstandardization was surfaced during MOBEX 78 (Nifty Nugget). Because of the equipment shortfall existing in many equipment categories, DARCOM plans to redistribute critical items of POMCUS Unit Residual Equipment (PURE). PURE is comprised of the unit equipment that will be left behind when the FORSCOM units designated to fall in on POMCUS deploy to Europe. DARCOM plans to use the items to help alleviate shortages in the War Reserve. However, during MOBEX 78, DARCOM's predesignated shipping instructions for PURE were often denied by FORSCOM. Investigation revealed that because of MTOE equipment changes, and the shortage of these items in POMCUS, deploying FOSCOM units planned to take many of their equipment items with them. Thus, DARCOM was deprived of the assets and those equipment shortages were suddenly revealed to be more serious than had been thought.

CHAPTER 3

MAGNITUDE OF THE PROBLEM

X. General.

A. The problem of nonstandardization of MTOE is demonstrably widespread. The impact, however, is difficult to measure. At the Materiel Readiness Commands visited, personnel interviewed could neither identify nor quantify the impact of nonstandard MTOE change actions. (When given the data provided by USAMSSA, they were able to provide a cost estimate.) Personnel at HQ DARCOM were very aware of problems resulting from widespread MTOE nonstandardization, and the major problems they identified are discussed in Chapter 2. They also found it difficult to quantify the scope and cost of the disruptive impacts, other than to state that they are large, significant, and adverse. Too, it became apparent that the nonstandard organizations were the result of two different kinds of change. One type of nonstandardizing change results when the commander takes action to modify his organization to correct a perceived shortcoming; the other occurs when the commander fails to take action to bring his unit MTOE into agreement with the TOE, following a change to the TOE. Presumably, the unit initiated MTOE change will be of a fairly permanent nature--although experience has shown that as commanders change, so do the perceptions of what equipment the unit needs--whereas updating of the MTOE is deferred only pending availability of the assets necessary for change. The data used to determine the scope and magnitude of the problem identified TOE and MTOE differences but did not indicate why changes occur. However, FORSCOM provided data to HQDA that did state, LIN by LIN, why each equipment difference existed. The following paragraphs will address both the scope of nonstandardized MTOE and the origin of change.

B. As noted in paragraph IB, the study started as a cost analysis. After the first in-process review, the study direction was altered and the cost analysis was abandoned. The results of that costing effort are appended at Annex C.

XI. Scope of Nonstandard MTOE.

A. Chapter 1 discusses an important aspect of the MTOE change problem; that is, the semi-annual CCT. Paragraph IC4 mentioned that in 1978 some 49,000 TOE lines were changed by the two CCT. The 49,000 lines changed include both equipment and personnel changes. Each TOE change will create MTOE that are nonstandard, at least until action is taken to update the MTOE. With the current waiver of the requirement to update MTOE within six months of the TOE change publication, the number of nonstandard MTOE caused by TOE change has increased dramatically. This will be discussed in greater detail in paragraph XID. Unit initiated changes to the MTOE must also be considered and included with the CCT caused nonstandardization, when determining the total dimensions of the nonstandard MTOE problem. Two sets of data were analyzed to help establish the magnitude of nonstandardization. One set was provided by USAMSSA. The second set was extracted from the LOGC analysis of the worldwide US Army 5-ton truck fleet.

B. The data provided by USAMSSA identified all FORSCOM MTOE units where the MTOE and the corresponding TOE vary in terms of equipment. Since FORSCOM uses the TOE as the standard for its units, the USAMSSA data identified all of the organizations that were nonstandard in terms of equipment at that time. However, changes to TOE are frequent, and the TAADS data, which are the basis of the USAMSSA data, are also changed frequently in keeping with the Management of Change (MOC) cycle. Therefore, the data analyzed in this study represent a "snapshot" of a

frequently changing picture. A data call for the same information made at any other time no doubt would result in the production of significantly different data. The value of these data, then, is that they indicate the scope and magnitude of nonstandardization within FORSCOM, and FORSCOM represents almost one-half of the organizations in the Army.

1. A total of 1,049 units were identified as differing from the TOE in terms of equipment type or quantity. FORSCOM is comprised of roughly 2,000 units. The equipment differences were identified by Line Item Number (LIN), nomenclature, the TOE authorized level 1 quantity, the MTOE authorized quantity, and the difference between the two quantities. The data identified the nonstandard units by UIC and appropriate TOE and then listed all equipment differences using the elements given in the preceding sentence. When the data were arranged to group the units having the same number of LIN impacted, the equipment variation was seen to range from only one LIN where the MTOE and TOE were different to 341 LIN that reflected differences. There were 16 units which listed only one LIN difference (not all units were affected by the same LIN) and only one unit listing 341. Fifty percent of the units identified as nonstandard by these data had from one to 24 LIN where the MTOE and TOE authorized quantities differed; one quarter of the nonstandard units had seven or fewer LIN which varied from the TOE authorized equipment quantities. The array revealed that 69 units had four LIN listed; this frequency was the largest encountered (i.e., the mode). The median number of LIN affected per unit was 24, and the mean was determined to be 43.29. Table 3-1 groups the number of LIN differing from the TOE in blocks of 20 and depicts the frequency distribution in terms of units.

Number of LIN Variations Per Unit
and Frequency of Occurrence

No. of LIN Per Unit That Differ From the TOE	No. of Units (Frequency)	Percent of Units
1-20	473	45.10%
21-40	184	17.54%
41-60	103	9.82%
61-80	102	9.72%
81-100	64	6.10%
101-120	34	3.24%
121-140	38	3.62%
141 and greater	51	4.86%

Table 3-1

2. The units from which the USAMSSA data were extracted include those organizations stationed in Alaska and Panama and school troops with training missions; these categories of units have significant variations between MTOE and TOE. The data listing also contained divisional units which are split with elements stationed both in CONUS and in the Federal Republic of Germany (FRG). The support organizations within such divisions are normally divided on a proportional basis between CONUS and the FRG. This "forward stationing" concept causes the divided FORSCOM units to appear as nonstandard in the USAMSSA data; the equipment of the elements stationed in Europe are reflected in the USAMSSA data as reductions in the FORSCOM organizational equipment. The units having large numbers of LIN that vary from the TOE fall into this category.

3. Examination of the records provided by USAMSSA revealed that a significant portion of the equipment affected by nonstandardizing change consisted of either Defense Logistics Agency (DLA) or General Services Administration (GSA) equipment. The shortage or turn-in of DLA/GSA equipment would not impact DARCOM operations; therefore, those items were deleted from this analysis. Of

the 45,777 data records, 8,449 (18.46%) were in this category. [Note: Each record consisted of an identification of the unit (UIC), TOE, equipment (LIN and nomenclature), responsible readiness command (MRC), and the quantity of that item authorized by the unit MTOE and the amount authorized by the TOE: only LIN where the MTOE and TOE differed in quantity or type were listed as a record.] The remaining 37,328 records (81.54% of the total) were sorted by readiness command and organizational type. This sort revealed that the Communications and Electronics Materiel Readiness Command (CERCOM) was impacted the greatest, with 15,197 of the records affecting them. Impact on the other MRC, in order of magnitude, was: Armament Materiel Readiness Command (ARRCOM), 8,861 records; Troop Support and Aviation Materiel Readiness Command (TSARCOM), 5,722 records; Tank-Automotive Command (TACOM), 5,285 records; and Missile Command (MICOM), 2,263 records. Table 3-2 depicts how the records impacting DARCOM affected each MRC and each type TOE organization.

4. As was already stated, each record only indicates that in some way the equipment quantities of an item authorized by the MTOE and the TOE differ. Therefore, Table 3-2 indicates the volume of change experienced by the MRC, based on this set of data, but does not indicate whether that change means a requisition for more equipment or a turn-in of equipment. Nor does it indicate the volume of change contained in each record. Table 3-3 examines what the records mean to a DARCOM MRC in gross terms. The table sets down the number of LIN record changes which impact TSARCOM aviation items. It then depicts for each LIN record the total quantity of items authorized by all of a type TOE, the total quantity of items authorized by all MTOE based on these TOE, and the difference between the two. If the MTOE quantity exceeds that of the TOE, the difference is depicted as a postive value. [Note that if a unit initiated

SORT OF RECORDS BY MRC AND ORGANIZATIONAL TYPE

TYPE ORGN	TSARCOM AIR	TSARCOM GRND	CERCOM	TACOM	MICOM	ARRCOM		SUB-TOTAL	PER-CENT
01-AVN	231	189	672	123		150		1,365	3.66
03-CHEM		4	5	12	1	8		30	.08
05-ENG	8	332	543	640	34	561		2,118	5.67
06-ARTY	101	511	1,851	633	412	1,129		4,637	12.42
07-INF	141	543	2,261	638	661	1,445		5,689	15.24
08-MED	36	123	225	122		319		825	2.21
09-ORD		173	694	262	130	561		1,820	4.88
10-QM	32	13	10	20		15		90	.24
11-SIG	13	261	978	196		232		1,680	4.50
12-AG		39	53	88		124		304	.81
14-FIN		1	21	1		50		73	.20
17-ARM	234	302	1,459	561	368	1,152		4,076	10.92
19-MP		123	324	86		347		880	2.36
20-GEN			5	3		1		9	.02
29-COMPOSITE	188	535	1,626	711	66	944		4,070	10.90
30-MI	49	168	848	148		174		1,387	3.72
31-SF	50	43	109	14		56		272	.73
32-SEC	18	79	490	69		50		706	1.89
33-PSY OPS		62	103	40		26		231	.62
34-CEWI	3	8	33	3		17		64	.17
37-MECH	76	85	160	38	1	117		477	1.28
41-CA		4	15	7		6		32	.09
44-ADA	3	425	1,701	554	580	841		4,104	10.99
45-PI			12			13		25	.07
52-CORPS		22	40	19		38		119	.32
54-LOG		6	9	28		22		65	.17
55-TRANS	131	147	636	165	3	318		1,400	3.75
57-ABN	93	93	286	94	2	116		684	1.83
67-AIR MBL	12	3	7	3		21		46	.12
77-SEP LT ING	3	6	21	7	5	8		50	.13
SUB-TOTAL	1,422	4,300	15,197	5,285	2,263	8,861		37,328	
PERCENT	3.81	11.52	40.71	14.16	6.06	23.74			

Table 3-2

TSARCOM (AVIATION)

EQUIPMENT DIFFERENCES BETWEEN TOE AND MTOE

TYPE ORGN	NR RECORDS IDENTIFIED	TOTAL QTY OF ITEMS AUTH BY TOE	TOTAL QTY OF ITEMS AUTH BY MTOE	TOTAL DIFF BETWEEN TOE AND MTOE
01-AVN	231	1,399	1,785	386
03-CHEM				
05-ENG	8	13	8	(5)
06-ARTY	101	274	0	(274)
07-INF	141	813	756	(57)
08-MED	36	291	248	(43)
09-ORD				
10-QM	32	1,530	7,367	5,837
11-SIG	13	21	45	24
12-AG				
14-FIN				
17-ARM	234	2,576	3,750	1,174
19-MP				
20-GEN				
29-COMP	188	33,940	52,316	18,376
30-MI	49	128	169	41
31-SF	50	1,212	1,200	(12)
32-SEC	18	0	69	69
33-PSY OPS				
34-CEWI	3	7	8	1
37-MECH	76	104	14	(90)
41-CA				
44-ADA	3	0	3	3
45-PI				
52-CORPS				
54-LOG				
55-TRANS	131	701	1,044	343
57-ABN	93	1,438	2,017	579
67-AIR MBL	12	60	72	12
77-SEP LT INF	3	31	12	(19)

Table 3-3

change increased item quantity, the additional items authorized by the MTOE mean that DARCOM will have to issue more equipment. At the same time, if the TOE authorized quantity has been decreased by a CCT publication, until the affected MTOE are updated, the MTOE quantity also will exceed the TOE quantity. But in the latter case, DARCOM can expect to have items turned in when the MTOE are changed to reflect the altered TOE. The TAADS data do not indicate which type of change has occurred. Therefore, the depiction of difference values, where MTOE quantities exceed TOE quantities, as positive, and the opposite situation as negative, was an arbitrary decision.]

5. Table 3-3 provided an example of how the volume of records translated into equipment differences for TSARCOM aviation items. The following appendices give the same tabular information for other commodities as indicated:

a. Annex D, Appendix 1: TSARCOM (Ground)

b. Annex D, Appendix 2: CERCOM

c. Annex D, Appendix 3: TACOM

d. Annex D, Appendix 4: MICOM

e. Annex D, Appendix 5: ARRCOM

6. Table 3-4 translates the volume of record change depicted in Table 3-2 into equipment quantity differences. The sub-totals indicated reflect net gain or loss in terms of MTOE equipment quantities when compared with the TOE authorized quantities. Where the MTOE authorization exceeds the TOE authorized quantities, a positive value is listed in the matrix. When the TOE quantity exceeds that of the MTOE, a negative value (i.e., set in parentheses) is listed. In this table, any and every equipment item change counts equally; that is, a tank, an aircraft, a bayonet, and a camouflage net are all valued the same in the matrix. The value of Table 3-4 is that it shows the magnitude of equipment variance, based on the USAMSSA furnished data, between equipment authorized

DIFFERENCE BETWEEN MTOE AND TOE EQUIPMENT QUANTITIES

TYPE ORGN	TSARCOM AIR	TSARCOM GRND	CERCOM	TACOM	MICOM	ARRCOM	SUB-TOTAL
01-AVN	386	(77)	77	69		378	833
03-CHEM		147	0	2	1	(18)	132
05-ENG	(5)	2,836	1,761	1,248	67	11,099	17,006
06-ARTY	(274)	3,441	3,679	734	908	5,073	13,561
07-INF	(57)	(4,722)	3,112	365	3,008	10,078	11,784
08-MED	(43)	(2,308)	413	292		6,344	4,698
09-ORD		516	326	(287)	(49)	205	711
10-QM	5,837	(156)	(5)	(22)		179	5,833
11-SIG	24	3,449	(1,408)	174		1,410	3,649
12-AG		(49)	(82)	(50)		(302)	(483)
14-FIN		2	(39)	(4)		904	863
17-ARM	1,174	2,109	4,108	864	1,232	12,579	22,066
19-MP		261	374	179		(5,941)	(5,127)
20-GEN			5	(1)		(3)	1
29-COMP	18,376	3,011	982	620	40	4,449	27,478
30-MI	41	519	2,748	306		3,249	6,863
31-SF	(12)	(22)	(291)	(35)		287	(73)
32-SEC	69	346	730	74		786	2,005
33-PSY OPS		(1,320)	(546)	(252)		(1,376)	(3,494)
34-CEWI	1	20	50	6		325	402
37-MECH	(90)	(246)	(248)	(46)	1	(121)	(750)
41-CA		(76)	(107)	(56)		(279)	(518)
44-ADA	3	2,307	350	(325)	1,362	(423)	3,274
45-PI			(12)			19	7
52-CORPS		170	7	13		238	428
54-LOG		6	(9)	(26)		(224)	(253)
55-TRANS	343	(238)	221	342	4	3,377	4,049
57-ABN	579	(352)	902	258	43	2,120	3,550
67-AIR MBL	12	18	64	9		27	130
77-SEP LT INF	(19)	(16)	(74)	(8)	20	(25)	(122)
SUB-TOTAL	26,345	9,576	17,088	4,443	6,637	54,414	118,503

Table 3-4

to units by their MTOE and the quantities authorized by level 1 of the TOE. Note that in terms of equipment items, as opposed to records indicating change, both ARRCOM and TSARCOM far exceed CERCOM's volume of change.

C. The Tactical Wheeled Vehicle Office of the US Army Logistics Center (LOGC) has been collecting and analyzing data on the Army 5-ton truck fleet over the past year. They sent personnel to HQ DARCOM's Equipment Authorizations Review Activity (EARA) and reviewed some 650 MTOE to collect change data. They collected and compared data on 5-ton fleet asset posture also. The LOGC study not only provides another view of the magnitude of the nonstandardization problem; it also lays bare another aspect of nonstandardization previously addressed only peripherally. That is the nonstandardization created when assets fall far behind equipment authorization levels. This study noted that a significant proportion of the nonstandard MTOE are caused when commanders do not change their MTOE to reflect changes to the TOE. This occurs because the assets are not available to implement the change. The LOGC data depict the magnitude of truck shortages. The data also show that substitute (i.e., "nonstandard") vehicles are issued, when shortages exist, from overage stocks. Pertinent information and data extracted from the LOGC 5-ton study are:

1. There are a total of 41 LIN included in the 5-ton truck family. These include the 5-ton 6X6 tactical fleet, the commercial substitutes for the 5-ton tractor, the GOER family, and the Heavy Expanded Mobility Tactical Trucks (HEMTT). The 5-ton truck appears on 463 TOE and there are 62 BOIP which impact the 5-ton fleet.

2. Table 3-5 compares LIN quantity requirements for TOE with assets available and shows the net result by subtracting requirements from assets. The fourth and fifth columns depict how nonstandardizing MTOE change further impacts

5-TON TRUCK FAMILY

REQUIREMENTS VERSUS ASSETS

LIN	NOMENCLATURE	TOE RQMTS (FY 81)	ASSETS ON HAND (FY 81)	ASSET POSTURE (ASSETS MINUS RQMTS)	MTOE MODIFI-CATIONS (RQMTS)	ADJUSTED ASSET POSTURE
J35663 J35698	6X6, GEN, 60KW, PU-700) 6X6, GEN, 45KW, PU-408)	96	59	(37)		(37)
J95384	8X8, VAN, GM BTRY CONT CEN	27	16	(11)		(11)
X39187	6X6, BOLSTER	7	22	15		15
X40794	6X6, CARGO, DROPSIDE	3,688	1,651	(2,037)	221	(2,258)
X40831	6X6, CARGO, LWB	4,844	2,709	(2,135)	1,270	(3,405)
X40931	6X6, CARGO, DROPSIDE W/WINCH	198	874	676	62	614
X40968	6X6, CARGO, LWB W/WINCH	1,825	3,215	1,390	1,125	265
X41105	6X6, CARGO, XLWB	540	490	(50)	(56)	6
X41242	6X6, CARGO, XLWB W/WINCH	379	452	73	(29)	102
X41310	8X8, CARGO	2,369	101	(2,268)	(595)	(1,673)
X41327	8X8, CARGO W/WINCH	36	179	143	(16)	159
X41615	GOER, CARGO	630	601	(29)	454	(483)
X41633	GOER, CARGO W/MHC	3,093	6	(3,087)	(1,309)	(1,778)
X41653	GOER, CARGO W/WINCH	54	172	118	(36)	154
X43708	6X6, DUMP	4,262	4,212	(50)	6	(56)
X43845	6X6, DUMP W/WINCH	1,130	2,879	1,749	5	1,744
X56586	6X6, STAKE W/WINCH	624	1,081	457	23	434
X58078	GOER, TANK, FUEL, 2500 GAL	548	313	(235)	(97)	(138)
X58093	GOER, TANK, 2500 GAL W/WINCH	423	90	(333)	(210)	(123)
X59326	6X6, TRACTOR	11,518	8,914	(2,604)	(833)	(1,771)
X59463	6X6, TRACTOR W/WINCH	310	2,907	2,597	173	2,424
X59505	8X8, TRACTOR W/WINCH	331	163	(168)	84	(252)
X60696	6X6, TRACTOR, WRECKER W/WINCH	352	217	(135)	35	(170)
X62081	8X8, VAN W/WINCH	8	0	(8)		(8)
X62237	6X6, VAN	792	389	(403)	31	(434)
X62271	6X6, VAN W/HYD LIFT GATE	68	201	133		133
X63299	6X6, WRECKER W/WINCH	2,755	2,966	211	299	(88)
X63436	GOER, WRECKER (10 TON)	466	102	(364)	(157)	(207)
	TOTALS	41,373	34,981	(6,392)	450	(6,842)

Table 3-5

this picture. Note that only 29 LIN are listed here; no developmental LIN (ZLIN) or active LIN not listed on a TOE were included. Note also that for the eleven cargo LIN (X40794, X40831, X40931, X40968, X41105, X41242, X41310, X41327, X41615, X41633, X41653) assets are 7,206 short of requirements. The MTOE adjustments for these eleven LIN add another 1,091 requirements. To further compound the shortage, in FY 83, the TOE requirements for 5-ton cargo trucks will increase by another 1,816 vehicles. GOER tanker shortages exceed half of the requirements, and only two-thirds of the van requirements have been procured. MTOE total adjustments depicted on Table 3-5 add up to a total increase in requirements of only 450 vehicles. However, 670 commercial XM915 tractors (Z95101) are also approved for addition to certain MTOE, so the actual net increase is 1,120 vehicles. (Total MTOE increases, including the 670 tractors, equal 4,458 vehicles, while MTOE reductions total 3,338.) Many MTOE adjustments simply reflect the exchange of unavailable GOER vehicles for 5-ton cargo vehicles; this occurred primarily in armor and artillery units and divisional truck companies. Most MTOE increases were approved for Pershing missile units, service batteries for 155mm howitzer battalions, cavalry units, and light/medium truck companies. The units, of course, all become nonstandard.

D. FORSCOM provided data which was derived from a survey of all armor, infantry, and artillery battalion MTOE within that command and which addressed how and why MTOE change occurs. Since the sample is restricted to combat elements of FORSCOM, it is not feasible to apply the results of the analysis to organizations assigned outside of FORSCOM, or to noncombat units assigned within FORSCOM. Too many external elements can impact these other organizations for the results to be valid. The FORSCOM data identified all MTOE which varied from their TOE in terms of equipment. For each MTOE which did vary from the

TOE and was, therefore, nonstandard in accordance with FORSCOM policy, all affected LIN were listed. Then FORSCOM identified the reason that each LIN varied from the TOE (the standard) as either "unit initiated" or as "directed by a CCT." Fifty-five armor, artillery, and infantry MTOE were identified as nonstandard; thirty-three of them were level 1 units (i.e., 100% of the TOE level 1); twenty-one were level 2 (i.e., 90% of level 1); and one unit level 3 (i.e., 80% of level 1). [Variation of the MTOE from the TOE is based on the difference between the MTOE authorized quantity and the equipment quantity authorized by the TOE level indicated, i.e., 1, 2, or 3.] Table 3-6 depicts the data produced through analysis of the FORSCOM survey. These data indicate that about 45% of the LIN changes contained in the nonstandard FORSCOM combat units resulted from actions on the part of the unit to modify its own organization. The other 55% resulted from the lack of unit action to update the MTOE after the TOE has been changed and the change published in the CCT.

Unit Initiated Versus CCT Directed LIN Changes

ALO (level)	No. MTOE	Total No. LIN Changes	Unit Init. LIN Changes	Percent Unit Init. LIN Changes	CCT Dir. LIN Changes	Percent CCT Dir. LIN Changes
1	33	788	354	44.9%	434	55.1%
2	21	751	330	43.9%	421	56.1%
3	1	112	112	100%	0	0
Totals	55	1651	796		855	

Table 3-6

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

XII. Findings.

A. It is clear that planners must be allowed to plan and implement change indicated by evolving technology, political shifts and changing military strategy or tactics. Such change inevitably creates nonstandard organizations, and while it is clear that all like organizations cannot be identical, a proliferation of nonstandard organizations now exists. In FORSCOM the number of nonstandard organizations--that is, units in which the authorized equipment varies either in type or in quantity from the TOE--approximates fifty percent; 1,049 nonstandard units were identified.

B. Nonstandard MTOE, and thus nonstandard organizations, are created in two basic ways. The first occurs when a commander in the field perceives a need to alter his organization and requests a modification of the unit MTOE. The reasons for such a change are normally based on unusual mission requirements or special weather or terrain conditions. If the change request is approved by DA or the MACOM, the unit commander may alter the MTOE and either draw additional equipment or turn items in. The second way that a nonstandard unit is created can occur when TOE changes are published. Existing regulations state that when TOE are changed, commanders of affected units must alter their MTOE to reflect the change within six months. As long as the MTOE is not adjusted to reflect the TOE, the unit is nonstandard. In June 1978, this regulatory requirement was waived by DA DCSOPS. Since that time, a large number of organizations have become nonstandard as commanders take advantage of the waiver. In FORSCOM, analysis of the nonstandard tank, infantry, and artillery organizations indicated that some 55% of the nonstandard units resulted from the nonadjustment of MTOE.

If the 55% were applied to all nonstandard FORSCOM units identified in this study, about 570 of FORSCOM's units would be nonstandard because commanders have not updated their MTOE; this number approximates one quarter of FORSCOM.

1. The requirements for and the process of unit initiated change are too easy and too often are oriented on the likes and dislikes of the commander rather than organizational need. Because of this, succeeding commanders frequently undo their predecessors' modifications. The current ease with which MTOE can be modified by commanders contributes greatly to the turbulence due to change now being experienced within the Army. When a large number of commanders alter their MTOE, turbulence is created within DARCOM and the MACOM. If items are to be turned in, the MACOM may choose to redistribute those assets within the command; retention of equipment relinquished by a unit within the MACOM is not unusual. If they are turned in to DARCOM's Depot Systems Command (DESCOM), the items must be held until the materiel manager can schedule either maintenance or disposal action or redistribution to another theater. At the very least, the unexpected turn-in of these assets will cause DARCOM to expend monies which had not been programmed; examples are unprogrammed transportation, inspection, inventory control and maintenance costs attendant with DESCOM's receipt of such items. And, a number of problems can be created for the MRC. If the items unexpectedly turned in require depot maintenance, repair parts, spares, maintenance facilities and man-hours will be consumed. If the number of such items is large, the resources programmed to support the depot maintenance requirements can be depleted too early in the fiscal year. If a large number of items are returned to serviceable condition unexpectedly, the materiel manager may have more of them in stock than he can use, thereby increasing his inventory costs. Procurement

actions are initiated far in advance of the date equipment is received, and they are difficult and costly to change; this means that even though the materiel manager has excess stock, programmed procurements will continue, thereby exacerbating the excess condition.

2. If, on the other hand, additional items are authorized to a unit, the MRC will issue the items. They cannot be identified as "nonstandard;" therefore, the materiel manager would handle these requisitions as he would any other. That is, the requisition would be validated, i.e., checked to determine whether the requesting unit is authorized to draw the items; and if the equipment is in stock, it will be issued. (When the items are in short supply, the unit's standing on the DAMPL will determine which requisitions will be filled). If a large number of nonstandard organizations are created which require the issue of additional equipment, the materiel manager can suddenly find himself short of stock or with no items in stock. When this happens, the MRC is unable to fill requisitions and often the materiel manager will undertake extraordinary measures to correct the shortcoming. Extraordinary measures are invariably costly and create a crisis atmosphere with its spate of "catch-up" actions.

3. The second category of nonstandard MTOE are created when commanders opt not to modify MTOE to reflect TOE changes. In this case, the Army as a whole is affected. The June 1978 DA DCSOPS message waiving the requirement of AR 310-31, to bring MTOE back into consonance with their TOE within six months of the publication of TOE changes, sought to alleviate a unit status reporting problem. The problem occurs when a MACOM commander alters his MTOE because of a TOE change and then discovers that additional equipment authorized by the modification is not available for issue. In a climate of funding constraints and shrinking industrial capacity, it is not unusual that the acquisition of needed equipment must be deferred for long periods. When a unit MTOE is

modified to reflect a TOE change, and additional equipment is authorized but is not available for issue, the unit readiness report will reflect a degraded unit status report posture. This is true even though the unit's equipment posture has not changed in the slightest; AR 220-1 causes the commander to report unit status based on comparisons of the MTOE required quantity with the equipment on hand in the unit. Commanders facing this dilemma convinced DA DCSOPS that it made sense not to adjust MTOE until assets were available to implement specified change. Unfortunately, this seemingly sensible move has adversely affected the Army procurement system and has eliminated any single standard for unit status reporting. Each year, using PPBS, the Army identifies the gross requirement of equipment needed to outfit the programmed force. This figure is based on the total of equipment items listed in the Required Column of all MTOE in the active Army and the reserve components. The Required Column is intended to reflect the TOE level 1 column, plus any DA authorized changes. It is this figure which is then refined to determine what we need to buy each year, and what we can afford to buy. When the MTOE are not altered to reflect TOE change, the base figure derived from totaling the MTOE Required Columns does not reflect the true, wartime needs of the Army as currently stated. Consequently, too many of some items and too few of others will be procured. As the number of nonstandard MTOE in this category increase, the true equipment needs of the Army and what is annually purchased will diverge more and more.

C. Both the equipment acquisition and distribution processes have a system of prioritization established, but they are separate and uncoordinated. Under normal circumstances, this does not cause DARCOM great problems. However, when MTOE are altered to add equipment, if the TOE have not been changed and the units affected have a high distribution priority listing, it is possible for the distribution priority system to pervert the acquisition process. This occurs

when items purchased as components of an equipment system are issued instead to the field. When this happens, DARCOM finds itself short of the equipment system which has been rendered incomplete; it also must store the incomplete systems and reacquire the missing components before they can be issued.

D. Increases in POMCUS stocks, coupled with the current system of acquiring equipment for POMCUS (i.e., CONUS unit drawdown) and the system for distributing scarce assets, have combined to produce problems for the depot maintenance system. Essentially, both the system to drawdown a unit for POMCUS stocks and the system to distribute scarce resources employ the same philosophy. That is, the unit having the most combat essential mission will be the last to have equipment withdrawn and the first to have a requisition filled, and vice versa. Therefore, an organization with a low priority in terms of combat essentiality not only can have equipment withdrawn--about 50% of it in some cases--but also is so low in the distribution priority system that its valid requisitions will not be filled if the needed items are in short supply. Therein lies the crux of the DARCOM depot maintenance problem. When the low priority unit turns in an item for depot level maintenance, if the equipment is in short supply and a valid requisition exists from a higher priority unit, the item turned in will not be returned. In accordance with the current asset distribution policy, the equipment will be repaired and then issued to the organization having a valid requisition which has the highest DAMPL priority. Knowing this, commanders of low priority units are not turning in equipment when it is in need of depot level maintenance. The impact on DARCOM is multi-faceted. The expected number of items to be turned in for repair does not materialize. This means too many resources have been programmed for depot maintenance, e.g., excess repair parts and spares which must be maintained in stocks, idle maintenance facilities,

etc. It also means that fewer assets are available for the item manager to issue and that a growing number of aging and unreliable items remain in the field. This trend will impact future estimates of maintenance returns. The estimate is primarily based on the average number of maintenance returns over the preceding three-year period. A significant reduction in maintenance returns, because commanders do not want to lose equipment, will result in lower estimates in the future. If those aging assets in the field are placed suddenly, and as a group, back into maintenance channels, the requirement could exceed DARCOM capabilities and funds. This is especially true if the funds and resources available for depot maintenance services are reduced to reflect the current lowered demand.

XIII. Conclusions.

A. About fifty percent of the FORSCOM units are nonstandard in that they differ from the TOE in equipment type or quantity. Of the nonstandard units, about half are created because of TOE changes that are not reflected in the MTOE. This occurs because the requirement to adjust the MTOE to reflect TOE changes was waived by a DA DCSOPS message in June 1978.

B. The remaining nonstandard units are created by their commanders when they perceive a need for organizational change. The reason for change is normally based on special requirements of mission, climate, or terrain. However, many changes seem to be based as much on the commander's whim as on actual need; the authorization process does not filter out such change requests effectively.

C. The lack of coordination between the acquisition and distribution priority systems, in combination with the creation of certain nonstandard organizations, can subvert DARCOM efforts to acquire and issue equipment systems.

D. Increases in POMCUS stocks are causing FORSCOM to draw down low priority units in order that the required equipment can be made available. In

addition to the obvious detrimental effect--creating under-equipped, nonstandard units--the drawdown has caused a reluctance on the part of the affected unit commander to release his remaining equipment for depot maintenance. This failure to send equipment in for maintenance results in DARCOM having currently over-estimated the resources required for the depot maintenance program. It also may result in the underestimation of resource requirements if commanders should, as a group, turn in the equipment in need of depot maintenance. Finally, DARCOM must support the aging and increasingly unreliable fleet which is the result of avoiding required maintenance. These problems will remain as long as POMCUS stock increases are dependent upon active and reserve organizations as a source of equipment.

XIV. Recommendations.

A. Rescind the DA DCSOPS message of June 1978, waiving the requirement to bring affected MTOE into consonance with altered TOE and establish another method of coping with the unit readiness reporting requirement. If this is not possible, then either develop a system of amending the MTOE Required Column to reflect TOE changes, without degrading the unit readiness report, or alter the system of computing the Authorized Acquisition Objective to reflect the program force to include the latest TOE changes.

B. Tightly control command initiated MTOE changes at HQDA and approve a change request only if the need is proven. Once approved, the process to revert back to the original MTOE configuration should be as difficult and demanding as the initial process of change.

C. Analyze, in depth, the distribution and acquisition priority systems with the goal of providing a better coordinated procurement and distribution of equipment.

ANNEX A APPENDIX 1

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND
5001 EISENHOWER AVE., ALEXANDRIA, VA. 22333

DRCPS-P

22 NOV 1978

Ecm FD-OD
11/30 - Prepare Response!
Ec

Lieutenant General E. C. Meyer
Deputy Chief of Staff for Operations
and Plans
Department of the Army
Washington, DC 20310

Dear General Meyer:

During my recent trip to Europe it was brought to my attention that massive changes of MTOE's are creating serious problems in the effective management of our POMCUS stocks. According to USAREUR, in FY 77, over 37,000 changes were required to POMCUS stocks as a result of MTOE changes. There are other problems. Changes in MTOE's cause massive changes to computer data, retard our efforts to fill POMCUS and operational projects, and cause turbulence in our war reserve, supply and spare parts computations. As we increase POMCUS equipment in Europe and seek to fill our war reserve requirements, the impact of MTOE changes threatens to become unmanageable.

It is recognized that the original purpose of MTOE's was to make allowances for differences in missions and operating environments and effect cost savings through elimination of unneeded items. They have become, however, a mechanism for each commander to impose his personal desires upon equipping his unit. While some latitude in organizational structure and equipment may be valid, the volume of change, and the resultant turbulence in the logistic system, dictates more intense management. It is therefore strongly urged that the Department of the Army seek to attain maximum uniformity of MTOE's consistent with mission requirements and establish stringent controls limiting changes and variations. The ultimate objective should be a single TOE for each type of unit.

Sincerely,

JOHN R. GUTHRIE
General, USA
Commanding

CF:
DCSLOG
CINCUSAREUR
Cdr, FORSCOM

Cy furn: Gen Richardson
Gen Faith
Gen Cavazos

ANNEX A APPENDIX 2

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS
WASHINGTON, D.C. 20310

REPLY TO ATTENTION OF: DAMO-FD

14 DEC 1979

SUBJECT: Standardization of Units

Commander
US Army Materiel Development and Readiness Command
5001 Eisenhower Avenue
Alexandria, VA 22333

1. Based on the results of the recent HQDA Commanders' Conference and discussions in other forums, it has become increasingly apparent that our policy and procedure for controlling TOE changes and the resultant changes to MTOE must be examined in detail. Most of these changes such as updates to asset classification/coding systems (MOS, LIN in SB 700-20, AMSCO), doctrinal changes to structure, and equipment additions/conversions are essential. Others are questionable at least in terms of the frequency and scheduling of their application to TOE and MTOE.

2. A second major requirement is a need to define the degree of control over variances in MTOE for like units (such as maneuver battalions) which is needed to improve operations and asset management. Some of these variances (e.g., ALO differences, phased modernization of structure and equipment, and ILO equipment) are clearly required and have great utility as management policy and procedure. On the other hand, there are others for which there is no apparent logic.

3. This office has been tasked to examine unit stability and standardization in detail, to define clearly the problems, and to recommend the degree to which control over unit change actions is needed. An implicit task is to strike a well-reasoned balance among operational, logistical, and personnel management considerations which opt for or against unit structure stability and commonality among like units.

4. We need your assistance to get into the problem. Specifically, it is recognized that under current conditions, POMCUS management, repair parts stockage levels, maintenance operations, and other logistics functions are impacted, but the degree of impact in terms of dollars, manpower, and readiness is undefined. Therefore, specific data on the current costs of change application and non-standardization are solicited along with

DAMO-FD
SUBJECT: Standardization of Units

comments and recommendations on controlling TOE stability and variations among like units.

FOR THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS:

DWIGHT L. WILSON
Brigadier General(P), GS
Director, Force Management
ODCSOPS

for

ANNEX B

DEVELOPMENT AND APPROVAL OF TOE CHANGES

(Extracted from the Implementation of Change study, paragraph 3-2)

"a. The Nature of Change....

(3) ... The study team first selected seven TOEs and analyzed all changes applied during the period November 1970 to October 1978. The TOEs were selected randomly, but both combat and support units were included. TOEs analyzed were:

(a) 05-147, Engineer Company, Engineer Battalion (Mechanized/Armor Division).

(b) 06-366, Headquarters and Headquarters Battery, Field Artillery Battalion, 155mm, Self-Propelled.

(c) 06-367, Firing Battery, Field Artillery Battalion, 155mm, Self-Propelled.

(d) 07-047, Rifle Company, Infantry Battalion, Mechanized.

(e) 17-037, Tank Company, Tank Battalion, 105mm.

(f) 29-208, Maintenance Company, Rear, Direct Support.

(g) 55-084, Transportation Motor Transport Company (Mechanized Division).

(4) During that period of time, 18 change documents were applied to these TOE (four CCTs were published in 1972). The changes included such major actions as:

(a) The Enlisted Personnel Management Study (EPMS), which changed the MOS structure for all enlisted spaces in every TOE (MOS change process).

(b) The Officer Personnel Management Study (OPMS), which changed the MOS structure for all officer spaces in every TOE (MOS change process).

(c) The Fire Support Team Concept (FIST), which affected fire direction functions in many TOEs (Doctrinal change process).

(d) The Special Analysis of Net Radios (SPANNER), which impacted on communications equipment in many TOEs (Doctrinal change process).

(e) The Consolidation of Administration at Battalion Level (CABLE), which reorganized administrative functions in battalion TOEs (Doctrinal change process).

(f) Numerous Basis of Issue Plans (BOIP), which impacted on many TOEs depending on the equip... ...being fielded (BOIP process).

(5) As a result of these and many other actions during the timeframe examined, there were 1,845 changes made to the personnel sections of the seven TOEs; an analysis shows the types of change distributed as shown in Table 3-1.

Table 3-1. Distribution of Personnel Changes
(seven selected TOE)

	Percent
Personnel lines added or deleted	10.8
Grade change	3.8
Level 1 strength change	7.2
Level 2 strength change	7.8
Level 3 strength change	7.7
Augmentation strength change	1.2
Cadre strength change	2.0
MOS change	26.6
Title change	14.6
Remarks change	16.1
Branch change	2.2

During the same timeframe 4,439 changes to the equipment sections of the seven TOEs were identified as shown in Table 3-2.

Table 3-2. Distribution of Equipment Changes
(seven selected TOE)

	Percent
Equipment lines added/deleted	41.1
Level 1 quantity change	9.4
Level 2 quantity change	10.6
Level 3 quantity change	10.6
Equipment Readiness Code (ERC) change	26.0
Description only change	0.7
Remarks change	1.6

It should be noted that there are 434 company level units organized under these seven TOEs in the Active Army alone. Thus, the 6,284 total changes for those seven TOEs generated a large volume of change to MTOE units...."

ANNEX C

COST ANALYSIS

1. During the period February to August 1980, LSO undertook to perform a cost analysis of the effect of nonstandardization of MTOE upon DARCOM. The problem of costing was found to be great in scope and very complex. In order to make the analysis more manageable, certain arbitrary parameters were established. These were:

a. Only FORSCOM units would be considered initially. This decision was made for two reasons. First, FORSCOM units represent about 50% of the total force, and secondly, HQ FORSCOM uses the TOE as the standard for FORSCOM organizations. (A second stage analysis was to have encompassed USAREUR, but was cancelled when the study effort was redirected.)

b. The cost analysis considered only active Army units. This was done primarily to reduce the number of units and types of equipment to be analyzed to more manageable proportions.

c. The analysis was made on data which compared the level 1 column of the TOE, including CCT 300-68, with the authorized column of the MTOE. The data were provided from the U. S. Army Management System Support Activity (USAMSSA) by the Force Development Directorate of the Office of the Deputy Chief of Staff for Operations and Plans, Department of the Army (DAMO-FDP). Regarding these data, the following must be clearly understood:

(1) Changes to MTOE and to TOE are constantly occurring. Consequently, the data derived from the TAADS tape are also subject to frequent change. These data, which compared the MTOE of all active FORSCOM organizations with their respective TOE, represent a "snapshot" of a constantly changing picture. A data call for the same information made at a subsequent date--or an earlier date--no doubt would result in the production of significantly different data. Thus, cost figures derived from these data should be viewed only as indicators of the order of magnitude of the turbulence resulting from MTOE nonstandardization.

(2) Data extracted from the TOE represent equipment quantities authorized in the level 1 column of the document. These figures indicate the minimum essential equipment quantities necessary for the organization to sustain operations in a combat environment. The equipment quantities indicated in the authorized column of the MTOE are those quantities which the unit may requisition and maintain; it does not indicate an organization's asset posture. An MTOE may authorize a unit to have ten items, while--for myriad reasons--the unit has less, or perhaps more, than ten items on hand. These data do not address this problem.

d. What the data can illustrate is how much it would cost DARCOM to bring all nonstandard organizations back in line with the TOE, presuming:

(1) We start with organizational equipment quantities, as frozen in the "snapshot," which was taken off of the TAADS file.

(2) All units are to be made identical to the level 1 of the TOE. [This obviously is not going to happen to all units. Some organizations are modified to meet extreme climatic conditions, e.g., Alaska and Panama, while others have unusual mission requirements which will not change even during periods of national emergency.]

(3) Both monies and industrial capacity would be made available to enable necessary procurement to take place within a reasonable time frame. [The MRCs, in addressing acquisition costs, used FY 80 or FY 81 dollars. Any item requiring a long lead time, considering the inflationary trend, will cost more.]

e. There are two ways that the MTOE may differ from the TOE. These data include both. They are:

(1) The unit commander, because of mission or climate, requests an MTOE change for his organization and it is approved, or

(2) A TOE change is approved and published in TRADOC's semi-annual Consolidated Change Table (CCT) and the MACOM commander does not alter his MTOE to bring it back in line with the TOE. The Army regulation (AR 310-31, paragraph 1-24a) states that the time period allowed for reorganizing a unit, after its TOE is revised, should not exceed six months. However, in June 1978, DA DCSOPS distributed a message to units world-wide which authorized organizations to delay changing their MTOE if the assets required to effect the CCT directed change are not available. Today, a significant proportion

of those units which vary from the TOE do so because CCT directed changes have not yet been incorporated into the applicable MTOE.

2. The data provided by DA ODCSOPS came in the form of a printout and a magnetic tape; they identified all FORSCOM units which varied from the TOE (through CCT 300-68), in terms of equipment, in any degree. A total of 1049 organizations were identified in this category; there are about 2000 separate, identifiable units in FORSCOM. The original printout listed each such nonstandard unit by UIC and applicable TOE, and followed this information with a list of each item, identified by LIN, nomenclature, MTOE authorized quantity, and TOE authorized quantity where the MTOE and the TOE differed in equipment quantities. In many cases the list of equipment items were pages long.

3. Through use of the computer, the DA furnished data were rearranged to provide a list of items, identified by LIN and nomenclature; in turn, each item was followed by a list of organizations (i.e., UICs) in which that equipment item varied in terms of quantity from the TOE level 1 authorization. The equipment lists were also grouped by commodity code to identify the DARCOM Materiel Readiness Command (MRC) which was responsible for the management of each item.

4. The equipment lists were given to the appropriate MRC for analysis. Additionally, the MRC were instructed to:

a. "Identify and compute the total number of supply actions, i.e., requirements versus items for turn in. Determine the net total; that is,

requirements versus turn ins. If requirements outnumber turn-ins, presume procurement will be necessary; if turn-ins outnumber requirements, presume that excess items will be returned to DARCOM for renovation and return to the depot system, or for disposal action. Presume that FORSCOM will redistribute all other assets at no cost to DARCOM.

b. Count all instances where an organization required additional equipment. Assume that each indicated requirement would result in a single requisition which must be processed by the MRC. Unless local data can provide more accurate factors, presume each requisition to cost one-quarter man-hour of effort for a GS-9, step 6 (October 1979 schedule).

c. Determine costs to maintain/renovate/rebuild items turned in, minus that percentage of items which can be expected to be disposed of through salvage.

d. Determine second destination transportation costs for items turned back to DARCOM; e.g., movement to maintenance facility, movement to depot for storage, movement to Property Disposal Facility, etc.

e. Include any other administrative or overhead costs which are appropriate for inclusion.

f. To determine acquisition costs, use equipment costs listed in the latest SB 700-20 (Chapter 2); multiply this figure by 1.097 to adjust for inflation. If a more accurate factor applies locally, use that.

g. Throughout, use the best information available, If, for instance, the data indicates procurement of an item that will no longer be procured, make a logical adjustment. Use the same rationale throughout the analytical process. Show how cost figures were derived."

5. The USAMSSA furnished, commodity grouped data were supplied to the DARCOM MRC, with the guidance set forth in the preceding paragraph. The MRC were asked to determine what it would cost them to convert the nonstandard units back to standard. Because of the scope and complexity of the analysis, the study agent visited three commands (ARRCOM, MICOM, and TSARCOM) to assist the analysts there determine costs. Before visits were made to the remaining MRC (CERCOM and TACOM), the focus of the study was shifted, and the cost analyses there were stopped.

6. Cost analyses were completed by the commands visited. Each MRC did modify the guidance furnished to more closely correlate with the situation and conditions affecting their materiel. Based on the "snapshot" data provided and in conformance with the conditional instructions furnished, these MRC estimated the cost of converting all nonstandard units in FORSCOM to standard; i.e., level 1 of the appropriate TOE, in terms of their own materiel, to be:

a. ARRCOM: $60,734,676. (Annex C, Appendix 1)

b. MICOM: $216,981,068. (Annex C, Appendix 2)

c. TSARCOM: $484,900,000. (Annex C, Appendix 3)

ANNEX C

APPENDIX 1

COST ANALYSIS AND SUMMARY
(ARRCOM MATERIEL AND SUPPORT COSTS)

A. REQUISITIONS: PA 2,201
SF 886
TOT 3,087

PROC ACTIONS: PA 59
SF 37
TOT 96

TOT ITEMS REQ: 38,770

TOT ITEMS PROC: 8,723

TOT ITEMS FROM STOCK: 30,047

B. ACQUISITION (PROC) COST:

PA	$54,426,099
SF	515,496
TOTAL	$54,941,595

C. REBUILD COST:

PA	$5,213,500
SF	282,081
TOTAL	$5,495,581

D. TRANSPORTATION COST:

PA & SF $297,500 (2,975 Tons X $100/Ton)

COST SUMMARY:

TOTAL ACQUISITION (PROC)	$54,941,595
TOTAL REBUILD	5,495,581
TOTAL TRANSPORTATION	297,500
	$60,734,676

METHOD OF COSTING:

A. Requisitions and procurement actions identified from analysis of Incl 4, and portrayed at Incl 6.

B. Acquisition (Proc) Cost: Unit Cost (from SB 700-20, Jan 80) x 1.097 (inflation rate of 9.7%) x no. required. This product x 1.245(245% for acquisition, receipt, storage and issue. Source: DODI 7410.4 and proposed changes thereto, and TT, DRCPA-R, R 212030Z Mar 80).

C. Rebuild Cost: Unit cost (from SB 700-20, Jan 80) x 44.4% (rebuild rate factor for these types of equipment. Source: Mr. Jay Kipling, DRSAR-MM) x no. of items required.

D. Transportation Cost: Total weight x $100/Ton. Source: Messrs. Robert Surkein and Al Taylor, DRSAR-TM.

	LIN		Requisitions		Required	Unit Cost	Acquisition Cost	Renovation Cost	ABA	LCC	NO. OF ITEMS	WT/EACH	TOT WGT			
Aiming Circle	A22496		4			$ 1,262		$ 7,313	J	A	13	21	273			
[illegible]	A32060		9			2,091		27,852	Q	A	50	25 lb	675			
" [illegible]	A32316		28		10	2,703	$ 24,652	109,212	Q	A	101	104 lb	10,504			
" portable [illegible]	A32341		24			2461		7,247	Q	A	66	123 lb	8,118			
" portable [illegible] 3/4 Ton	A32508		10			1944		12,083	Q	A	14	133 lb	1330			
" portable [illegible] 2½ Ton	A32540		12		19	2,459	37,2?3	39,304	Q	A	55	133 lb	1596			
" [illegible]	A32556		9			3,000		46,620	Q	A	35	144.5 lb	5058			
" [illegible]	A32564		5		18	2380	46,995	2,113	Q	A	20	120 lb	600			
" [illegible]	A32568		27			3,071		59,995	Q	A	44	133 lb	5852			
" [illegible]	A32570		96		69	2298	173,943	24,488	Q	A	93	143 lb	13,319			
" [illegible]	A32572		35		26	3109	88,695	53,835	Q	A	65	132 lb	8,580			
[illegible]	A33160		27		50	76	4169	1181	2	A	85	5 lb	425			
[illegible]	A34335		12		204	222	49,680		U	A	204	2	408	[illegible]	[illegible]	
[illegible] 7.62 [illegible]	A89820		1		7	16,780	18,408		A	A	7	245	715			
[illegible]	A89912		1		12	44,865	590,603		A	B	12	1100	13200			
[illegible] 7.62 [illegible]	A90118		14		-	2,368		25,234	A	A	24	45	1,080			
[illegible]	A90123		7		41	1,808	81,319	38,532	A	A	89	80	7,120			
[illegible]	A90155		1		10	22,149	242,925		A	B	10	245	245			
[illegible] 7.62 [illegible]	A90314		4		16	1248	21,904		A	A	16	50	800			
Bayonet-Knife W/Scabbard	B49272		300			9		39,213	2	A	9,813	2	19,626			
[illegible]	B67[illegible]		9		135	196	29,027		2	B	135	2	270			
[illegible] 7x50	B67218		4		7	201	1544		2	B	7	2	14			
[illegible]	B67[illegible]66		88			223		49,209	2	A	497	2	994			
[illegible]	B67721		1		1	[illegible]	[illegible]	188	2	A	3	2	6			
[illegible] Rifle	B68790		43			[illegible]		331	2	A	149	2	298			
[illegible]	[illegible]	[illegible]	1			[illegible]		236	2	A	1	161	161	4940-	[illegible]	[illegible]
[illegible]	C10[illegible]		1			641		569	3	A	2	2	4			
			61?	[illegible]			[illegible]	[illegible]			10,690		101,261			

C-1-3

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[illegible]	LIN	[illegible]	[illegible]		Requirement	Unit Cost	Acquisition Cost	Renovation	ABA	LCC	No. of Items	Wt/Each	Tot Wt			
Calculator Radiac	C71370	EC DofA	1			81		36	2	A	1	12	12			
Charger Battery	D98825		29		16	2024	35,535	14,379	U	A	32	87	2784	6130-00	-169-	3874
[illegible]	E33466		29		30	1445			U	N	30	815	24,450			
Collective Prot Equip CBR	E52412	[illegible]	4		8	13,900	121,986	30,858	Q	A	13	4230	54,990	4240-00	-061-	1549
Compass Magnetic Unmounted	E63728		38			70		6627	2	A	210	½	105			
[illegible]	E74037		3		2	1160	2545	515	J	A	3	126	378			
Computer Gun direction M18	E76166		24		20	46,965	1,030,412	83,410	J	A	24	200	4800			
[illegible]	F81880	J001	4		32	2,462	262,122		Q	A	32	4170	133,440			
Sequencer	F86209		5			374		852	2	A	7	350	2450	4910-00	-449	[illegible]
Demolition Set Explosive	F91490	[illegible]	14			634		10,528	2	A	38	68	2584	1375-00	-047-	3750
" " "	F91627		3			57		1391	2	A	58	10	580	1375-00	-047-	3751
Dispenser [illegible] control	G22346	[illegible]	2		4	710 (F)			J	F	4	96	384			
" " "	G22348	"	1		1	724	794	643	Q	A	3	54	162			
Encl Electromagnetic Shielding	H07860		1		1	2000			U	B	1	2630	2630	4940-00	-342-	3002
Filter Unit Gas Particulate	H[illegible]18		1		1	419	460	372	Q	A	3	138	414	4240-00	-203-	3999
Fire Direction Set Artillery	H55706	[illegible]	12		50	374	20,514	664	2	A	54	165	8910	1290-00	-299-	[illegible]
" " " "	H55843		2			376		1169	2	A	7	165	1155	1290-00	-299-	6892
Hoisting Unit Truck Mounting	K39721		2			822		730	2	A	2	34,500	69,000			
Jack Dolly type Hydraulic	L08587		1		2	385	845		2	A	2	273	546	4910-00	-576-	3806
" " "	L08724		19		44	550	26,547		2	A	44	343	15,092	4910-00	-289-	7233
Jack Dolly type Pneumatic	L08998		1		1	620	680		2	A	1	950	950	4910-00	-528-	4573
Launcher Grenade 40mm	L44525		6		12	222	2,922		J	A	12	6	72			
" " "	L44595		114			214		35,061	J	A	369	3	1107			
Launcher Grenade Smoke M250	L44680	[illegible]	1		54	1430	84,118		J	A	54	110	5940			
Launcher Rocket [illegible]	L44997	[illegible]	3			33		169	K	A	32	122	3,904	[illegible]	[illegible]	[illegible]
Launcher Rocket 66mm [illegible]	L45240	[illegible]	3			822		6434	J	A	19	14	266			
Light Ignition Timing	L61939		4		16	[illegible]	716	102,641	2	A	16	9	144			
			327	[illegible]			[illegible]	182,641 / 21,897 / 194,538			1,071		337,249			

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			Requisitions		Required	Unit Cost	Acquisition Cost	Quantity	ABA	LEC	No. of Items	WT/Each	Tot WGT			
Mach Gun Cal .50	L91701		1		52	$8,530	$486,585		J	A	52	110	5720			
" " " "	L91839		105		3768	8,118	27,616,771	36,044	J	A	2777	110	305,580			
" " " "	L91975		44			9714		34,728	J	A	79	110	8,690			
" " " "	L92112		1			14,324		38,159	J	A	6	110	660			
Mach Gun 7.62 mm	L92260		20			957		76,483	J	A	180	24	4320			
" " " "	L92352		1			2,341		11,565	J	A	6	24	144			
" " " "	L92386		63			4,400		119,969	J	A	193	24	4632			
Magnifier	L93934		7		3	63	205	112	2	A	7	3	21			
Mask: Protective tank	M10936		46			.78		12,004	Q	A	491	3	1,473			
Mask: CBR	M11621		46			47		10,163	Q	A	487	3	1,461			
Mask, Protective	M11689		60		680	15.86	11,832		2	A	680	3	2,040			
Mask, ECT	M11895		271			58		179,620	Q	A	4,975	3	29,925			
Mortar 60 MM	M67871		2		12	5,335(8)			J	B	12	46	552			
Mortar 81 MM	M68008		37		329	4590	1,656,591	8,152	J	A	333	107	35,631			
Mount Gun	M74364		5			615		6,280	2	A	23	15	345			
Mount Gun; 7.62 MM	M74618		2		3	213	701		2	A	3	15	45			
Mount Tripod Machine Gun	M75577		75		1061	343	399,322	13,403	J	A	4,346	44	59,224			
" " " "	M75714		57			259		26,104	J	A	227	44	9,988			
Mounter/Demounter Pneumatic	M76101	[illegible]	14		14	2,170	37,934	-	Q	A	14	1000	14,000	4910 00-	675-1478	
Periscope Rallying Permanent	N82364		10		6	11,681	74,884	62,236	J	A	18	56	1,008			
Pistol Cal .45 Automatic	N96741		236		954	57.30	60,128	60,852	J	A	3,317	3	9,951			
" " " "	N96878		2		40	125	5,185		J	A	40	3	120			
Pistol Pyrotechnic	N97015		6			22		180	J	A	15	3	45			
Plotting Bd Flash Range Fire Control	P07626		5		10	2950	52,326		J	A	10	276	2760			
Plotting Bd Indirect Fire	P07753		3			9		12	2	A	3	1	3			
" " " "	P07900		7			82		4,092	2	A	30	4	120			
Plotting Set Sound Ranging	P09855		6			2,416		13,4[illegible]	J	A	12	30	360			
			1132	1048 41			30,492,925 FA [illegible] 30,459,314	737,787 FA [illegible] 745,563			12,332		458,818			

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			Requisitions		Requirement	Unit Cost	Acquisition Cost	Renovation	A/C	LOC	NO. OF ITEMS	WT/ EACH	TOT WGT		
[illegible] Hyd	P43608	"	2			9701		8,615	S	A	2	15	30	1135-00-929-2361	
[illegible] Fire Control	Q03468		62		424	7,384	7,123,092	4,009	2	A	432	2	864		
[illegible] Repair Shop [illegible]	Q13633	[illegible]	1			33,851		30,149	J	A	2	750	1500	4931-00-435-7746	
Radar Chronograph Set	Q13770	[illegible]	2		4	24,528	102,629		J	A	4	426	1,704	1290-00-861-7105	
Range Finder Fire Control	R12989	"	18			11,912		359,647	J	A	68	78	5,304	1240-00-921-5538	
Radar Maint Shop Suppl Equip	R14139	[illegible]	1			7,137		1010	2	A	2	300	600	5782-00-484-3[illegible]	
Recovery Veh Full Tracked	R50544		42		46	168,197	8,482,557	4,992,307	H	A	70	50,000	3,500,000		
Reproducer Signal Data	R84052		3			4725		6,360	J	A	3	38	114		
Revolver Cal .38	R91107		37		417	77.40	35,463	139	J	A	421	2	842		
Revolver Cal [illegible] Spec	R91344		70			54		20,715	J	A	864	2	1728		
Rifle 5.56 mm	R94977		255			179		398,413	J	A	5,013	8	40,104		
Rifle 7.62 mm	R95114		1			138		1654	J	A	27	10	270		
Rifle Recoilless 90 mm	R96484		3			4812		49,191	J	A	23	35	805		
Rifle Shotgun Survival	R96925		1		5	37.00	203	-	J	A	5	4	20		
Sawband Metal Cutting	S34850		1		1	6,905	7575	-	Q	A	1	900	900	3405-00-294-9591	
Saw Power [illegible]	S37885		1		1	10,299	11,298	-	Q	A	1	1825	1825	3405-00-812-1593	
Scale Graphical Firing	S44969	[illegible]	28		8	462	4,054	9846	2	A	56	3	168	1220-00-999-5493	
Sew kit portable [illegible]	S78139	[illegible]	3		1	162	177	216	2	A	3	20	60	1040-00-157-6974	
[illegible]	T00474	[illegible]	2			35,905		63,767	Q	A	4	410	1640	1240-00-854-4144	
Shop Equip [illegible]	T10138	[illegible]	15			10,879		83,115	H	A	17	8980	152,660	4940-00-155-4619	
Shop Equip [illegible]	T10275		9		6	53,921	354,908	95,763	H	A	10	16,075	160,750	4940-00-159-5847	
Shop Equip [illegible] Repair [illegible]	T10429		1			165,000		146,620	J	A	2	6,484	12,968	4940-00-0[illegible] 3218	
Shop Equip [illegible]	T10600		1			12,128		1952	3	A	2	465	920	49[illegible]-00-93[illegible]-7364	
" " " "	T10659		1			2895		2571	J	A	2	103	206	49[illegible]-00-107-8565	
Shop Equip [illegible]	T13152		2		2	47,560	104,347	-	H	A	8	24,500	[illegible]	4940-00-164-2719	
Shop Equip [illegible]	T15544		12			286		1635	3	A	68	80	5,440	4931-00-947-8343	
Shop Equip [illegible] Shop	T15641		2		2	13,278	29,152		L	A	2	42250	154,500	5470-00-754-0737	
			[illegible]	[illegible]			[illegible]	[illegible]			[illegible]	[illegible]	4,124,002		

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(1)

			Requisition		Required	Unit Cost	Acquisition Cost	Reservations	ABA	LOC	NO OF ITEMS	WT/ EACH	TOT WGT		
Shop Equip Wreck Shop	T15644		1			18,161	-	8064	L	A	1	3660	3660	3470-00-	754-0708
" " " "	T15647		1		1	262,945	288,457	-	L	A	1	61,305	61,305	3470-00-	548-7392
Shop Set Armament Expl Ord Disp	T23769		13		13	13,442	194,696	-	G	A	13	6509	84,617	1385-00-	378-4354
Shop Equip Artly Maint	T24523		1			3,226		1432	J	A	1	3289	3289	4933-00-	754-0704
Shop Equip Auto Maint & Repair	T24660		1			30,581		13,578	L	A	1	14	14	4910-00-	754-0705
Shop Set Arm Outward Maint Air	T25961		4		1	43,703	47,942	77,617	C	A	5	7,400	37,000	4933-00-	122-6771
" " " " " "	T25981		4		1	44,000	43,880	71,040	C	A	5	6600	33000	4931-00-	122-7088
Shop Equip Fuel & Elec Sys Engine	T30414		4		9	4,821	47,598	8562	L	A	13	4780	62,140	4910-00-	754-0714
Shop Set Fuel & Elec Sys	T30551		5			6811		18,145	L	A	6	3160	18,960	4910-00-	390-7774
Shop Set Guided Missile	T30962		1			19,347		1,594	G	A	1	4157	4157	4935-00-	072-2079
Shop Set Spare Parts Storage	T36305		4		36	4152	15,495	8,184	2	A	52	2674	139,048	4940-00-	322-6316
" " " " "	T36442	↑	3		22	1,195	28,880	6898	2	A	35	2202	77,070	4940-00	322-6017
Tool Kit Electr Repairman	T38004	Carry	2		2	4,046	2,295	6502	2	A	16	112	1792	5180-00	479-5913
Shotgun 12 ga Riot Type	T39223	|	24		353	82	31,254	73	J	A	355	8	2840	1005-00-	921-5483
Tool Kit Hand Vehicle Maint	T43038	|	26		70	56	4,300	-	2	A	70	55	3850	5180-00-	231-7687
" " " " "	T43129	|	3		3	108	355	-	2	A	3	85	255	5180-00-	179-3575
" " " " "	T43159	↓	3		3	414	1,362	-	2	A	3	125	375	5180-00-	192-9660
Sight Bore Optical	T45593		1			486		4,079	2	A	5	8	40	1240-00-	52-3512
Sight Sys Anti-oscillation	T45627		7			4000		99,466	D	B	56	48	2,688	6650-00-	179-8817
Sight Unit	T46004		3		39	276	11,808		2	B	39	7	273	1240-00-	300-7981
Tool Kit Radar Maint	T49714		2			995		2,651	2	A	6	200	1200	5180-00	484-3664
" " " "	T49782		1			885		759	2	A	6	100	600	5180-00-	484-3666
Tool Kit Wheel Vehicle Maint	T60023		5		13	1,295	18,468	34,049	2	A	67	150	10,050	5180-00-	179-3574
" " " " "	T64790		4		17	554	10,332	-	2	A	17	150	2550	4780-00-	937-7260
Smoke Gen Subsys Helicopter	T81368		1		2	7856	12,236		J	D	2	557	1,114	1010-00-	876-8133
Spray Gun Paint	U09967		1		1	39	43		2	A	1	2	2	4940-00-	261-8415
Spray Outfit Paint	U10104		2		6	95	625	42	2	A	7	20	140	4940-00-	857-2270
			131	67 65			664,572 TA 127,958 SF 792,530	302,587 PA 57,169 SF			282		[illegible]		

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359,756

(U)

			Requisitions		Required	Unit cost	Acquisition cost	Renovation	ACC	LOC	NO OF ITEMS	WT/EACH	TOT WGT			
Spray Outfit Paint	U10241	Sur Ft	1			$433		$384	2	A	2	110	220	4940.00	-255-8682	
Submachine Gun Cal .45	U56346		11			6018		2557	J	B	96	8	768			
Table Top Auto Maint	V04232		1		1	213	$234	-	2	A	1	385	385	4910.00	-300-0097	
Telescope, straight	V35477		2			539		2872	J	A	12	4	48			
Test & Hand Equip Atomic Wpn	V59587	[illegible]	1		1	7,126	2817	-	G	A	1	365	365	1190.00	-506-1265	
Test Set Auto Aircraft	V63624		3			6,334		16,874	U	A	6	54	324	4933.00	-421-4071	
Test Set Arm [illegible]	V63830		3			1,020		1359	C	A	3	118	354			
" " " "	V63846		3			6,930		9231	S	A	3	104	312			
" " " "	V63881		2			26,786		23,786	J	A	2	92	184			
Test Set [illegible] Auto Alarm	V70559		4			2,803		3,202	Y	A	4	29	116	6665.00	-854-4147	
Test Set Computer Logic Unit	V71450		2			12,150		10,789	J	A	2	160	320			
Test Set Diesel Injector	V73742		3		3	922	3034	-	2	A	3	24	72			
Test Set Elec Wpns Systems	V74364		3			14,061		21,393	S	A	3	150	450	4933.00	-078-2404	
Test Set Electrical Circuit Plug Box	V76731		3			252		1008	3	A	3	9	27	4933.00	-350-9430	
" " " "	V77013		12		7	2,380	18,276	13,737	V	A	20	62	1,240	4931.00	-134-5770	
Test Set Fire Control Subsys	V77274		3			18,000		23976	S	A	3	107	321	4931.00	-121-8707	
Test Set [illegible]	V81373		2			7,828		6951	S	A	2	58	116	4933.00	-011-8751	
Test Set Radar	V84014		1			5,891		10,640	U	A	4	120	480	4931.00	-879-0905	
" " "	V86675		1			65,000		115,440	V	A	4	68	273	4931.00	-866-6260	
Test Stand Combination	V99858		3			6,466		8613	S	A	3	596	1,788	4933.00	-050-8404	
Test Stand Ignition Magneto	W00358		1		1	2,453	2691	-	U	A	1	400	400	4910.00	-262-6631	
Tool Kit Body Mech	W32182	[illegible]	1			127		57	2	A	1	140	140	5180.00	-357-[illegible]	
Tool Kit Auto Fuel & Elec Sys Repr	W32456		10			108		525	3	A	12	65	780	5180.00	-754-0655	
Shop Equip Auto Maint & Repr	W32593		24			1,728		50,312	L	A	24	1110	36,640	[illegible]	-754-0654	
" " " " "	W32730		20		11	6,952	83,810	22,280	H	A	20	3,369	67,380	4910.00	-754-0650	
" " " "	W32867		30			1,159		33,963	3	A	66	375	24,750	4910.00	-754-06[illegible]	
Tool Kit Calibration Trailer	W3[illegible]		1			101		179	3	A	1	76	76	5180.00	-670-2133	
			141	131 50			113,374 PA 3,364 [illegible]	347,664 PA 36,144 [illegible] 383,768			303		138,328			

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			Requisitions		Required	Unit Cost	Acquisition Cost	Remarks	ABA	LOC	NO OF ITEMS	WT/ EACH	TOT WGT			
Tool Kit Elect Fire Control Sys	W37799		1			3392		2483	J	A	1	2703	2703	4935·00	322-6014	
Tool Kit Elect Maint	W37913		1			1,145		1017	2	A	2	350	700	5180·00	375-0714	
" " " "	W37924		1			251		1114	2	A	10	270	2700	5180·00	375-0723	
Tool Kit Elect Repairman	W37936		15		80	263	23,081	1605	2	A	128	85	10,880	5180·00	532-9112	
Tool Kit Fire Control Mech	W38884		1			130		58	2	A	1	67	67	5180·00	322-6013	
Tool Kit Hull Mech	W40128		1		2	565	1240	-	2	A	2	150	300	5180·00	022-1649	
" " " "	W40265		7		7	2466	18,936	-	G	A	7	528	3696	5180·00	724-9099	
" " " "	W40402		7		35	287	11,019	-	2	A	35	29	1015	5180·00	724-9099	
" " " "	W40813		7		9	1,355	10,405	-	2	A	7	36	252	5180·00	724-9112	
" " " "	W41672		1		2	653	1,430	-	2	A	2	85	190	5180·00	077-1616	
" " " "	W42594		1		1	348	382	551	2	A	6	54	324	5180·00	923-9077	
" " " " Maint	W42946		1		4	382	4676	-	G	A	4	75	300	5180·00	782-1314	
" " " " "	W42955		1		1	1792	5387	-	G	A	1	150	150	5180·00	782-1313	
" " " " "	W42958		1			530		3295	2	A	14	204	2856	5180·00	778-8707	
Tool Kit Machinists	W44512		1			138		61	3	A	1	52	52	5280·00	411-1950	
Tool Kit Master Mech	W45023		1		4	310	1360	-	2	A	4	125	500	5180·00	709-6225	
Tool Kit Radar Antenna Maint	W49464		1			719		639	2	A	2	310	620	5180·00	375-0717	
Tool Kit Small Arms	W51499		1			3003		1333	J	A	1	2997	2997	4933·00	754-0664	
" " " Repairman	W51810		6			166		863	2	A	9	22	198	5180·00	357-7729	
Tool Kit Turret Mech	W52801		7			145		579	2	A	9	96	864	5180·00	685-0139	
Tool Set Asst Arm Repairman	W57038		14			707		32,915	2	A	73	430	31,390	5180·00	782-9816	
" " " "	W59121		6			641		2,969	2	A	28	167	4676	5180·00	294-8242	
Tool Set Diesel & Weld Syl Maint	W60869		3			239		318	2	A	3	26	78	5180·00	375-0166	
Tool Set Radiographic	W62672		7			1455		10,914	Z	A	7	42	294	1385·01	022-3598	
Tool Set Veh Full Tracked	W65787		12		39	4026	346,158	36,067	H	A	48	2115	101,520	4940·00	754-0793	
Tool Set Welding & Cutting	W67893		1			542		263	2	A	1	1300	1300	3470·00	264-6206	
" " " "	W67980		1		2	1,236	112	-	L	A	12	1521	3042	3470·00	264-6205	
			167	31 76							401		173,669			

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SAMRI Form 87, 1 FEB 74 **GENERAL PURPOSE FORM** (COLUMNAR) (TO BE USED ONLY AS A WORKSHEET NOT TO BE OVERPRINTED)

			Requisitions		Requirement	Unit Cost	Requisition Cost	Reservations	Type funds 98.1	Standard LEE	No. of ITEMS	WT/EACH	TOT WT.			
Trucks Motor Veh.	W69528		19		144	483	63,661	716	2	B	148	100	14,800	4910-00-	735-6056	
Truck Lift Wheel	X59248		10		10	416	4564	-	2	A	10	354	3,540	4910-00-	554-8983	
Welding Mach Arc	Y46234		2		1	2928	3,212	1300	Q	A	2	900	1800			
" " "	Y47707		2			1298		1153	Q	A	2	2300	4600			
Welding Set Arc	Y47981		1			3453		1089	Q	A	1	1380	1380			
Welding Shop Tractor Mounted	Y48323		5 39	10 29		6631	323398 356930 7726	17665 2130791 91675 20903	Q	A	6	3215	19,290 45,[illegible]	3431-00-	935-7821	
			2201 886	PA SF	8723						169 Total 38,770	Total	5,254,761 lbs.			
		Total	3087 Requisitions				$ 54,926,099	PA fund								
			= 772 hours =		7380 (90 days)		525,496	Stock fund items (2)					2,925 Tons			
		Total Cost	$ 8,089	includes Shipping/handling			$ 54,941,595	Total								

Reservation total
PA funds $ 5,213,500
Stock funds 282,081
$ 5,495,581

~~Inflation 7% for 81 figures = $ 8655~~

APPENDIX 2

US ARMY MISSILE COMMAND

Basis for Evaluation.

1. 1.4813 inflation index to project 1978 unit prices to 1981 dollars. Source: Comptroller U.S. Army Missile Command. Index reflects inflationary trends for missile related equipment.

2. [redacted]. Cost elements considered:

a. Shipping

b. Storage

c. Inventory & Handling

d. Reissue

e. Maintenance/Refurbish

f. Scrap

Cost factors employed in Part A. to cover these elements are as follows:

a. .45 x unit inflated price - mechanical items

b. .45 x unit inflated price - electrical items

c. .52 x unit inflated price - elect/mech items

d. .60 x unit inflated price - electronic items

3. [redacted]. Cost elements considered:

a. Procurement cost

b. Small quantity requirements

c. Procurement lead time to FY 82

d. Shipping

e. Storage

f. Inventory & Handling

g. Many items are on missile systems which are in last stages of life cycle, e.g. HERCULES, REDEYE, LCSS, DRAGON,LANCE. Obtaining sources in order to procure some of these items will be costly and time consuming thus impacting cost.

Cost factors employed in Part B to cover these elements are as follows:

a. 1.45 x unit inflated price - mechanical items

b. 1.45 x unit inflated price - electrical items

c. 1.52 x unit inflated price - elec/mech items

d. 1.60 x unit inflated price - elecrronic items

4. This cost estimate for the 146 MICOM items in question is based on all actions being completed by first quarter FY 82. Any delay beyond this point would necessitate a complete revision to the costs definitized in the inclosed spread sheets.

5. It was noted that in some cases no allowance was made for the assumption that all excess items could be refurbished and all reissued to meet deficiency requirements. If some of these items have to be scrapped this would impact the procurement estimate. It appears that 32 items could fall into this category. After some deliberation, it was decided that the grand total of $216,981,000.00 is sufficient to cover this contingency.

US ARMY MISSILE COMMAND

COST ANALYSIS WORKSHEET

ITEM	LIN	MISSILE SYSTEM	$ UNIT COST 1978	$ UNIT INFLATION INDICE 1.4611	FY QTY $	TYPE ITEM	OVER-AGE	UNDER ALLOC.	DISPOSITION PLAN A QTY.	ITEM	MAT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	DISPOSITION PLAN B QTY.	ITEM	MAT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	$ PROJ. TOTAL A + B
Acct Kit M656 Truck	A03198	Perah	1,727	2,558		Mech	4	3	4		.45	1,151	4,616						4,616
Acct Kit M757 Truck	A03204	Perah	1,480	2,204		Mech	12	0	12		.45	993	11,903						11,903
Adap Kit Sim. Asst	A16277	Perah	4,511	6,682		Mech	4	0	4		.45	3,007	12,027						12,027
GT Air Def. Sys.	A26868	AN TSQ-73	3,180,180	3,241,364		Elec/Mech	3	0	3		.52	1,685,509	5,056,527						5,056,527
ID Trans Align Set	A35018		971	1,430		Elect	1	0	1		.60	863	863						863
Launcher Align Set	A35027	Chap	5,330	7,907		Mech	3	3	3		.45	3,556	10,674						10,674
Battery Charger	A55304	Lance	6,257	9,268		Elect	0	2						2	1.60	14,830	29,660		29,660
GM Hoisting Beam	B52053	Hore	3,752	5,557		Mech	1	1	1		.45	3,500	2,500						2,500
GM Hoisting Beam	B52090	I-Hawk	640	948		Mech	18	1	18		.45	427	7,679						7,679
GM Hoisting Beam	B52190	Hore	1,570	2,326		Mech	1	0	1		.45	1,047	1,047						1,047
GM Hoisting Beam	B52327	Hore	369	547		Mech	2	1	2		.45	246	492						492
GM Hoisting Beam	B52464	Hawk	1,150	1,703		Mech	7	30	7		.45	767	5,369	32	1.45	2,470	79,810		84,328
GM Hoisting Beam	B52601	Hore	752	1,114		Mech	1	0	1		.45	501	501						501
GM Hoisting Beam	B52738	Hore	710	1,052		Mech	1	0	1		.45	473	473						473
Cable Assy AN GSA-113	C60385	Perah	5,995	8,880		Elec	4	0	4		.48	3,996	15,984						15,984
Cable Assy AN GSA-130	C60442	I-Hawk	101,376	150,168		Elec	0	12						12	1.45	217,743	2,612,923		2,612,923
PWR Dist. Set	C61389	Perah	4,500	6,666		Elect	0	24						24	1.60	10,665	255,960		255,960
Calibration Set AN GSM-256	C72506		63,860	94,596		Elect	2	2	2		.60	56,758	170,272						170,272
Battery Charger	C99721	Sting	4,811	7,127		Elect	20	0	20		.60	6,276	65,518						65,518
Battery Charger	D99760	Tow	10,791	15,985		Elect	11	22	11		.60	9,591	105,499	21	1.60	25,576	537,996		643,536
Trailer 2T-2-W	E02533	Hawk	13,669	20,248		Mech	0	63						63	1.45	29,350	1,820,285		1,820,285
Calibrator Set A46B.	E54320	Chap	16,900	25,034		Mech	0	2						2	1.45	36,290	72,569		72,569
Control Surf. GM, Train.	E97220	Lance	3,788	5,600		Mech	12	0	12		.45	2,520	30,236						30,236
Control Surf. GM, Train.	E97222	Lance	6,720	9,954		Mech	12	0	12		.45	4,475	53,703						53,703
Control Surf. Kit GM	E97250	Hore	2,386	5,016		Mech	4	0	4		.45	2,257	9,028						9,028
Data Comp. Coordin.	F77675	AN GSA-77	70,000	103,691		Elect	10	0	10		.60	62,214	1,119,862						1,119,862
Prism Set	G07463	Perah	8,240	12,206		Mech	0	4						4	1.45	17,690	70,796		70,796
Display Set Target Alert	G32933	Fear	8,622	12,772		Elect	257	67	257		.60	7,663	1,969,607						1,969,607
Erector-Launcher	H14752	Perah	129,000	191,060		Mech	12	0	12		.45	85,909	1,031,873						1,031,873
Harness	H17660	Sting	263	390		Mech	704	0	704		.45	175	137,4444						137,444
GM H/d Sys Filler	H63257	Hore	350	518		Mech	0	1						1	1.45	752	752		752
GM Main Assy. Train	J95487	Lance	154,000	228,120		Mech	12	0	12		.45	129,654	1,555,848						1,555,848
GM Inter-Aerial Train	J95532	Chap	1,301	1,927		Mech	634	67	634		.45	867	541,150						541,150
GM Inter-Aerial Carrier TM	J95533	Chap	329,538	488,144		Mech	0	0	0		.45	219,665	1,757,321						1,757,321
GM S.P Ofc Transport	J95545	Perah	52,002	77,030		Mech	1	0	1		.45	34,664	34,664						34,664
GM Training	J95733	Chap	2,001	2,964		Mech	156	0	156		.45	1,334	208,073						208,073
GM Training	J95855	Hawk	34,994	51,837		Mech	48	0	48		.45	23,326	1,119,671						1,119,671
GM Training	J95856	I-Hawk	16,802	24,889		Mech	24	0	24		.45	11,300	268,800						268,800
Interdpoter Set	J98581	Sting	5,963	8,831		Elect	2000	0	2000		.60	5,300	11,021,725						11,021,725

US ARMY MISSILE COMMAND

COST ANALYSIS WORKSHEET

ITEM	LIN	MISSILE SYSTEM	$ UNIT COST 1978	$ INFLATION INDICE 1.4813	FY 81 $	TYPE ITEM	OVER-AGE	UNDER ALLOC	DISPOSITION PLAN A QTY. ITEM	MULT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	DISPOSITION PLAN B QTY. ITEM	MULT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	$ PROJ. TOTAL A + B
Hoisting Unit	H39618	Hawk	7,519	11,136		Mech	1	1	1	.45	5,011	5,011					5,011
Boom Instal. Kit	H87729	Hawk	5,670	8,411		Mech	6	0	6	.45	3,785	22,709					22,709
Leveling Jack Set	L13964	Chap	1,040	1,541		Mech	3	2	3	.45	693	2,080					2,080
Jack Set, Copter	L13990	Chap	9,961	14,755		Mech	8	0	8	.45	6,640	53,119					53,119
A/C HET Launcher	L45016	2.75	800	1,185		Mech	360	0	360	.45	533	138,645					138,645
A/C HET Launcher	L45053	2.75	1,410	2,088		Mech	29	154	29	.45	946	27,257	136	1.45	1,027	361,678	468,735
Launcher Tube	L45740	Tow	41,450	61,400		Mech	996	13	996	.45	27,630	10,467,449					10,467,449
Launch. Control Gr. Trailer	L46298	Perah	83,830	124,177		Mech	0	0					8	1.45	180,087	1,440,456	1,440,456
Monitor. Set AN/TSQ-71	M56057	Drag	10,270	15,213		Elect	396	15	396	.60	9,127	3,614,597					3,614,597
Monitor Set Train.	M56092	Chap	31,706	46,966		Elect	6	0	6	.60	28,179	169,078					169,078
MTS Kit PWR Station	M78378	Perah	2,865	4,244		Elect/Mech	4	3	4	.53	2,207	8,828					8,828
MTS Kit CH Equip.	M78421	Perah	10,663	15,795		Elect/Mech	4	0	4	.53	8,213	32,854					32,854
Storage Pallet	M81684	Hawk	9,740	14,460		Mech	0	10					10	1.45	20,030	290,300	290,363
PWR Dist. Panel	M60715	I-Hawk	200	296		Elect	229	0	229	.60	178	40,706					40,706
IR Trans. Pedestal	M76466	Drag	1,030	1,530		Elect	10	6	10	.60	923	17,565					17,565
Com. Post	P05890	I-Hawk	1,491,473	2,209,319		Elect/Mech	21	0	21	.53	1,140,846	24,125,762					24,125,762
PWR Conv.	P26748	Hawk	7,561	11,170		Elect	2	0	2	.60	6,702	13,405					13,405
PWR Dist. Set	P26871	Perah	16,128	15,002		Elect	4	0	4	.60	9,001	36,006					36,006
PWR Dist. Set	P27088	Perah	15,279	22,633		Elect	3	0	3	.60	13,580	27,159					27,159
PWR Dist. Set	P27117	Perah	63,730	94,403		Elect	24	0	24	.60	56,642	1,359,407					1,359,407
PWR Sta. Transport.	P28939	Perah	532,000	788,051		Elect/Mech	4	0	4	.53	400,786	1,630,147					1,639,147
PEM Sta. Trail MTD	P28176	Perah	247,000	365,807		Elect/Mech	0	1					1	1.53	601,170	601,170	601,170
Trans. Shop	P47075	Perah	50,440	74,728		Mech	1	0	1	.45	33,627	33,627					33,627
Prog. Test Sta. Trans.	P68854	Perah	491,785	728,481		Elect	4	0	4	.60	431,089	1,740,355					1,740,355
Interr. Set	P69032	Sting	9,682	14,342		Elect	368	0	368	.60	8,605	2,366,185					2,366,185
Radar Set	Q16030	Hawk	1,187,686	1,759,319		Elect	0	4					4	1.60	2,814,911	11,259,643	11,259,643
Radar Set	Q16040	I-Hawk	1,302,231	1,928,995		Elect	3	0	3	.60	1,157,397	3,472,190					3,472,190
Radar Set	Q16044	I-Hawk	712,316	1,056,042		Elect	21	0	21	.60	633,625	13,306,135					13,306,135
Radiac Set	Q19681		464	687		Elect	34	30	34	.60	412	14,021	5	1.60	1,099	5,496	19,517
Coolant Recharg. Unit	R61270	Sting	13,563	20,090		Mech	10	0	10	.45	9,040	90,040					90,040
Elect Shelter	S96381	Lance	14,826	21,965		Mech	0	1					2	1.45	31,414	62,829	62,829
Repair Shelter	T00287	Perah	48,708	72,151		Mech	0	4					4	1.45	104,619	418,476	418,476
Repair Shelter	T00474	Perah	42,765	63,348		Mech	4	0	4	.45	28,506	114,026					114,026
Launch Trainer	T00466	Sting	2,269	3,361		Mech	836	0	836	.45	1,512	1,264,434					1,264,434
Training Set	T04834	Sting	23,913	35,422		Elec/Mech	172	0	172	.53	18,619	3,168,172					3,168,172
Shop Equip	T10129	Shillel	55,000	81,471		Mech	0	3					3	1.45	118,133	354,401	354,401
Shop Equip	T11236	Hawk	1,042	1,543		Mech	0	1					1	1.45	2,238	2,238	2,238
Shop Equip	T11371	Hawk	219,834	325,640		Elec/Mech	0	1					1	1.53	494,972	494,972	494,972
Shop Equip	T11508	Hawk	278,338	412,302		Elec/Mech	1	2	1	.53	214,397	214,397	1	1.53	627,000	627,000	842,397
Field Maint Shop Eq.	T11919	Hawk	560	829		Mech	1	1	1	.45	373	373					373

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US ARMY MISSILE COMMAND

COST ANALYSIS WORKSHEET

ITEM	LIN	MISSILE SYSTEM	$ UNIT COST 19"8	$ INFLATION INDICE 1.4813	FY 81	TYPE ITEM	OVER-AGE	ORDER ALLOC	DISPOSITION PLAN A NO. ITEM	MULT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	DISPOSITION PLAN B NO. ITEM	MULT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	$ PROJ. TOTAL A + B
Shop Eq.	T12056	Hera	62,459	92,530		Mech	1	1	1	.45	41,634	41,634					41,634
Shop Eq.	T12467	Hera	30,518	45,206		Mech	1	1	1	.45	20,342	20,342					20,342
Elec Shop Eq.	T12878	Perah	74,580	110,475		Elect	0	1					1	1.45	160,189	160,189	160,189
Mess Shop Eq.	T13015	Perah	75,249	111,466		Mech	0	1					1	1.45	161,626	161,626	161,626
Org. Maint Shop Eq.	T13280	Hawk	203,961	302,127		Elec/Mech	0	1					1	1.52	459,233	459,233	459,233
Shop Equip	T14101	I-Hawk	590,991	875,434		Elect	0	7					7	1.60	1,400,695	9,804,871	9,804,871
Shop Equip	T14102	I-Hawk	298,642	442,378		Elect	0	21					21	1.60	707,805	14,863,914	14,863,914
Shop Equip	T14103	I-Hawk	553,598	820,033		Elect	0	7					7	1.60	1,312,052	9,184,368	9,184,368
Shop Equip	T14109	I-Hawk	167,654	159,467		Elect	0	12					12	1.60	255,148	3,061,783	3,061,783
Shop Equip	T14111	Hawk	409,839	607,094		Elect	0	2					2	1.60	971,351	1,942,702	1,942,702
Shop Equip	T14248	Hawk	608,526	901,409		Elect	0	2					2	1.60	1,442,255	2,884,510	2,884,510
Shop Equip	T14441	Chap	645,265	955,831		Elect	1	2	2	.60	573,498	1,720,495					1,720,495
Shop Equip	T14464	I-Hawk	411,375	609,221		Elect	0	7					7	1.60	974,754	6,823,282	6,823,282
Shop Equip	T14485	I-Hawk	93,477	138,467		Elect	0	3					3	1.60	221,547	664,643	664,643
Cent. Spt. Set	T14493	Tow	60,366	89,426		Elect	1	18	1	.60	53,652	53,652	17	1.60	143,072	2,432,224	2,432,224
Shop Equip	T14516	Chap	2,001	2,964		Mech	3	2	3	.45	1,333	4,001					4,001
Shop Set	T30145	Hera	2,507	3,713		Mech	1	0	1	.45	1,671	1,671					1,671
Simulator-Signal	T34020	Hera	4,748	7,033		Elec	4	0	4	.45	3,164	12,659					12,659
Sling	T75122	Perah	1,170	1,733		Mech	5	0	5	.45	779	3,899					3,899
Sling	T76008	Lance	3,098	4,589		Mech	1	1	1	.45	2,059	2,059					2,059
Sling	T78031	Perah	395	585		Mech	5	0	5	.45	263	1,316					1,316
Sling	T80533	Hera	95	140		Mech	1	0	1	.45	63	63					63
Sling Set	T83739	Perah	9,047	13,400		Mech	7	0	7	.45	6,043	42,307					42,307
Equip-Test Sta.	U59258	LCSS	231,338	342,680		Elect	0	1									
Equip-Test Sta.	U59355	Skill	171,567	254,142		Elect	1	2	1	.60	152,485	158,485	3	1.60	548,289	1,644,868	1,644,868
Equip-Test Sta.	U59390	I-Hawk	230,656	341,670		Elect	0	16					1	1.60	406,627	406,627	559,112
Equip-Test Sta.	U59407	Tow	177,844	263,440		Elect	0	2					16	1.60	146,673	8,746,770	8,746,770
Equip-Test Sta.	U59424	Dragon	60,000	88,878		Elect	0	1					2	1.60	421,504	843,009	843,009
Equip-Test Sta.	U59433	Lance	86,085	142,330		Elect	0	2					3	1.60	142,204	426,614	426,614
Test Equip	V60490	Hera	91,229	135,137		Elect	1	1	1	.60	81,082	81,082	2	1.60	227,729	455,458	455,458
Test Equip	V60764	Hera	175,897	260,556		Elect	1	1	1	.60	156,333	156,333					81,082
Test Equip	V62901	Her	171,379	253,863		Elect	1	1	1	.60	152,318	152,318					156,333
Test Equip	V61038	Hera	65,603	97,177		Elect	1	0	1	.60	58,306	58,306					152,318
Test Equip	V61175	Hera	518,375	767,868		Elect	1	1	1	.60	460,721	460,721					58,306
Test Equip	V61243	Hera	5,120	7,584		Elect	1	1	1	.60	4,550	4,550					460,721
Test Equip	V61252	Hera	75,000	111,097		Elect	0	1									4,550
Test Kit	V62100	SP-Hawk	5,000	7,406		Elect	0	3					1	1.60	177,756	177,756	177,756
Test Set	V71945		12,644	18,729		Elect	1	0	1	.60	11,237	11,237	3	1.60	11,950	33,708	33,708
Test Set	V71934	Perah	17,543	25,984		Elect	4	0	4	.60	15,590	62,363					11,237
Test Set	V73991	Hera	51,529	76,390		Elect	1	0	1	.60	45,797	45,797					62,363
																	45,797

US ARMY MISSILE COMMAND

COST ANALYSIS WORKSHEET

ITEM	LIN	MISSILE SYSTEM	$ UNIT COST 1976	$ INFLATION INDICE 1.4011	FY 81	TYPE ITEM	OVER-AGE	UNDER ALLOC	DISPOSITION PLAN A NO. ITEM	MULT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	DISPOSITION PLAN B NO. ITEM	MULT.	$ UNIT TOTAL	$ LINE ITEM TOTAL	$ PROJ. TOTAL A + B
Test Set	V76416	Perah	63,402	92,436		Elect	0	4					4	1.60	147,887	591,550	591,550
Test Set	V76870	Hero	9,000	13,331		Elect	0	1					1	1.60	21,330	21,330	21,330
Test Set	V78911		66,975	99,061		Elect	3	0	3	.60	59,437	178,311					178,311
Test Set	V79132	Tow	242,283	358,893		Elect	9	3	9	.60	215,336	1,938,026					1,938,026
Test Set	V79438	Dragon	45,851	67,919		Elect	5	21	5	.60	40,571	202,757	16	1.60	166,670	1,730,726	1,942,483
Test Set	V79469	Chap	32,388	47,964		Elect	9	6	9	.60	28,776	259,008					259,008
Test Set	V79473	Lance	367,800	796,692		Elect	0	2					2	1.60	634,707	1,269,414	1,269,414
Test Set	V79499	Shill	19,132	28,340		Elect	5	6	5	.60	17,004	85,020	1	1.60	45,344	45,344	130,364
Test Set	V83998	FAAR	286,652	424,617		Elect	2	2	2	.60	254,770	509,541					509,541
Test Set	V84082	FAAR	34,613	51,279		Elect	11	2	11	.60	30,763	338,386					338,386
Test Set	V85498	Hero	8,992	13,318		Elect	1	0	1	.60	7,991	7,991					7,991
Test Stand Hyd Sys	V99936	Hero	9,000	13,331		Mech	2	0	2	.45	6,000	12,000					12,000
Test Station	W00860		1,686,813	2,497,491		Elect	0	2					2	1.60	2,998,988	7,991,971	7,991,971
Tie Down Kit	W19812	Perah	482	715		Mech	0	0	0	.45	321	2,570					2,570
TR Tracker	W60715	Dragon	18,513	15,572		Elect	91	213	91	.60	9,343	850,260	142	1.60	24,918	3,537,956	4,388,279
Launch Ctl. Trainer	W00233	Dragon	4,798	7,080		Mech	149	24	149	.45	3,186	602,206					602,206
Training Set	W04486	Perah	$99,115	734,153		Elect/Mech	5	0	5	.53	392,159	1,960,795					1,960,795
Training Set	W04518	Red eye	74,700	110,653		Elect/Mech	56	12	56	.53	57,539	3,222,218					3,222,218
Training Set	WC4586	Tow	24,700	36,600		Elect/Mech	64	6	64	.53	19,031	1,218,046					1,218,046
Transmitting Set	X18673	Dragon	9,563	14,165		Elect	10	5	10	.60	8,500	152,989					152,989
GM Truck	X45317	Tow	6,341	9,392		Mech	36	0	36	.45	4,226	152,165					152,165
GM Body Sect Truck	X45480	Hero	1,844	2,741		Mech	1	1	1	.45	1,242	1,242					1,242
GM Equip-Truck	X45549	Tow	18,740	19,900		Mech	36	0	36	.45	7,150	257,728					257,728
GM Hose Sect Truck	X45636	Hero	467	691		Mech	2	1	2	.45	311	622					622
GM Water-Truck	X45900	Hero	1,804	2,672		Mech	0	1					1	1.45	3,874	3,874	3,874
Voltmeter	V15674		1,931	2,860		Elect	0	7					7	1.60	4,576	32,036	32,036
Washer Shield	V41870	Hero	7,210	10,680		Mech	0	24					24	1.45	15,486	371,670	371,670
																MISSION GRAND TOTAL	316,981,068

C-2-6

ANNEX C APPENDIX 3

DEPARTMENT OF THE ARMY Mr. Morton/sw/AV 693-3537
HQ, US ARMY TROOP SUPPORT & AVIATION MATERIEL READINESS COMMAND
4300 GOODFELLOW BOULEVARD, ST. LOUIS, MO 63120

DRSTS-SPME(1) 5 SEP 1980

SUBJECT: Nonstandard MTOEs

Commander
US Army Logistics Management Center
ATTN: DRXMC-LO
Ft. Lee, VA 23801

1. Reference:

a. Ltr, DRCPS-C, 20 Jun 80, Subject: Impact on DARCOM of Nonstandard MTOEs.

b. Visit to TSARCOM, 31 Jul to 6 Aug 80 by USALMC Logistics Studies Officer.

2. The following cost data is provided in accordance with Para 3, Reference 1a:

a.	Acquisition Cost	$462.712 mil
b.	Transportation (2d Dest)	.302 mil
c.	Maintenance/Renovation	21.886 mil

Cost data reflects the ~~cost of~~ TSARCOM equipment required to bring FORSCOM MTOEs up to Strength level 1 of TOE Consolidated Change Table 300-68 rather than the cost of nonstandard MTOEs. TSARCOM feels that all other costs requested are standard operating costs and cannot be applied to nonstandard MTOE.

3. TSARCOM considers a MTOE to be nonstandard if mission, capabilities or mobility varies significantly from the TOE. Page 1 and equipment recaps of three nonstandard MTOEs (Incl 1-3) are provided. Cost computations for differences between MTOE and TOE are noted on left hand margins of each MTOE for TSARCOM equipment. Unit prices reflected in SB 700-20, effective 1 Mar 80 are multiplied by the quantity difference to obtain cost variation. The MTOE column reflects costs for items in MTOE but not in TOE and the TOE column reflects costs for items in TOE but not in MTOE. An inflation factor of 1.097 is applied to totals on the last page of each MTOE.

DRSTS-SPME(1) 5 SEP 1980
SUBJECT: Nonstandard MTOEs

4. MTOEs 55-459HFC01, UIC WD4QAA and 55-459HFC04, UIC WCLDAA reflect a negative cost when the items listed in TOE and not in MTOE are included in the cost analysis.

5. MTOE 6-307HFC05, UIC WACJAA reflects a cost of $4,744,946. Of this $4,557,680 is for aircraft, the balance ot $187,265 is the result of adding equipment for aircraft maintenance.

6. Any questions or comments should be addressed to Mrs. Joan A. Ryder or Mr. Joseph O. Morton, AV 693-3537.

FOR THE COMMANDER:

3 Incl
as Withdrawn

LEO J. PIGATY
LTC(P), GS
Director of Materiel Management

ANNEX D

APPENDIX 1

TSARCOM (GROUND)

EQUIPMENT DIFFERENCES BETWEEN TOE AND MTOE

TYPE ORGN	NR RECORDS IDENTIFIED	TOTAL QTY OF ITEMS AUTH BY TOE	TOTAL QTY OF ITEMS AUTH BY MTOE	TOTAL DIFF BETWEEN TOE AND MTOE
01-AVN	189	1,470	1,393	(77)
03-CHEM	4	0	147	147
05-ENG	332	13,492	16,328	2,836
06-ARTY	511	31,162	34,603	3,441
07-INF	543	33,009	28,287	(4,722)
08-MED	123	6,780	4,472	(2,308)
09-ORD	173	605	1,121	516
10-QM	13	237	81	(156)
11-SIG	261	5,409	8,858	3,449
12-AG	39	116	67	(49)
14-FIN	1	13	15	2
17-ARM	302	10,109	12,218	2,109
19-MP	123	558	819	261
20-GEN				
29-COMP	535	11,407	14,418	3,011
30-MI	168	3,524	4,043	519
31-SF	43	218	196	(22)
32-SEC	79	2,250	2,596	346
33-PSY OPS	62	1,572	252	(1,320)
34-CEWI	8	1,586	1,606	20
37-MECH	85	2,792	2,546	(246)
41-CA	4	116	40	(76)
44-ADA	425	14,920	17,227	2,307
45-PI				
52-CORPS	22	556	726	170
54-LOG	6	4	10	6
55-TRANS	147	729	491	(238)
57-ABN	93	1,606	1,254	(352)
67-AIR MBL	3	6	24	18
77-SEP LT INF	6	24	8	(16)

ANNEX D

APPENDIX 2

CERCOM

EQUIPMENT DIFFERENCES BETWEEN TOE AND MTOE

TYPE ORGN	NR RECORDS IDENTIFIED	TOTAL QTY OF ITEMS AUTH BY TOE	TOTAL QTY OF ITEMS AUTH BY MTOE	TOTAL DIFF BETWEEN TOE AND MTOE
01-AVN	672	1,508	1,585	77
03-CHEM	5	6	6	0
05-ENG	543	6,975	8,736	1,761
06-ARTY	1,851	28,609	32,288	3,679
07-INF	2,261	52,496	55,608	3,112
08-MED	225	1,212	1,625	413
09-ORD	694	1,159	1,485	326
10-QM	10	41	36	(5)
11-SIG	978	23,973	22,565	(1,408)
12-AG	53	269	187	(82)
14-FIN	21	70	31	(39)
17-ARM	1,459	27,196	31,304	4,108
19-MP	324	546	920	374
20-GEN	5	1	6	5
29-COMP	1,626	6,285	7,267	982
30-MI	848	4,847	7,595	2,748
31-SF	109	915	624	(291)
32-SEC	490	1,216	1,946	730
33-PSY OPS	103	645	99	(546)
34-CEWI	33	640	690	50
37-MECH	160	834	586	(248)
41-CA	15	122	15	(107)
44-ADA	1,701	8,888	9,238	350
45-PI	12	16	4	(12)
52-CORPS	40	110	117	7
54-LOG	9	10	1	(9)
55-TRANS	636	1,288	1,509	221
57-ABN	286	3,452	4,354	902
67-AIR MBL	7	60	124	64
77-SEP LT INF	21	216	139	(77)

ANNEX D

APPENDIX 3

TACOM

EQUIPMENT DIFFERENCES BETWEEN TOE AND MTOE

TYPE ORGN	NR RECORDS IDENTIFIED	TOTAL QTY OF ITEMS AUTH BY TOE	TOTAL QTY OF ITEMS AUTH BY MTOE	TOTAL DIFF BETWEEN TOE AND MTOE
01-AVN	123	280	349	69
03-CHEM	12	13	15	2
05-ENG	640	4,313	5,561	1,248
06-ARTY	633	4,721	5,455	734
07-INF	638	7,098	7,463	365
08-MED	122	1,278	1,570	292
09-ORD	262	597	310	(287)
10-QM	20	64	42	(22)
11-SIG	196	2,952	3,126	174
12-AG	88	161	111	(50)
14-FIN	1	4	0	(4)
17-ARM	561	4,897	5,761	864
19-MP	86	265	444	179
20-GEN	3	2	1	(1)
29-COMP	711	4,692	5,312	620
30-MI	148	1,271	1,577	306
31-SF	14	38	3	(35)
32-SEC	69	501	575	74
33-PSY OPS	40	283	31	(252)
34-CEWI	3	156	162	6
37-MECH	38	266	220	(46)
41-CA	7	66	10	(56)
44-ADA	554	2,218	1,893	(325)
45-PI				
52-CORPS	19	80	93	13
54-LOG	28	37	11	(26)
55-TRANS	165	988	1,330	342
57-ABN	94	693	951	258
67-AIR MBL	3	0	9	9
77-SEP LT ING	7	56	48	(8)

ANNEX D

APPENDIX 4

MICOM

EQUIPMENT DIFFERENCES BETWEEN TOE AND MTOE

TYPE ORGN	NR RECORDS IDENTIFIED	TOTAL QTY OF ITEMS AUTH BY TOE	TOTAL QTY OF ITEMS AUTH BY MTOE	TOTAL DIFF BETWEEN TOE AND MTOE
01-AVN				
03-CHEM	1	0	1	1
05-ENG	34	150	217	67
06-ARTY	412	332	1,240	908
07-INF	661	1,280	4,288	3,008
08-MED				
09-ORD	130	139	90	(49)
10-QM				
11-SIG				
12-AG				
14-FIN				
17-ARM	368	832	2,064	1,232
19-MP				
20-GEN				
29-COMP	66	71	111	40
30-MI				
31-SF				
32-SEC				
33-PSY OPS				
34-CEWI				
37-MECH	1	0	1	1
41-CA				
44-ADA	580	628	1,990	1,362
45-PI				
52-CORPS				
54-LOG				
55-TRANS	3	0	4	4
57-ABN	2	1	44	43
67-AIR MBL				
77-SEP LT INF	5	0	20	20

ANNEX D

APPENDIX 5

ARRCOM

EQUIPMENT DIFFERENCES BETWEEN TOE AND MTOE

TYPE ORGN	NR RECORDS IDENTIFIED	TOTAL QTY OF ITEMS AUTH BY TOE	TOTAL QTY OF ITEMS AUTH BY MTOE	TOTAL DIFF BETWEEN TOE AND MTOE
01-AVN	150	8,170	8,548	378
03-CHEM	8	83	65	(18)
05-ENG	561	66,428	77,527	11,099
06-ARTY	1,129	97,118	102,191	5,073
07-INF	1,445	182,930	193,008	10,078
08-MED	319	18,205	24,549	6,344
09-ORD	561	5,406	5,611	205
10-QM	15	1,477	1,656	179
11-SIG	232	33,135	34,545	1,410
12-AG	124	11,326	11,024	(302)
14-FIN	50	2,931	3,835	904
17-ARM	1,152	101,992	114,541	12,579
19-MP	347	26,371	20,430	(5,941)
20-GEN	1	3	0	(3)
29-COMP	944	74,281	78,730	4,449
30-MI	174	12,046	15,295	3,249
31-SF	56	8,468	8,755	287
32-SEC	50	4,056	4,842	786
33-PSY OPS	26	1,959	583	(1,376)
34-CEWI	17	3,414	3,739	325
37-MECH	117	5,342	5,221	(121)
41-CA	6	345	66	(279)
44-ADA	841	33,666	33,243	(423)
45-PI	13	21	40	19
52-CORPS	38	2,019	2,257	238
54-LOG	22	2,777	2,553	(224)
55-TRANS	318	18,245	21,662	3,377
57-ABN	116	10,469	12,589	2,120
67-AIR MBL	21	2,009	2,036	27
77-SEP LT INF	8	821	796	(25)

ANNEX E

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ANNEX F

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

AAO	Authorized Acquisition Objective
ABN	Airborne
ADA	Air Defense Artillery
AG	Adjutant General
AIRMBL	Airmobile
ALO	Authorized Level of Organization
AMP	Army Materiel Plan
ARM	Armor
ARRCOM	Armament Materiel Readiness Command
ARTY	Artillery
ASL	Authorized Stockage List
AVN	Aviation
BOIP	Basis of Issue Plan
CA	Civil Affairs
CCT	Consolidated Change Table
CDA	Catalog Data Agency
CERCOM	Communications and Electronics Materiel Readiness Command
CEWI	Combat Electronic Warfare and Intelligence
CHEM	Chemical
COMP	Composite
DA	Department of the Army
DAMPL	DA Master Priority List
DARCOM	US Army Materiel Development and Readiness Command
DESCOM	Depot Systems Command
DLA	Defense Logistics Agency

EARA	Equipment Authorizations Review Activity
EDATE	Effective Date
ENG	Engineer
FIN	Finance
FORSCOM	US Army Forces Command
FRG	Federal Republic of Germany
GEN	General
GSA	General Services Administration
HQDA	Headquarters, Department of the Army
IIQ	Initial Issue Quantity
INF	Infantry
LIN	Line Item Number
LOG	Logistics
LOGSACS	Logistics Structure and Composition System
MACOM	Major Army Command
MACRIT	Manpower Authorization Standards and Criteria
MECH	Mechanized
MED	Medical
MI	Military Intelligence
MICOM	Missile Command
MOBEX	Mobilization Exercise
MOS	Military Occupational Specialty
MP	Military Police
MRC	Materiel Readiness Command
MTOE	Modification Table of Organization and Equipment
NATO	North Atlantic Treaty Organization

NSN	National Stock Number
ODCSLOG	Office of the Deputy Chief of Staff for Logistics
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
OMA	Operations and Maintenance, Army (funding category)
ORD	Ordnance
OSD	Office of the Secretary of Defense
PA	Procurement Appropriation (funding category)
PI	Public Information
PEM	Phased Equipment Modernization
PLL	Prescribed Load List
POMCUS	Prepositioning of Materiel Configured to Unit Sets
PPBS	Planning, Programing and Budgeting System
PSY OPS	Psychological Operations
PURE	POMCUS Unit Residual Equipment
QM	Quartermaster
REFORGER	Return of Forces to Germany
SACS	Structure and Composition System
SB	Supply Bulletin
SEC	Security
SEP LT INF	Separate Light Infantry
SF	Special Forces
SHN	Shorthand Note
SIG	Signal
SRC	Standard Requirements Code
TAADS	The Army Authorization Document System
TACOM	Tank-Automotive Command

TAEDP	Total Army Equipment Distribution System
TOE	Table of Organization and Equipment
TRADOC	US Army Training and Doctrine Command
TRANS	Transportation
TSARCOM	Troop Support and Aviation Materiel Readiness Command
USAMSSA	US Army Management System Support Agency
UIC	Unit Identification Code


DAT
FILM